

## Capital Output Ratio in Micro and Small Enterprises

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**ABSTRACT:** *The investment output ratio of micro and small enterprises (MSE) depends on various quantitative and qualitative factors such as fixed investment, credit facility from banks, export demand, total output, training facility, subsidies on purchases, incentives on income from various items, number of new units, sickness and closure of existing units, total numbers of MSE, employment size, policies, infrastructure facilities etc. This paper examines the capital output rate of micro and small enterprises. Total credit facility by the lending institutions and investment by the promoters is jointly considered as independent variable (Investment) and the output is considered as dependent variable. The secondary data related to dependent and independent variable are used to achieve the defined objective. Inter-relationship between total investment and output as well as dependency of output on investment of micro and small enterprises is examined. The marginal productivity of capital is examined with respect to output. Finally it is observed that the output of MSE is majorly depends on investment volume.*

**Key Words:** *Micro Small and Medium Enterprises, Credit Facilities to MSME, Investment in MSME, Census of SSI, Census of MSME.*

### INTRODUCTION

Investment or capital is one of the important factors of production function and in case of micro and small enterprises (MSE). In this paper investment comprises amount of investment by the entrepreneur/owner and credit (finance) facility by the lending institutions to the firm. The Micro Small and Medium Enterprises (MSME) statistics reveals that the population size of MSME is 63.38 million units with approximately Rs. 22295 billion investments, approximately Rs. 32801 billion outputs, 28.77% Gross Value Added (GVA) in GDP, 110.98 million employments and approximately Rs. 1337 billion credit facilities by the lending institutions by March 2018. In India, current micro small and medium enterprise (MSME) was erstwhile known as SSI (small scale industries) and ARI (agriculture & rural industries). The micro and small enterprises (MSE) is almost 99.96 per cent of MSME, The MSE is classified into two types on the basis of its nature of activity, the traditional MSE and modern MSEs. The traditional MSE produces goods based on Khadi, handloom, village industries, handicraft, sericulture, coir product etc.; and the modern MSE produces wide range of goods, comparatively simple to sophisticated products. After independence, the MSE has been possessing significance place for its contribution in the economy, especially in terms of output, employment and export.

The report of 4th census of MSME (2007) reveals that the cause of sickness was due to shortage of financial capital with 21 per cent weight out of 100. Rakesh Mohan (2005) outlined critical appraisal of SSI policy regarding investment ceiling, fiscal incentives and credit support to priority sector. He emphasized that overall performance is not impressive in comparison of other developing nations. In his work he suggested that with increasing liberalisation and higher economic growth, the role of banking sector is poised to increase in the financing pattern of economic activities within the country. To meet the growing credit demand, the banks need to mobilise resources from a wider deposit base and extend credit to activities hitherto not financed by banks. Vinayak (2006) analyzed some issues related to the production, credit policy and competition of SSI in globalised era. He emphasized on credit facility & competition. He suggested that the production of MSE has been badly affected by deficient credit facility and increasing competition. The current credit facility is still limited to 14.9 percent of total SSI size; after liberalization of economy only 20 out of 200 toys firms in Delhi manage to stay out of the red, due to Chinese competition.

Jens Grunert & Lars Norden, (2012) suggested that in SME lending, banks largely rely on soft information, because the scale and scope of hard information are limited. They analyzed on whether and how hard and soft information affects the borrower's bargaining power vis-a-vis its bank. According to them, for a given credit rating, certain borrowers obtain better loan terms than others to define measures of relative bargaining power. Using SME loan data from the USA and Germany, they observed that more favourable soft

information (management skills and character) increases borrower bargaining power. They suggest that soft information represents an important and direct determinant of borrower bargaining power, affecting the outcomes of the loan contracting process. Christian Koropp et. el (2013), worked on finance related issues of family run business and investigated that how family commitment moderates whether and how financial knowledge, positive experience with debt suppliers, and economic goal orientation affect owner-managers' attitudes toward debt financing in family firms. They used a sample of 280 German family firms and found significant relationships between both financial knowledge and positive experience with debt suppliers and owner-managers' financial attitudes toward debt. They explored that family commitment moderates these relationships such that high family commitment increases the impact of prior experience with debt suppliers, though the effect of economic goal orientation is lowered and reversed. Overall, they contribute to research on financial decision making, capital structure, and social capital in family firms. Régis Blazy and Laurent Weill, (2013) worked on collateral in SME lending. They emphasized on importance of collateral in SME lending; the paper aims at testing empirically the three major theoretical reasons for using collateral: reduction of loan loss in the event of default, adverse selection and moral hazard. They observed that collateral contributes to reduce loan loss in the event of default, with differences among types of collateral in terms of the recovered value for a given initial value. The collateral does not solve adverse selection problems, as there is a positive relationship between collateral and risk premium, moral hazard, as secured loans are not associated with a lower probability of moral hazard behaviour. They suggest that information asymmetries are not of prime importance in the decision of the bank to secure loans to SMEs. Dario Cziraky et. el, (2005) have worked on loan assessment of SME loan programme in Croatia and investigate possible reasons for low loan approval rate that occurred in spite of interest rates subsidisation and sufficient supply of the loan funds. Among all SME loan requests, banks preferred smaller firms that requested smaller loans. They suggested that individual banks differ in their criteria and in their loan-size preferences and that there is no positive correlation between the bank's size and its loan-size preference. Arito and Ichihiro, (2009) investigated on determinants of the use of collateral and personal guarantees in Japan's SME loan market. They suggested that firms' riskiness does not have a significant effect on the likelihood that collateral is used, however, that main banks whose claims are collateralized monitor borrowers more intensively and that borrowers who have a long-term relationship with their main banks are more likely to pledge collateral. They suggested that consistent with the use of collateral is effective in raising the bank's seniority and enhances its screening and monitoring. Lakshmi and Murugan, (2009) examined on credit requirements of SMEs as well as difficulties faced by SMEs in availing bank finance. Their works indicate that most of the SMEs are availing cash credit facility from banks and are aware of the bank credit facilities through their agents. In availing bank credit facility, simple documentation has been ranked first, followed by low interest rate, quick financing, reputation, period of repayment and service. The study also reveals that technology of the bank has improved tremendously when compared to other aspects like employee relations, adequate credit facilities and helping the rural people. In next section we have discussed on methodology and analysis of this paper.

## **METHODOLOGY**

The amount of credit facility by the lending institutions to the firm is assumed as independent variable and the output is assumed as a dependent variable. The secondary data related to dependent and independent variable are used to achieve the defined objective. The secondary data for the period 1991-2013 is collected and compiled from various annual reports of RBI, annual report of SME and scholarly articles related to SME. And from 2013 to 2018 the estimated value of all these variables has been taken on the basis of average changes in the value of all the variables. The correlation coefficient is used for examination of inter-relationship between growth rate of MSE, growth rate of credit and growth rate of output. The multiple regression is used to find out the degree of functional relationship between output and volume of credit in micro and small enterprises. The dependent variable is output and remaining variables are independent variables. The data is classified in time series form. The average, standard deviation, average of percentage changes, correlation coefficient and multiple regression (ordinary least square) are used in analysis and comparison of result. In the model, output (Q) is a dependent variable and independent variables are credit facility (C), number of units (N), capital investment (I) and unobserved variable ( $\mu$ ). The equation of ordinary least square (OLS) and marginal productivity of credit facility is illustrated below.

$$Q = f[\alpha + (\beta_1 C_i + \beta_2 N_i + \beta_3 I_i) + \mu_i] \quad \dots\dots\dots (i)$$

In equation (i) output (Q),  $\alpha$  is constant parameters,  $\beta_1$  through  $\beta_3$  is coefficient parameters of Credit (C), Number of Units (N) and investment amount (I) respectively

### **ANALYSIS AND FINDINGS**

The analysis comprises simple quantitative analysis of credit facility of banks and performance indicators of MSE i.e. the indicators or variables are numbers of units, fixed capital investment, output value and credit amount.

**Table -1 : Output, Investment and Bank Credit of SME/MSE (Amount in Rs. Billion)**

Year	No. of MSE (in Million)	SME Output (Rs. Billion)	Fixed Investment (Rs. Billion)	Credit Volume of All Banks (Rs. Billion)			Total Bank Credit to MSE	Total Capital (Investment + Credit) in MSE	MSE Credit to Net Bank Credit (%)
				PSB Credit	Pvt. Bank Credit	Foreign Banks Credit			
2004-05	11.86	4297.96	1786.99	67.63	8.59	6.91	83.13	1870.12	9.40
2005-06	12.34	4978.42	1881.13	82.43	10.42	8.43	101.29	1982.42	7.50
2006-07	36.76	11988.17	8685.43	102.55	13.14	11.64	127.32	8812.75	7.20
2007-08	37.73	13229.60	9204.59	151.14	46.91	15.49	213.54	9418.13	11.60
2008-09	39.37	13756.98	9771.14	191.41	46.66	18.06	256.13	10027.27	11.30
2009-10	41.08	14883.90	10385.46	278.40	64.53	21.07	364.00	10749.46	13.40
2010-11	42.87	16555.80	11059.34	376.63	87.86	21.54	486.02	11545.36	12.60
2011-12	44.76	17908.04	11833.32	396.34	110.51	21.76	528.62	12361.94	11.20
2012-13	46.55	19340.68	12779.99	459.76	130.41	22.85	613.01	13393.00	12.10
2013-14	48.41	20501.12	14185.78	528.72	156.49	24.45	709.66	14895.44	12.24
2014-15	50.35	22551.24	15604.36	629.18	190.92	26.65	846.74	16451.10	12.40
2015-16	52.36	25031.87	17008.76	717.26	225.28	29.31	971.86	17980.61	13.05
2016-17	54.46	29287.29	19219.89	810.51	277.09	33.42	1121.02	20340.91	12.75
2017-18	56.64	32801.77	22295.08	956.40	343.60	37.43	1337.42	23632.50	12.90
Total 1991-18	695.42	274225.14	183388.31	6246.38	1712.40	298.99	8257.77	191646.08	
Mean 1991-18	24.84	9793.76	6549.58	223.09	122.31	21.36	294.92	6844.50	13.12

Source : Compiled and estimated from Annual Report of MSME and RBI various issues (1991 to 2017-18).

It is observed from table-1 that, total credit during 1991-2018 by all commercial banks was Rs. 8257.77 billion out of which Rs 6246.38 billion disbursed by PSB, Rs. 1712.40 billion by private sector banks and Rs. 298.99 billion by foreign bank in MSME. Total Investment by the promoter in MSEM was Rs. 183388.31 billion, while total fund infusion (capital infusion) in MSME was Rs. 191646.08 billion with 12.90 % share of bank credit in total capital for total output of Rs. 274225.14 billion in MSME sector. The average fund infusion for the period 1991-2018 is Rs. 6844.50 billion per annum including total average bank credit of Rs. 294.92 billion per annum; for the same period average output is Rs. 9793.76 billion. During 1991-2004, the private sector banks bank credit in MSME was almost negligible and bank credit by foreign banks was zero. From above database it can be observed that the PSB share in total bank credit is 71.51 percent, private bank share 25.69 percent and foreign bank share 2.80 percent on 2018. The bank credit of PBS and foreign has been declined from average bank credit for the period 1991 to 2018, while bank credit of private sector banks have been increased from average bank credit for the period 1991 to 2018. The average growth rate of bank credit in MSME is 18.34 percent, PSB 16.65 percent, private bank 40.71 percent and foreign bank 14.36 percent. The growth rate of PSB bank credit is 18 percent; private sector bank 24 percent, foreign bank 12 percent and total bank credit 19.30 percent. From above table it is observed that private sector banks is doing well in case of MSME finance, public sector bank is maintaining its tempo while foreign bank is not doing well.

TABLE-2: Total Credit, Output, COR and Marginal Productivity of Credit

Year	Growth rate of Nos. Of SME (%)	Growth rate of SME Output (%)	Credit Investment Ratio (in Times)	Credit Output Ratio (in Times)	Marginal Productivity of Credit	Marginal Productivity of Investment	Marginal Productivity of Capital
2004-05	4.04	17.90	4.652	1.934	26.252	7.694	5.950
2005-06	4.05	15.83	5.384	2.034	37.487	7.228	6.060
2006-07	197.89	140.80	1.466	1.062	269.212	1.030	1.026
2007-08	2.64	10.36	2.320	1.614	14.399	2.391	2.051
2008-09	4.35	3.99	2.621	1.862	12.383	0.931	0.866
2009-10	4.34	8.19	3.505	2.446	10.447	1.834	1.560
2010-11	4.36	11.23	4.395	2.936	13.702	2.481	2.101
2011-12	4.41	8.17	4.467	2.952	31.743	1.747	1.656
2012-13	4.00	8.00	4.797	3.170	16.975	1.513	1.389
2013-14	4.00	6.00	5.003	3.462	12.007	0.825	0.772
2014-15	4.00	10.00	5.426	3.755	14.955	1.445	1.318
2015-16	4.00	11.00	5.714	3.882	19.827	1.766	1.622
2016-17	4.00	17.00	5.833	3.828	28.529	1.925	1.803
2017-18	4.00	12.00	5.999	4.077	16.240	1.143	1.068
Mean 1991-2018	20.78	14.61	3.73	2.34	8.58	3.55	3.13
Average MPC = 6.05, Average COR = 2.10, Average CIR = 3.40							

Source : Compiled and estimated from Annual Report of MSME and RBI various issues (1991-2018).

From above result it is observed that the average credit output ratio is 2.10 percent that means the volumes of credit is only 2.10 percent of total output or say Rs. 2.04 is available for output quantity of Rs. 100. From above result it is observed that the average credit investment ratio is 3.40 percent that means the volumes of credit is only 3.40 percent of total investment size or say Rs. 3.35 against fixed investment of Rs. 100. The average marginal rate of productivity of credit is 6.05 per cent of output or says changes in output volume to changes in credit volume are changing at the average rate of 6.05 percent.

The correlation coefficient between all variables is showing either moderate or week or negative correlations. That means the correlation between growth rate of MPC and SCB is 0.135, MPC & Nos. of MSE unit is -0.67, MPC and MSE output is 0.592, MPC and CIR is 0.182 and MPC and COR is -0.167. Regression equation to estimate output is -

$$Q = f[\alpha + (\beta_1 C_i + \beta_2 N_i + \beta_3 I_i) + \mu_i]$$

In equation (i)  $\alpha$  is constant parameters,  $\beta_1$  through  $\beta_3$  is coefficient parameters of Credit (C), output (Q), Number of Units (N) and investment amount (I) respectively. For above equation, the value of intercept and coefficients are -

$$\alpha = 104.007, \beta_1 = 0.84, \beta_2 = -0.22, \beta_3 = -0.342.$$

Plug in the value of  $\alpha$  and  $\beta_1$  through  $\beta_3$  in equation (i) and draw OLS estimate of output (Q)-

$$Q = 104.007 + (0.84C_i + (-0.22N_i) + (-0.342I_i) + 0$$

with ESS = 200.707, RSS = 292.70, TSS = 492.777, and  $R^2 = 0.638$ , F = 4.13.

From above derivation it is clear that all coefficients are showing weaker value. Here the output depends on 0.84 of credit quantity, -0.22 of number of inputs and -0.342 of fixed investment. The value of unobserved variable must be equal to 0 as according to the property of best linear unbiased estimate. The value of  $R^2$  is 0.638 showing moderate level of relationship between dependent variable and value of all independent variables. The overall result is showing either weaker or negative impact on output. The F value is 4.13 at 0.05 level is found significant for all coefficient and intercept.

**CONCLUSION AND POLICY IMPLICATION**

It is observed that the volume of credit facility to total number of units, investment quantity and output is very low. After Nayak committee, it has been increasing due to multiple economic, international and political pressures. The correlation coefficient between the variables is also revealing poor and negative result. The ordinary least square shows that the reason of lower output is due to weak dependency on independent variables. Finally the paper concludes that, post liberalisation policies (1991-2018) related to

MSE credit, interest rate policies, credit rationing for MSE, priority sector policies for credit to MSE, openness for private and foreign bank in MSE finance is considerably good. The marginal productivity of credit to output is very strong; if we increase the credit quantity to MSE it will accelerate our production which will help in increase of the productivity of large sector firm, agriculture output, export earning and employment.

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