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The impact of directed credit policy on bank credit to the private sector in Ethiopia: case of government bill purchase directive

Abstract

In April, 2011, National bank of Ethiopia (NBE) has introduced an explicit directive called 27% NBE bill purchase directive that forces private banks to invest 27% of their every new loan disbursements in Governments securities for five years at a very low interest rate, 3%. The major theme of this study was to examine the effect of this directed credit policy on the commercial banks' credit to the private sector. The study used unbalanced panel data of eight years of eight banks for years from 2007 to 2014. The study finds that directed credit policy has negative but insignificant effect on the banks' credit to the private sector. However capital and deposits were found to be significant determinants of private sector credit in Ethiopia. Thus the claim by private commercial banks, IMF and WB does not look strong and factual and hence it was concluded that the bill purchase directive in Ethiopia does not have any significant crowding out effect on the private sector. Thus it would be recommended herewith that emphasis shall be given on capitalizing commercial banks. Moreover commercial banks shall introduce innovative and branchless channels for deposit mobilization for deposits were found to be the most significant determinants of private sector credit in Ethiopia.

Keywords: private credit, commercial banks, Ethiopia, directed credit policy.
JEL Classification: G21.

Introduction

Directed lending or priority sector lending has long been used by developed as well as developing nations as an instrument to channel credit at preferential rates to strategic sectors of the economy. Directed credit programs that give loans on preferential terms and conditions to priority sectors were leading tools of development policy in the 1960s and 1970s. Countries around the world found that directed credit programs had stimulated projects that were capital intensive, that preferential funds were sometimes used for non priority purposes, and that the programs had increased the cost of funds to non-preferential borrowers and severely limited the amount of bank credit to the private sectors.

The realization that most of these programs had created distorted economic incentives among both lenders and borrowers and their proven effect especially on the private sector development led to a reconsideration of their rationale and effectiveness during the 1980s and 1990s.

Consequently, several countries have phased out their directed credit policies. Following the elimination of directed credit programs there has been a sharp increase in the availability of private credit clearly indicating how legal factors were determinants of bank credit to the private sector (Buttari, 1995).

Though many developing countries of the world have deregulated directed credit policies, Ethiopia that follows Agriculture Development Led Industrialization (ADLI) as its overall development strategy has directed credit policy implemented through its state-owned financial institutions. The three state downed financial institutions constituting 80% of banking assets are used by the government as instruments for implementing directed credit polices to government favored and preferred sectors of the economy. Besides the use of state-owned financial institutions for ensuring its directed credit policy, in April, 2011 National bank of Ethiopia (NBE) has introduced an explicit directive called 27% NBE bill purchase directive that forces private banks to invest 27% of their every new loan disbursements in Governments securities for five years at a very low interest rate, 3%, far below from what banks pay as an interest for the deposit (5%).

Commercial banks primarily care about their private returns, while governments seek to maximize social returns, consequently the directed has faced up with mixed views. The government argues that the directive is important to sustain a decade long rapid double digit economic growth and finance massive public projects like Great Ethiopian Renaissance Dam (GERD). However, this directive is confronted by private banks as it assumed to bring formidable challenges on their overall commercial banking activity through negatively affecting their loan portfolio and hence reducing earning thereof. The resources mobilized from private banks through 27% bill purchase directive are channeled to the state-owned development bank, Development Bank of Ethiopia, and private banks feel that they have been deprived of their autonomy to make decisions over the provision of credit. Thus, Development Bank of Ethiopia serves as a lending conduit that extends mobilized funds to the sectors prioritized by the government.

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Besides, multilateral financial institutions like IMF and World Bank have sided in favor of private commercial banks arguing that the directive would lead to credit rationing to private sector and accumulation of debt by public enterprises. IMF and WB argue that the requirement on private banks to purchase NBE bills equivalent to 27% of any new loans would negatively impact on private banks' intermediation activities, creates maturity mismatches as private banks collect savings at two to three-year maturity and even shorter in some cases, but have to freeze these resources for five years at rates lower than cost of funds. According to IMF there is also a risk that as the profitability of private banks reduces on account of less intermediation because of this directive, they could raise noninterest income charges such as fees and commissions to recoup these losses, further impacting negatively on the private sector credit (IMF, 2012; WB, 2013).

However, Ethiopia has set clear vision of being a middle income country in 2025 and the country has registered double-digit economic growth for a serious of years since 2003 and has been successful so far with its directed credit policy. Ethiopia through its directed credit policy may be an addition to other successful countries like Japan and South Korea. Thus why are even IMF and WB against this directed credit policy of Ethiopia while the country is one of the fastest growing economies in the world?

In order to address where there exists crowding out effect on the private sector, this study therefore explicitly focuses on the impact of 27% Bill purchase directive on the banks' credit to the private sector using static panel data econometric analysis from 2007-2014. This study is the first of its kind and would contribute and help either to challenge or support NBE Bill purchase directive based on empirical facts. The rest of the paper is organized as follows. Section 1 presents review of related literature. Section 2 describes the research deigns and methodology. Section 4 deals with results and discussion. Final Section presents the conclusion and policy implications of the findings.

1. Literature review

Directed credit is the practice of extending loans on preferential terms and conditions to certain priority sectors at reasonable rates. In an ideal world in which economic information is complete and readily available, the financial system is passive. Investors fund the projects that yield the highest returns, and neither governments nor financial institutions need to intervene to improve the allocation of credit. In the real world, however, information is highly imperfect and costly to acquire, and the allocation of credit suffers from the unequal distribution of information.

Under these conditions, credit may not be necessarily allocated to its best use (Calomiris et al., 1992). Informational asymmetries give rise to the possibility that credit may be given to unviable sectors, that it may be awarded to irresponsible entities, that some players will attempt to receive, without cost, and that incentives arising from the credit program itself may conflict with one another or with program goals. These problems may be further compounded by uncertainty about project returns and by dynamic externalities. The potential for difficulties of this kind justifies intervention by governments and financial institutions in the allocation of credit (Cho and Kim, 1995).

Thus government's role in directing and allocating credit can be justified on two grounds. First, directed credit programs can be a preferred or superior industrial policy instrument for increasing benefits across the economy. Second, the government has a comparative advantage in directing the allocation of credit. Government agencies may have better information on sectoral prospects than do individual private firms. However, the advantage depends on the motivation and the efficiency of the government involved and often does, result in rent seeking by borrowers, corruption by bankers and government officials, and crowding out of other worthwhile private sector projects. An important issue in the study of policy-based lending is how governments can prevent rent-seeking behavior (IBRD, 1996).

1.1. Review of empirical literatures. A number of country-specific as well as regional studies have been conducted to analyze the determinants of private sector credit growth. The determinants of bank credit to the private sector can be viewed from two perspectives, the demand side and the supply side.

Directed credit refers to the practices of extending loans to certain priority sectors on preferential terms and conditions. Various empirical studies on banks credits pointed out that Central Bank's adopted directed credit policy of a country has implications on over all commercial banking, banks' credit and private sector credit. Empirical studies showed that directed credit policy has negative effect on the private sector credit. Ikhide and Alawode (2001) and Nathan et al. (2013) reported that directed credit policy damaged the economy by reducing savings and had significant negative effect on the growth of private sector credit.

On the basis of reviewed literatures, we adopt the baseline model by Guo and Stepanyan (2011) and propose additional explanatory variables to capture bank and country-specific determinants of bank credit to private sector. After extensive literature review, we believe that this paper would have the following contributions to the existing literature. First, to our best knowledge, this is the first paper

that identifies the determinants of bank credit for Ethiopia specifically focusing on directed credit policy. Second, we include both demand and supply side determinants in the same econometric model, not tracing apart each type of determinants.

2. Methodology

2.1. Bank selection and data used. Hence the major objective of the study is to assess the effect of directed credit policy on bank's credit to the private sector (the Private sector credit PSC) is used as dependent variable. The interest variable, bill purchase, is used to capture the impact of directed credit policy on the private sector credit. Attempts have been made to control firm specific and macro level variables in the econometric analysis.

The study used unbalanced panel data of eight years of eight banks for years from 2007 to 2014. Four years period before and after the credit directive policy has been used for meaningful evaluation and comparison of the impact of the credit policy. Thus, private banks that have been in operation for required number of years before introduction of directed credit policy are the main criteria's for inclusion of samples in the study.

2.2. Model specification and variable setting. A multiple linear model that links the relationship between credit policy measures related to banking sector with bank's private credit could be stated as:

Private sector credit (*PSC*) = (*Bill purchase directive measures it*, *controls it*). (1)

The policy measure which is the interest of this study is Bill purchase directed credit policy (abbreviated hereafter as BPD). Hence, the model can be reformulated as:

Private sector credit (*PSC*) = (BPD_{it}, *control variables*$_{it}$). (2)

Therefore, the effect of bill purchase directive (BPD) on private sector credit mathematically can be expressed as:

$$PSC_{it} = \beta j + \beta_1 BPD_{it} + \beta k \Sigma XK_{it} + \\ + Bz\ DUM + \varepsilon_{it} \quad (3)$$

Where:

PSC_{it} is the dependent variable explaining private sector credit of bank i at time t, with $i = 1....N$; $t = 1...T$, *BPD* is directed credit policy that would be measured as amount of bills purchased as a consequence of the directed credit policy, β_j is a constant term, X_{it} are k explanatory variables and ε_{it} is the disturbance term. *DUM* is a dummy variable added to the model to classify the periods in to two: before and after the credit policy. A variable 1 is assigned to represent the period after the credit policy and 0, otherwise.

The econometric model can be expressed incorporating the identified variables as follows:

$$PSC_{it} = BPD_{it} + CAP_{it} + DEP_{it} + LIR_{it} + GDP_{it} + \\ + INR_{it} + M_2GDP_{it} + DUM_{it} + \varepsilon_{it}. \ldots \quad (4)$$

Where:

PSC = Loans and advances to private sector, BPD = Bill purchase directed credit policy, measured by bill purchases, CAP = Capitalization of bank as measured by their end of year capital, DEP = Deposits of Commercial Banks, LIR = Lending interest rate, GDP = Gross domestic product growth rate, INR = Inflation rate, M_2GDP = Broad money to GDP used as financial sector development indicator DUM = dummy variable ε = is error term,

2.3. Variable descriptions and hypothesized effect. On the basis of theoretical and empirical literatures, the possible effect of each explanatory variable on the dependent variable has been hypothesized hereunder.

Symbol	Description	Expected sign
PSC	Private sector credit as percentage of GDP	Dependent variable
BPD	Directed credit policy measured by bill purchases	Negative sign
CAP	Capital of banks	Positive sign
DEP	Deposits of commercial banks to GDP	Positive sign
LIR	lending interest rate	Negative sign
GDP	Gross domestic product	Positive sign
INR	Inflation rate	Negative sign
M_2GDP	Broad money to GDP used as indicator of financial sector development.	Positive sign

2.4. Data and model test for the regression assumptions. Diagnostic test was conducted by using STATA version 12. The goodness of fitness of the model was tested through ANOVA and F-statistic and was proven that the explanatory variables used in the model actually explain the variations in the dependent variable (PSC). The correlation matrix, Variance Inflation Factor (VIF) and Tolerance values show that there is not multicolinearity among the explanatory variables. Normality and heteroscedasticity tests also portrayed that the normality, homoscedasticity assumptions of the regression model were satisfied to run the regression analysis.

Finally, to select a best fitted model between the alternatives of random effect model and fixed effect model, Hausman test was conducted. The *p*-value of Hausman test is 0.9995 which is greater than the level of significance (0.05). Therefore, the null hypothesis which goes with the random effect assumption is accepted and fixed effect model is rejected. Further test was also conducted to choose between random effect versus pooled OLS regression model by using Breush

and pagan Lagrangian multiplier test and the result shows that Random effect model is more fitted for the study since the *p*-value is .0470 which is less than the significant level (0.05). Therefore, our suitable econometric model could be Random effect model.

3. Analysis and interpretation of results

Descriptive, correlation and regression analysis and interpretation of the results were made hereunder.

3.1. Descriptive statistics. Table 1 summarizes the descriptive statistics of the dependent and independent variables for the panel of eight years period The Table presents the mean, minimum, maximum and standard deviation for the panel data variables for the period from 2007 to 2014. National bank of Ethiopia (NBE), since April, 2011, has issued NBE bills purchase Directives with the aim of mobilizing domestic resources for priority sector projects. The directive obliges private commercial banks to purchase government Bonds (the great Renaissance dam saving bond) by commercial banks from NBE equivalent to 27% of new loan disbursement issued at a concessionary rate of three-percent.

Table 1. Descriptive statistics

Variable	Obs	Mean	Std. dev.	Min	Max
PSC_log	63	21.53025	1.045834	17.14771	22.96712
BIL1_log	63	1.725113	1.147773	0	3.526361
CAP_log	63	20.37139	1.141985	13.81551	22.52498
DEP_log	63	22.05053	.9587558	18.99729	23.59578
LIR	63	10.89937	1.779782	7.5	12.25
GDP_log	63	24.26391	.3072185	23.70427	24.72691
INR	63	18.73584	13.18054	7.391814	44.39128
M_2GDP	63	29.79581	4.267141	25.00	39.74275

Source: Author's computation using STATA-12.

The average bank credit extended to the private sector was Birr 21.5 billion while the minimum and maximum were Birr 17 and Birr 23 billion, respectively. On the average the bills purchased by sampled commercial banks stood at Birr 1.73 billion and since the introduction of the directive to June 2014, the sampled eight private banks have made total purchases of birr 19.7 billion. The average capital of private commercial banks its natural logarithm was 20.37 while the minimum and maximum was 13.82 and 22.52, respectively. The average deposits of sampled 9 private commercial banks its natural logarithm was 22.05 while the minimum and maximum was 18.9 and 23.6, respectively.

3.2. Correlation matrix. Table 2 shows the summary of correlation coefficient between dependent variable (PSC) and explanatory variables. From the table it was observed that multicollinearity was not a threat to the model variables.

Table 2. Correlation matrix

	PSC	BIL	CAP	DEP	LIR	GDP	INF	M_2GDP
PSC	1.0000							
BIL	0.3738	1.0000						
CAP	0.8768	0.3693	1.0000					
DEP	0.9714	0.4428	0.7324	1.0000				
LIR	0.3486	0.5246	0.3277	0.3842	1.0000			
GDP	0.4179	0.7157	0.3759	0.4670	0.7212	1.0000		
INF	-0.2012	-0.1162	-0.3003	-0.2187	-0.5161	-0.3891	1.0000	
M_2GDP	-0.3306	-0.5070	-0.2591	-0.3563	-0.7142	-0.7897	0.2661	1.0000

Source: Author's computation using STATA-12.

As it was depicted in Table 2, except for Inflation and M2/GDP, all independent variables have got positive correlation with amount of private sector credit extended by banks. However, Inflation and M2/GDP have negative correlation with the amount of private sector credit extended by sampled commercial banks. The correlation matrix also revealed the relationship between explanatory variables and indicated that the multicolinearity is not a threat to the model variables as all correlation coefficients are below the threshold level of 0.8 (Gujarati, 2004).

3.3. Estimation results and discussion. The empirical estimation of regression analysis in Table 3 shows the determinants of bank credit to the private sector. As it has been already discussed in the research methodology, static panel random effect model was found more suitable for panel data analysis and therefore, our empirical analysis was based on random effect model.

The study finds that NBE bill purchase directive has negative but insignificant effect on private comer cial banks' credit to the private sector. As depicted in the estimation coefficient when commercial banks purchase NBE bill for 1 Birr, the commercial banks' capacity to extend loan to the private sector would be decreased by 1.1% and the magnitude of the effect as shown in the *p*-values was found to be insignificant. For its negative effect this report was consistent with most empirical studies (Ikhide and Alawode, 2001; Nathan et al., 2013). However those studies have established significant effect of directed credit policy on the performance of private sector credit. Thus in terms of the magnitude of the effect this finding differs from the previous research findings.

Table 3. Regression analysis

Random-effects GLS regression			Number of obs = 63			
Group variable: Bank1			Number of groups = 8			
R-sq: within = 0.9140			Obs per group: min = 7			
between = 0.9964			avg = 7.9			
overall = 0.9661			max = 8			
			Wald chi2 (8) = 1540.76			
orr (u_i, X) = 0 (assumed)			Prob > chi2 = 0.000			
PSC_log	Coef.	Std. err.	T	P>|t|	[95% Conf. interval]	
IL1_log	-.0110605	.0631708	-0.18	0.861	-.1348729	.1127519
PSC_log	Coef.	Std. Err.	T	P>|t|	[95% Conf. Interval]	
AP_log	.2330326	.0437624	5.32	0.000*	.1472598	.3188054
EP_log	.8727945	.0529155	16.49	0.000*	.7690819	.9765071
IR	-.0500099	.0693661	-0.72	0.471	-.185965	.0859453
DP	.0186962	.2622052	-0.07	0.943	-.5326089	.4952165
NR	.0024308	.004364	0.56	0.578	-.0061226	.0109842
2GDP	-.0307668	.0305514	-1.01	0.314	-.0906466	.0291129
UM	-.1680984	.1564088	-1.07	0.282	-.474654	.1384572
cons	-.4881628	7.562452	-0.06	0.949	-15.3103	14.33397
sigma_u	0					
sigma_e	.21218104					
Rho	0 (fraction of variance due to u_i)					

In Ethiopian commercial banking credit to the private sector, capital of the bank and bank deposits were found to be most influential determinant factors. Both explanatory variables have got positive and significant effect on the private sector and this finding would come as surprise for commercial banks' mobilize loanable resources primarily through deposits and from their paid up capital. Bank capital has positive and significant effect on the bank credits to the private sector implying that well capitalized banks have more capacity to extend loans to the private sector. This finding was consistent with Claeys and Vander Vennet (2008) and Djiogap and Ngomsi (2012) who reported that bank size and bank capitalization has strong and positive effect on bank credit to private sector. With regard to deposits, the findings was consistent with the findings of Mohanty et al. (2006), and Guo and Stepanyan (2011) who reported the positive and significant effect of deposits on private credit in their study of 38 emerging countries. Lending interest rate has got negative and insignificant effect on bank credit to private sector. Though the sign of the effect was as hypothesized by theory, the magnitude of the effect was insignificant and this implies those private sector borrowers are not sensitive to the interest rate change and hike in interest rate would not significantly influence their demand. This finding supports the fact that in an economy where there is no capital market, private sector borrower demand for credit would not be affected by increase in commercial banks lending rate. The finding was consistent with Hoffman (2001), Guo and Stepanyan (2011), Sharma and Brimble (2012) who found that lending rates have negative effect on the amount of bank credits extended to the private sector.

The study also revealed that GDP had positive but insignificant effect on private sector credit. This shows that stronger economic growth may increase demand for more credit and thus lead to higher credit growth as argued and supported by Sharma and Brimble (2012). This finding was consistent with Hoffman (2001), Cotarelli et al. (2003), Egert et al. (2006), Guo and Stepanyan (2011) who have found that GDP has positive effect on private sector credit extended by banks. The insignificant effect, however, may imply that GDP growth in Ethiopia is not driven by private sector and may further attribute to the developmental state ideology of the Ethiopian Government that promotes active role of the public sector in the economy.

Inflation, though its expected sign was negative, has been found to have positive but insignificant effect on private sector credit. Though the magnitude of the effect was insignificant, this positive finding contra-

dicts most of the previous findings of Sharma and Brimble (2012) who reported the existence of significant and negative effect on credit to the private sector. Of course the study on Central African Economies by Djiogap and Ngomsi (2012) has shown that inflation has insignificant effect on bank's credit to the private sector and indeed Guo and Stepanyan (2011) found a positive relationship.

The level of financial deepening and intermediation, measured by M2/GDP, has negative and insignificant effect. This is inconsistent with the reports of Iossifov and Khamis (2009) who conducted a study on determinants of private credit growth in 43 countries in Sub-Saharan Africa from 1997-2007. They confirmed that money multiplier along with GDP per capita were main drivers of private sector credit in SSA.

The dummy variable, however, has revealed negative association during the post bill purchase period. In other words, the two period's comparison revealed a relatively declining but insignificant private credit record for private banks after the issuance of the bill purchase directive. The insignificant effect may imply that the resources allocated for a 27% bill purchase requirement might have been compensated by the aggressive resource mobilization of private banks following this directive. In general, the result of the study shows that the effect of directed credit policy in Ethiopia does not have any significant effect on the commercial banks' credit to the private sector in Ethi opia. Bank capital and deposits were found to be influential determinants of private credit in Ethiopia Banks.

Conclusions and recommendations

The major theme of the study was to examine the effect of directed credit policy of Ethiopian Government on the commercial banks' private credit to the private sector. The interest variable, bill purchase, was used to capture the impact of directed credit policy on the private sector credit. The study used unbalanced panel data of eight years of eight banks for years from 2007 to 2014. Four years period before and after the credit directive policy has been used for meaningful evaluation and comparison of the impact of the credit policy. Thus, private banks that have been in operation for required number of years before introduction of directed credit policy are the main criteria's for inclusion of samples in the study.

The study finds that directed credit policy has negative but insignificant effect on the banks' credit to the private sector. Hence, the bill purchase directive has contributed positively towards more deposit mobilization and hence deposits and bank capital were found to be significant determinants of private credit in Ethiopia. Thus the claim by private commercial banks, IMF and WB does not look strong and factual and hence it could be concluded that the bill purchase directive in Ethiopia does not have any significant crowding out effect on the private sector. Thus it would be recommended herewith that emphasis shall be given on capitalizing commercial banks. Moreover commercial banks shall introduce innovative and branchless channels for deposit mobilization for deposits were found to be the most significant determinants of private sector credit in Ethiopia.

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