CHAPTER-2

LITERATURE REVIEW

This chapter highlights the various published studies conducted at the National and International level regarding the agricultural finance. Several studies have been conducted on the different aspects of commercial banks and agricultural finance at the National and International levels. The following studies have been taken under review:

Wall (1938), discussed agricultural finance and the role of commercial banks in providing agricultural finance. This study highlighted the three major aspects of the commercial banks in agricultural finance. The first aspect was the commercial bank services offered in agricultural areas and the costs involved in rendering such services; the second aspect was the forthcoming functioning of commercial banks in light of competitive pressure from federally sponsored credit agencies and third was the commercial banks' lending practices and the effect on agricultural economic stability.

Torgerson (1940), identified a few key issues affecting agricultural finance in the United States and described the current general picture. In this study, agricultural finance was subdivided into two major categories: long term farm mortgages loans, followed by intermediate and short term loans to farmers. According to this study, federal agencies making farm mortgage loans and private individuals and companies are the biggest sources of long-term agricultural credit. As a result of federal agencies making farm mortgage loans, nearly the majority of the farmland in this country is mortgaged, and federal agencies hold about 40 percent of the mortgage debt on these farms.

Pantulu(1944), argued that in order to perform auxiliary activities in the agricultural sector, the agriculturist class requires at least Rs.500 crores annually, Of these, Rs.400 crores may be taken to represent financial resources for producing and marketing of crops. To improve the land or discharge prior usurious debts, Rs.100 crores are needed, which may be liquidated in an advantageous way by obtaining loans on more beneficial terms. Furthermore, this study stated that poverty is most of the time the cause of indebtedness. Indebtedness and poverty cause each other, and each tends to get worse.

Nimbkar (1968), examined the agricultural finance challenges in India. As per the results of this study, Cooperative bank loans to the farmers are not productive in the sense that they are either not received in time or that the borrower does not intend to use the loans for agricultural purposes. Additionally, a significant percentage of loaned amounts is never recovered. The only way commercial banks are likely to succeed where cooperatives have failed is to provide extension services and train employees accordingly.

Yotopoulos (1976), discussed the credit repayment issues related to agricultural loans and their effectiveness. It was found by the results of this study that short term loans provided by the government financial institutions and other banks had a high default rate in many less developed countries with low per capita income. Default rates in less developed countries are high because of several factors, including the interest rate. This study found that the nature of the small farmer's farming has an impact on the record regarding credit repayment. This is because production and consumption go hand in hand in this sector, and even lenders do not know whether the credit is used for agricultural production.

Chausse (1982), examined the importance of the financial institution in agricultural development. During the All-India Survey of 1954, financial institutions were urged to play a greater role in the country's agricultural development. After the 14 leading banks were nationalized in 1969, the commercial banks had most of the saving deposits, and they were instructed to enter the agricultural sector with two specific objectives, first to support cooperative marketing and processing structure by funding. Certainly, the commercial banks were perceived to be holding private traders to a tighter bargaining position than cooperatives by funding them, and their actions needed to be redirected. Second, where cooperative banks were weak, commercial banks could finance farming operations through primaries. Very rapidly indeed, all kinds of loans, short, medium and long term, were granted by commercial banks directly to individual farmers and farming community through their own branches. Total advance to the agricultural sector constituted about 10 percent of total bank credit by the end of 1974.

Schmiesing et. al. (1985), investigated the variable interest rates and differential interest rates used by commercial banks in South Dakota. This study looked at the interest rate changes in agricultural operating loans. Branch banks and affiliates of large banks used differential and variable interest rates more aggressively than independent banks, according to the results of this study. Most branch banks, multibank affiliates, and independent banks

use differential rates. The branch bank used up to 85 percent of the differential interest rate to the total. The branch banking sector, multi-bank affiliates, and independent banks also rely upon variable interest rates in some cases.

Zuberi(1989), empirically examined the agricultural credit system of Pakistan from 1961 to 1985 by examining the production functions and patterns of agriculture lending. It examines how agriculture output is influenced by agricultural inputs like labor, seeds, and fertilizers. Over the period covered by this study, a constant return to scale was observed in the agriculture sector in Pakistan. According to the study, more than 80 percent of the short term loans provided by commercial banks are used by farmers to purchase seeds, tractors, and fertilizers. Furthermore, the results of this study regarding production function suggest that Pakistan's agricultural development has been based on capital saving and labor-based development approaches.

Olomola(1991), examined the rationale for Nigeria's credit control policy during 1970-1985 in the agriculture sector. In this study, the main objective was to determine the credit control instruments used between 1970 and 1985. The result of this study revealed that credit controls would be ineffective and is not adequate to address the problems of the underdeveloped saving capacity of rural areas and the inequitable distribution of income. This study concluded that political concerns should be given less importance than sound economic factors in determining the persistence of credit controls and justifying credit controls. Therefore, agricultural loans are unlikely to be available to most of the borrowers in order to absolve them of poverty, but rather as a means to facilitate input for developing agriculture.

Binswanger and Khandkher (1992), found that rural credit positively influences agricultural output at a measurable level. The elasticity of cooperative credit is 0.06 in relation to the output. Compared to predicted rural credit, a greater elasticity than crop output is evident, and is approximately 0.027 but does not appear precisely estimated. Commercial bank branches have an impact on the output of 0.02 as more precisely estimated. It also indicates that while agriculture output increased modestly due to increased agricultural institutions and lending, fertilizer use and physical capital investments increased, but this also resulting in substantial decreases in agriculture employment. The authors conclude that because of the expansion of credit, agricultural labor has been replaced by capital.

Kashuliza(1992), investigated the performance of cooperatives and rural development banks in Tanzania in granting agricultural loans. The study covers a time frame of 1971 to 1989. Based on various criteria, such as credit allocation methods, operational costs, loan repayment rates, and degree of savings mobilization, the study evaluated the performance of the credit institutions. According to the findings of this study, most of the loans provided by cooperative and rural development banks were short-term loans, mostly lent to small landowners. This study was confined to a few regions in Tanzania, like Tabora and Iringa, which were producing tobacco, a cash crop. It indicates that the pattern of credit allocation by cooperative and rural development bank devoted much of their credit allocation to cash crop production particularly tobacco and failed to prioritize food staple crops, such as rice and maize. In this study, the researcher concluded that the losses of cooperative and rural development banks increased because of low interest rates, high lending costs, and poor loan recovery. It indicates that the cooperatives and rural development banks suffered losses during the period 1984 to 1989.

Binswanger et.al. (1993), examined how the government's investment decisions impacted agricultural production and agricultural investment in India. A district-level time-series statistic was used in this study in order to meet its objectives. The findings of this study confirm that the education and rural banks play a key role in determining outputs, inputs and investment decisions in the agricultural sector. Additionally, this study also found that interest rates from rural banks also have an impact on fertilizer demands and agricultural output. In this study, it is clearly demonstrated that the output supply elasticity of the agriculture sector is very low.

Ayaya (1997), investigated the impact of macroeconomic monetary and fiscal variables such as inflation, interest rates, the central government budget deficit, and the controlled prices of agricultural commodities like sugar and maize on credit to agriculture during the period 1973-1992. Furthermore, the study found that the amount of financing the agricultural sector receives is determined more by demand than by supply. It was found that the agricultural sector can be affected by the budget deficit in two different ways. First, a tax increase on agriculture could be used to finance the deficit and second, in this way, the central government increase the borrowing from internal as well as external sources. An increase in the tax burden on farm income like the one that occurred with the implementation of

presumptive income tax, previously repealed and then reinstituted in 1995, reduces the farmer's ability to generate cash capital from within.

Ahrendsen, et.al.(1999), conducted a study on merger of commercial banks and agricultural lending. This study found that the merger of independent commercial banks, agricultural lending became more concentrated and the smaller banks possess a larger agricultural loan portfolio than larger banks. In this study, the researchers used the adjustment model to test the main hypothesis to test whether a consolidated bank, consisting of both an acquired bank and an acquiring bank, adjusts its agricultural loan-to-asset ratio to be inline other banks within the consolidated bank's size category. The purpose of this study was to empirically analyze the relationship between the ratio of agricultural loans to assets and bank acquisitions during the period 1988 and 1995. Based on the results of this study, acquisitions negatively impact agricultural lending when acquiring banks have a lower concentration of agricultural loans than acquired banks. The study suggested that commercial banks' agricultural lending would decrease in most instances since their acquirers may impose a smaller agricultural loan-to-asset ratio.

Puhazhendhi and Jayaraman(1999), investigated the efficiency of rural credit delivery systems with respect to three main areas of the rural credit market: agricultural activity, non-farm sector activities, and poverty reduction. Also described were the challenges that commercial banks face, the strategies they employ to reorient themselves and upgrade the skill set of their staff. Using two-variable regression models, this study also examined the impact of rural credit on the use of inputs and the use of inputs on output from 1970 to 1996. Based on the results of this study, increasing access to rural credit significantly improves the quantity and quality of agricultural inputs, which in turn positively affects the net value of production in agriculture. Also, the results of this study indicated that the growth of private capital formation in the agricultural sector is strongly influenced by the increased flow of rural credit. Credit flow in rural areas is a key variable in the growth of capital formation in agriculture. Based on the findings of this study, this study suggested that future policies should be centred and these policies should emphasize more on the policies that address issues such as the viability and sustainability, efficiency in the production process, recovery outcomes for small farmers and balanced sectoral development.

Nair (2000), examined the major trends in rural financial intermediation in India by public sector commercial banks in the post nationalization period. Furthermore, the study also

looked at their role as it relates to the newly emerging institutional forms, especially with the interest on what is referred to as microfinance services. Study results found a significant improvement in the rural sector outreach of commercial banks during the years 1971 to 1991. Commercial banks in rural areas offered greater services. On the other hand, the share of both rural deposits and credit almost doubled during this period**.** During the same period, the share of rural deposits, as well as rural credit, almost doubled.

Chaudhuri(2001), provided a theoretical explanation of the interaction between formal and informal credit markets in the backward agriculture sector. This study developed a model of interaction between formal and informal credit market. This study observed that bank officials take bribes from farmers in exchange for disbursing formal credit and as a result, it prohibits potential borrowers from getting bank credit, means as the bank official increase the bribing rate the aggregate demand for the loan and marginal net interest of the moneylender also increases. Due to inadequate formal credit supply and the exclusion of some borrowers from the formal credit system, informal credit markets are created. This means that a shortage of formal credit leads to the growth of informal credit. In the study, both formal and informal credits were found to be substitutes. This study found that the bank officials and the moneylenders engage in a non-cooperative game in determining the bribing rate and the informal interest rates. This study shows that increasing interest rates in the informal credit market is linked to lowering the interest rate in the formal sector. This study suggested that credit subsidy policy can be implemented in two different ways, first by the increase in the volume of formal credit supplied to the farmers while keeping minimal or reasonable formal interest rate and second by decreasing the rate of interest charged by banks for formal credit while keeping the total supply of formal credit constant.

Muhammad, et.al.(2003), investigated the impact of institutional credit on agricultural production in Pakistan. This study aimed at evaluating the production function relating agricultural output with institutional credit and other independent variables including land and water. The commercial banks are the other important formal sources of agricultural credit in Pakistan. The availability of institutional credit per cropped hectare increased in nominal as well as in real terms and showed a similar pattern over time. The share of commercial banks in the total institutional credit declined over time, especially in the 1990s. A significant shift from institutional credit for investment in fixed capital like tube wells and tractors to loans advances for operational expenditures like the purchase of seed and fertilizer was

observed especially in early to after the mid-1980s and after mid-1990s. The relationship between institutional credit and agricultural output was found positive and significant. Availability of irrigation water, agricultural labor and cropping intensity are the other important determinants of agricultural output.

Temi and Olubiyo (2004), studied the relationship between agricultural finance and the growth of the agricultural sector in Nigeria for the period 1970 to 2001. This study adopted the production-input approach to examine the impact of agricultural credit on agricultural production. The parameters estimated in this study are labor force, capital and agricultural output. The results of this study proved that agricultural credit is one of the most important determinants of the growth in agricultural production. This study found that liberalization in the banking system from 1988 registered remarkable improvement in credit allocation to the agricultural sector.

Chand and Kumar (2004), highlighted the association between capital formation and agricultural output. This study used private and public sector capital formation as independent variables to determine the association with agricultural credit and their impact on the agricultural output. The results of the study indicate that private capital formation depends mostly on return on private investments, which is again dependent upon terms of trade and technology. As the level of public investment rises, private investment also rises, whereas when the level of public investment declines, farmers are forced to compensate by increasing private investment. Investing in the public sector is primarily dependent on fiscal resources. Increases in farm subsidies and decreases in agriculture revenues have a negative impact on public sector capital formation.

Gloy, et. al. (2005), examined the factors affecting the costs and returns of extending agricultural credit by using borrower-level data from 963 agricultural lending agencies. The results provide estimates of the costs and returns of agricultural lending and the extent to which these costs and returns are influenced by factors such as loan volume, lender/borrower relationship factors, and contract terms. The results of this study indicate that economies of scale exist in agricultural credit delivery and that lenders pass most of these benefits on to borrowers through lower interest rates. In addition, the impacts of lender or borrower relationship factors were relatively small.

Sahu and Rajasekhar (2005), conducted a comparative study on Banking Sector Reform and Credit Flow to Indian Agriculture during the period 1980 to 2000. There are two parts to the study period: the pre-reform period and the post-reform period. During the pre reform period, credit for professional services, personal loans, finance, and other sectors grew more rapidly on average. Furthermore, the results indicate that during the pre reform, credit was disbursed to industry, trade, and transportation operators at a higher interest rate. Over the period 1981-2000, the average growth rate of agricultural credit was 11.86 percent. It was noteworthy, however, that inter-period differences were distinct. For the period before the reform, annual growth was 14.77 percent, but it dropped to just 10.90 percent after the reform period, a decline in the amount of agriculture credit disbursed throughout India. An investment in government securities, the proportion of credit provided by cooperatives, and the percentage of credit provided by banks was negatively related to credit flow to agriculture as determined by the analysis. Rural bank branches were positively associated with credit to agriculture, invoking the need to reconsider the closing of the loss-making rural branches.

Satish (2005), argued that Governments have a critical role to play in development of the agricultural and rural financial institutions. But state involvement in the management and implementation of rural financial system has proven expensive and inefficient. Subsidized credit programs which are part of state intervention in rural financial markets undermine the institutional sustainability of financial institutions, distort rural finance markets and discourage savings mobilization and fail to develop market-driven sources of funding. The revitalization of the state-owned rural financial institutions is possible without structural and ownership change. The study reveals that to step up the outreach of rural finance, the route of reinvigorating and retooling the existing institutional variants through a series of policy interventions is a better option than to set up totally new institutions which may be a costly and time consuming affair. As it may be noticed the institutions involved did not undergo major structural changes in the organization or ownership. The most important change has been the greater freedom of operation and less of controls on the business aspects of banks. This study used outreach indicators(Number of Borrowers, outstanding loan portfolio, number of depositors, outstanding deposit portfolio and loans to total assets), sustainability indicators (financial margin, cost of management, return on assets, return on net worth, loan recovery percentage, ratio of nonperforming assets to total loans outstanding, profit/loss and owned funds).

Mohan(2006), studied the status, issues and future agenda of the agricultural credit in India. Agricultural credit has played a vital role in supporting farm production in India. Though the

outreach and amount of agricultural credit have increased over the years, several weaknesses have crept which have affected the viability and sustainability of these institutions. Shifts in consumption and dietary patterns from cereals to non-cereal products, a silent transformation is taking place in rural areas calling for diversification in agricultural production and value addition processes in order to protect employment and incomes of the rural population. In the changed scenario, strong and viable agricultural financial institutions are needed to cater to the requirements of finance for building the necessary institutional and marketing infrastructure. What is needed in agriculture now is a new mission mode akin to what was done in the 1970s with the green revolution. The difference now is that initiatives are needed in a disaggregated manner in many different segments of agriculture and agro-industry: horticulture, aquaculture, apiculture, dairying, sericulture, poultry, vegetables, meat, food processing and other agro-processing.

Awasthi(2007), estimated the impact of crop loans on agricultural output from 1981 to 2001. Regression analysis revealed how crop loans and other agricultural term loans have responded to the value of agricultural output per hectare. The purpose of this study was to check the association of agricultural output (constant prices) and crop and term loans disbursed by scheduled commercial banks. An attempt is also made in the study to suggest a more rational approach towards agricultural lending by determining the optimal range within which crop to term loan of scheduled commercial banks should vary. This exercise is undertaken by using the regression technique across 14 major states of India at five different points of time, viz., 1981-82, 1985-86, 1991-92, 1995-96 and 2000-01. The estimated regression coefficient is significant and its value revealed that in India during 1981 to 2000 on an average one percent decline in the ratio of investment credit to production credit has caused the value of agricultural output per unit of production credit to fall by 2.5 percent. The results of the study confirmed that a gradual decline in the investment production credit ratio will tend to lower the value of agricultural output per unit of crop loan. This study also signifies that lack of enough growth in investment credit has inhibited the growth of capital formation and has acted as a strong barrier in sustaining high agricultural growth rate in the country.

Golait (2007), analyzed the trends and distribution of institutional credit flow to the agriculture sector in India. The results of this study revealed that agricultural credit by the banking sector is inadequate. This study found that after nationalization the offices of public sector banks increased continuously from 8262 in 1969 to 68355 in 2005. Further, the result

of this study confirmed that the share of institutional credit increased while the share of non-institutional sources declined in credit creation towards the agriculture sector. The share of commercial banks in providing agricultural credit has risen since 1990's as compared to the previous two decades and thus noticed an increasing trend. This study found that accessibility of institutional credit is higher in the southern region that is Andra Pradesh, Karnataka, Kerala and Tamilnadu. The analysis suggested that the flow of investment credit to agriculture is negatively affected by high transaction cost, structural deficiencies, low volume of loans and high manpower requirement. This study suggested that the banking system should explore new innovations in product design, methods of delivery and more credit to be provided to small and marginal farmers.

Kumar, et.al. (2007), analyzed the performance of rural credit and factors influencing the choice of credit outlet and possessions of Kisan credit card. This study was based on unit-level data of debt and investment survey conducted by National Sample Survey Organization during 1992 to 2003. The performance of rural credit system examined in terms of access of rural households to different credit outlets, availability of credit and share of formal credit institutions. This study observed that per hectare and per capita borrowing from institutional sources during 1991 to 2002 registered annual growth rate of 15 percent and 11 percent respectively. The result of this study depicted that the regional disparities all over the country in terms of disbursement of institutional rural credit was expanded. The southern region registered a higher amount of rural credit while credit availability in economically backward states and northeastern states were low. The findings of this study clearly indicate that the interest rate charged by informal money lenders was exploitative. High transaction cost of lending, low lending volumes, absence of legal recourse for loan recovery and the high opportunity cost of capital are the factors that affect the money lender to keep the interest rate high. The result of this study confirmed that household belonging to scheduled caste, scheduled tribes and other backward caste has fewer chances of getting credit from institutional sources as compared to the households of general caste. The factors like age, gender, farm size, household size and education level has a positive effect on the decision of the household to have Kisan credit card.

Akram, et.al.(2008), investigated the constraints faced by the farmers and borrowing behaviour of farmers towards agriculture credit in rural Punjab from 2001 to 2007. In order to estimate the credit constraints, this study used logit model. As per the results of the study, main constraints were inadequate collateral and high-interest rate. This study found that

involvement of bribe, high-interest rate, inadequate collateral and other private sources are the main reasons for not applying for a loan from a formal institution. This study confirmed that mostly agricultural credit demanded resulted in the increase of agricultural production, purchase of tractors, threshers and establishment of tube wells.

Ramakumar and Chavan (2008), examined the agricultural credit provided by commercial banks and regional rural banks. This study also closely analyzed the general perception regarding credit revival period in India. The result of this study revealed that after recording a low growth rate of 8.7 percent during the period 1980 to 1990, agricultural credit grew at just 1.8 percent per annum between the periods 1990 to 2000. This study noticed one important point that is the revival of agricultural credit had begun after the year 2000, from 2000 to 2006 agricultural credit increased significantly as compared to 1990's period. This study found that the proportion of indirect finance increased in the total bank credit to agriculture sector during the period 2000 to 2006.

Karmakar (2008), attempted a study on the flow of credit to the agriculture sector and issues related to the deployment of agriculture credit. This study covers the period from 1991 to 2005. This study found that the growth of overall credit flow significantly expanded during the study period and the maximum growth in credit flow was registered during the year 2004 and 2005.The results related to agency wise credit flow indicate that commercial banks and regional rural banks registered impressive growth in the area of credit flow towards the agriculture sector after the reform period due to the linkage of self-help groups with banks (1992), the commencement of Kisan credit card scheme (1998) and introduction of special agricultural credit plans by the public sector banks (2004). This study observed that the proportion of bank deposits and credit share moved maximum for the south region and it was minimum for north east region. The credit deposit ratio of scheduled commercial banks in rural area declined from sixty percent in 1991 to fifty one percent in 2005. On the other hand the credit deposit ratio of the scheduled commercial banks in urban areas increased from sixty two percent in 1991 to sixty eight percent in 2005.

Das.et.al, (2009), studied the impact of direct and indirect agricultural credit on agriculture production by scheduled commercial banks in India during the period 1982 to 2006. This study analyzed the association between agricultural credit and agricultural output of major states in India. The results of this study revealed that a correlation coefficient of state domestic product and bank credit in respect of agriculture for the states Andhra Pradesh, Chhattisgarh, Jharkhand, Orissa, Rajasthan, Tamilnadu, Uttar Pradesh, West Bengal and

Uttrakhand were positively and statistically significant. The bank credit does not seem to play a major role in the agricultural output in states like Haryana, Jammu and Kashmir, Karnataka and Kerala. The result revealed that both direct and indirect agricultural credit has a significant and positive impact on agricultural output in India. This study found that the role of institutional credit significantly increased while the role of informal agencies has declined in agricultural credit in rural areas. Further, this study also noticed that there are wide regional disparities in the disbursement of agricultural credit by the institutional agencies like scheduled commercial banks.

Kumar, et.al. (2010), investigated the performance of agricultural credit and its determinants in India. This study found that the institutional credit flow to the agriculture sector has increased during the last four decades and also found that commercial banks are one of the major sources of agricultural credit in India. The result of this study revealed that the share of investment credit in the total credit has declined. This study suggested that the procedure for assessing to agricultural credit for small landholders in rural areas should be simplified.

Bhalla and Singh (2010), conducted a study to examine the effect of agricultural credit and input usage. The study found that input prices are highly significant with credit in a cross-sectional analysis using data for 2003 to 2006. In all India, credit elasticity for fertilizer use, tractor use and tube well use was 0.85, suggesting that a ten percent increase in the supply of direct institutional credit to farmers resulted in an eight percent increase in the purchase of fertilizer, tractor and tube well in the long run. This analysis was based on a simple model that regressed the logarithm of input per unit of output on the logarithm of institutional credit. This study found that the credit elasticity varies across regions, with the technologically backward eastern region experiencing exceptionally high credit elasticity for tractors, tube wells and irrigation. Further results also revealed that institutional credit is essential for agriculture in eastern regions, which have low inputs and investments.

Rahji and Adeoti (2010), studied the determinants of commercial banks decision to ration agricultural credit in the south western part of Nigeria using the logit model. This study revealed that farm size of the farmers; previous year's income, enterprises type, household net worth and level of household agricultural commercialization are significant but negative factors influencing the bank's decision to ration credit to the agricultural sector.

Ayaz and Hussain (2011), examined the impact of institutional credit on production efficiency of the farming sector in district Faisalabad in the Punjab province of Pakistan. This study investigates the impact of credit on the technical efficiency of agricultural production through stochastic frontier analysis. This study found that more adequate credit facilities enhanced and timely utilization of agricultural inputs, new technologies adopted also provide an opportunity for technical efficiency achievement. This study also found that agricultural credit appears as an essential input for investment in agriculture.

Wakilur (2011), studied the relationship between agriculture credit and farm production in Bangladesh. This study found that both private commercial banks and foreign commercial banks play an important role in the allocation of credit to the agriculture sector. The result of this study revealed that there is a positive correlation between agricultural credit and agriculture production in Bangladesh.

Jiyaur and Sheereen (2011), reviewed the trends and composition of agriculture sector institutional credit in India after the reform period. In this study, time-series data from 1975 to 2005 was used to examine the changes in institutional credit to the agricultural sector. A pre-reform period from 1975 to 1990 and a post-reform period from 1991 to 2005 comprise two sub-periods of this study. An analysis of agricultural credit provided by scheduled commercial banks, regional rural banks, and state government agencies was conducted in this study. Among the credit providers reviewed were cooperatives, rural electrification corporations, state cooperative agricultural and rural development banks and primary agricultural credit societies. Compared with the pre-reform period, direct and indirect institutional credit into the agriculture sector grew during the period 1991 to 2005 as indicated by the results of the study. In the post-reform period, short-term and long-term credit to the agriculture sector has moderately increased. Among the direct bank credit to the agricultural sector, the share of scheduled commercial banks has increased, while that of cooperatives has decreased. Conversely, regional rural banks have maintained an almost constant contribution to agricultural credit during the study period.

Sial, et.al. (2011), analyzed the impact of institutional credit on agricultural production in Pakistan for the period 1972 to 2008 by using Cobb-Douglas production function. This study used agricultural credit, agricultural labor force and cropped area as independent variables, and on the other hand agricultural gross domestic product has been used as a dependent variable. The results of this study revealed that agricultural credit is positively related to

agricultural production that is one percent increase in institutional credit leads to sixteen percent increase in agriculture production. This study recommended enlarging the institutional credit disbursement in agriculture sector particularly to small and marginal farmers and schemes like crop insurance must be initiated to cover the uncertainty in the agriculture sector, it may be helpful in getting required recovery rates of agricultural loans.

Rahman, et.al. (2011), evaluated the association between agricultural credit and farm production in Bangladesh for the period 1980 to 2010. This study also investigated the major challenges faced by the scheduled public, private and foreign commercial banks for lending in the agriculture sector. This study used linear and exponential equations to analyze the relationship between agricultural credit and agricultural production. The outcome of this study indicates that food grain and dairy production were highly correlated with agricultural credit. This study found that agricultural credit has expanded over the last decade with the efforts of public sector scheduled commercial banks. Private commercial banks and foreign commercial banks contributed limited with respect to credit disbursement in the agricultural sector. This study suggested that policymakers should emphasis on monitoring of agricultural credit and provide incentives for financial intermediaries to encourage them for financing the agriculture sector in a sustainable manner.

Olatunbosun (2012), conducted a study on agricultural credit allocation to sustainable agriculture in Sub-Saharan African countries for the period 1995 to 2008. This study found that credit constraint has a negative impact on the adoption of agricultural innovation, agricultural growth and agricultural development. This study found that among 163 institutions only 36 were unregulated included commercial and non commercial institutions in Sub-Saharan African countries.

Biradar (2013), studied the trend and patterns of institutional credit used for investment and production in the agriculture sector by scheduled commercial banks, cooperative banks, and regional rural banks from 1971 to 2007. Two sub-periods are set out for the study period: the pre-reform period and the post-reform period. An attempt was made to compare agricultural loan volumes before and after the reform period in this study. For this study, different indicators were examined including average institutional credit per hectare, percentage of agricultural gross domestic product and cultivated area to assess the extent of institutional credit flow for the development of the agriculture sector. Compared to the pre-reform period, the growth of institutional credit to the agriculture sector was higher during

the post-reform period as described by the results of the study. Throughout the entire study period, regional rural banks provided the most production credit in comparison to scheduled commercial banks and other cooperative banks. This study found that the banking reforms in the 1990s led to major increases in institutional credit to the agriculture sector during the post-reform period.

Ramakumar (2013), estimated the growth of agricultural credit during the 1990's and 2000's. This study found that the annual growth rate of agricultural credit was 6.8 percent during the period 1981 to 1990 but agriculture credit registered only 2.6 percent per annum growth during the period 1991 to 2001. Between the period 2002 to 2011 agriculture credits registered 17.6 percent per annum growth. During the same period, there was also an increase in the number of rural branches of commercial banks from 30188 branches in 2006 to 35850 branches in 2012. This study found that the share of indirect finance in total agricultural finance increased consistently from 15.5 percent in 2000 to 23.9 percent in 2005 and further increased to 25.5 percent in 2007. The results of this study revealed that after 1991 there was a sharp decline in the share of long term credit and a sharp rise in the share of short term credit provided by commercial banks. The sharp decline in long term loans has an adverse effect on investment in the agricultural sector.

Salami and Arawomo (2013), analyzed the extent of agricultural credit and the factors responsible for the level of agricultural credit in Africa. The agricultural credit model was estimated by using the panel data covering the period 1990 to 2011, for ten countries selected across the five sub-regions in the continent. Both fixed and random effects models were estimated and compared with the Pooled OLS. The result reveals that a higher savings rate produces greater agricultural credit in the continent. Although the savings rate is generally low in Africa, the impact of savings on agricultural credit is still massive. Land available for agriculture has a positive significant impact on agricultural credit in Africa.

Shukla, et.al. (2013), estimated the profitability of commercial banks in relation to selected rural banking parameters, viz. the share of rural branches in total bank branches, the share of agricultural credit in total bank credit, and the rural credit deposit ratio. The study is based on the time series data for the period 1971 to 2011. The study has revealed that the share of rural branches in total bank branches increased during the period 1971 to 1990 but declined later on due to the shift in rural banking policy from expansion to consolidation in terms of credit-deposit ratio.

Akhtar and Parveen (2014), analyzed the region-wise growth of branch expansion of scheduled commercial banks in India during the period 1980 to 2013. This study found that the growth rate of rural branches, rural deposits, rural credit and rural credit deposit ratio of scheduled commercial banks was not satisfactory. This study also revealed that three regions northeastern, eastern and central region accounted for around 42.6 percent the proportion of scheduled commercial bank branches until the 1990's. But after the 1990's the proportion of bank branches in these regions registered declined trend and was declined to 40.6 percent of the total. The annual growth of urban and metropolitan bank branches is higher than rural and semi-urban branches.

Basses, et.al. (2014), conducted a study on the impact of financial indicators on the supply of agricultural credit in Nigeria during the period 1970 to 2011 by using techniques like co-integration and unit root test. This study found that loans to deposit ratio and loans to other sectors have a negative impact on the supply of agricultural credit. This study suggested that the supply of agriculture credit by commercial banks should be increased. This study also suggested that interest rate on deposits should be increased in order to increase bank deposits so that banks will be able to lend more on priority sector including the agriculture sector.

Bathla (2014), examined the public and private capital formation in agricultural sector during pre and post reform period. This study used state level data from 1950 to 2008. This paper investigated the temporal behaviour of gross fixed capital formation in the agriculture sector (GFCFA). The findings of the paper show that there was an upward trend in GFCFA till the 1970s and registered a downward trend during the 1980s and 1990s, and then from 2000 onwards, there has been a significant acceleration in gross fixed capital formation in the agriculture sector. In the agriculture sector, public gross fixed capital formation during the pre-reform period was positively determined by the size of public expenditure, loans from the centre, and negatively by market borrowings. Over the period, there have been large variations in the extent of public and private gross capital formation across states. Uttar Pradesh, Rajasthan and Maharashtra have the highest private gross capital formation in the agricultural sector while states like Maharashtra, Andhra Pradesh and Karnataka have witnessed the highest public gross capital formation during 1999 to 2006.

Chisasa (2014), examined the impact of banking finance on the growth of agricultural output in South Africa by using structural equation model approach. This study assumed that agricultural output depends on land size, labor, climate and bank credit (short term and long

term). This study observed that long term bank credit has a significantly higher contribution to agricultural output as compared to the short term bank credit. The contribution of the variable land towards agricultural output is lower but direct. By using the structural equation model this study found that only land size, short term credit and long term credit has a significant impact on agricultural output and other variables like labor and rainfall were observed to be insignificant. This study also examined the effect of bank credit on agricultural output in South Africa by using Cobb Douglas production function. This study found that bank credit has a positive impact on agricultural output. In terms of the elasticity, the combined effect of credit (0.6 percent) and capital accumulation (0.4 percent) gives constant returns to scale, meaning that doubling the two inputs will double agricultural output. The partial elasticity of labor and rainfall were observed to be negative but insignificant.

Danilowska, et.al (2014), analyzed the agricultural financial system in Poland and Azerbaijan. The result of this study indicates that the share of agriculture credit in banks and non-banking institutions are very low in Azerbaijan. This study also found that banking and non-banking institutions are not much interested in providing agriculture credit to marginal and small farmers. Further, this study suggested that Azerbaijan should experience from Poland to improve the financial system in the agriculture sector as the agriculture sector in Poland is much effective as compared to Azerbaijan.

Ekwere and Edem (2014), examined the effect of agricultural finance on agricultural production among small scale farmers in Nigeria. This study examined the relationship between farm credit, farm input, farm output and other socio-economic factors like gender, education, age, family size, farming experience and farm size. This study used the Cobb-Douglas production function to examine the contribution of the loan amount on production. This study found that family size, farm size and farming experience are significant determinants of the farmer's size of the loan, while the variables like gender, education and age are insignificant determinants. Agriculture credit has a significant and positive effect on the input used by farmers and output level in the agriculture sector.

Goran (2014), examined the importance of special agricultural lending institutions and agricultural credit discount fund for the economic welfare of farmers and agricultural development in Macedonia during the period 2003 to 2012. The results of this study revealed

that the agricultural credit discount fund operating in close collaboration with the participating financial institutions and government, provide better agricultural credit facilities to the small farmers at low interest rate.

Singh (2014), studied the trends in public investment in agriculture during the period of economic reform in India. During the pre-reform period, total investment was split close to evenly between public and private investment, and the percentage of private investment has steadily increased. Private investment in agriculture has been almost constant since the mid-1990s, while public investment has continued to decline. After the year 2000, public and private investment in agriculture trended upwards.