

Risk Analysis of Public and Private Sector Banks in India

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ABSTRACT

Earning and risk-taking play a major role in part of banking system. The quality of earnings is a very important criterion that determines the ability of a bank to earn consistently. It is essential to determine the profitability of bank and explains its sustainability and growth in earnings in future. In the present scenario, it has used CRAMEL ratio to know their impact and the ratio that influences on risk taking of banks. To analyze this aspect statistical tool like two – stage least square, ordinary least square and panel data has been used and to calculate Risk taking of Public and Private Sector Banks in India. The study found that Business per employee and Ratio of Advances to Total Assets have influenced the risk taking of the public sector banks during the study period and for the Private Sector banks Capital Adequacy, Ratio of other Asset to total Asset and operating profit to total assets have influenced the risk taking.

Key Words: Risk -Taking, Public and Private Sector Banks, CRAMEL Ratio.

INTRODUCTION

As banking system plays a vital role in economies based on modern market it necessary to know how far they take risk in their activities. A bank risk is generally created by inability of banks to pay payments when they become due. Banking sector is rapidly growing in India, it necessary to analysis the bank risk. Risk-taking is directly proportionate to return, the more risk a bank takes, it can expect to make more money. Greater the risk, increases danger for the bank may incur huge losses and be forced out of business. Today, a bank must run its operations with two goals in mind – to generate profit and to stay in business (Marrison, 2005). The present scenario has conducted to find the effect of CRAMEL indicators of banks on risk taking of commercial banks.

OBJECTIVE OF THE STUDY

1. To find out the impact and influences of CRAMEL ratio on Risk -Taking of Banks

IMPACT OF CRAMEL RATIOS

This study include the CRAMEL ratios that impact the Risk taking and Earnings (Discretionary Accruals) of commercial banks by using the following statistical tools such as ordinary least square and panel data.

I Ordinary least square

Ordinary least squares (OLS) or linear least squares is a method for estimating the unknown parameters in a linear regression model. OLS chooses the parameters of a linear function of a set of explanatory variables by minimizing the sum of the squares of the differences between the observed dependent variable (values of the variable being predicted) in the given dataset and those predicted by the linear function. Since the numbers of ratios are high and some or all of them may be correlated with each other leading the multico- linearity problems, the step wise regression has been used.

The ratios which influence the risk-taking capacity of banks have been analysed using ordinary least square (OLS) regression.

REGRESSION ANALYSIS

Regression analysis has been done to find the effect of several selected CRAMEL ratios on Risk taking of public and private sector.

CRAMEL Ratios Vs. Risk Taking – Public sector

Regression analysis has been done to find the effect of CRAMEL ratios on Risk Taking of banks. The regression results are given below.

Table no: 1

REGRESSION – CRAMEL Ratios Vs. Risk Taking – Public Sector

Dependent Variable: Risk Taking

	Regression Coefficients (B)	Std. Error	Beta	t	Sig.
(Constant)	-27.831	36.253			
Business Per Employee	-2.038	0.247	-0.580	-8.244	**
Ratio of Fixed Assets to Total Assets	-1160.589	266.038	-0.259	-4.362	**
Interest spread	1.254	0.394	0.189	3.182	**
Interest Income to Total Income	99.280	41.937	0.171	2.367	*
Ratio of Government Securities to Total Investment	-42.367	17.830	-0.168	-2.376	*
Ratio of Advances to Total Assets	84.541	31.942	0.189	2.647	**
Ratio of Other Assets to Total Assets	-0.313	0.082	-0.233	-3.797	**
Liquid Assets to Total Assets	1.103	0.466	0.140	2.365	*
Interest Income to Average Working Fund	3.873	1.266	0.223	3.060	**
Interest Income to Total Assets	-362.534	153.406	-0.201	-2.363	*
Cash – Deposit	-1.346	0.605	-0.137	-2.226	**

Source: Computed

R	R Square	F	Sig.
0.590	0.348	10.640	**

Source: Computed

The ratio of Business per Employee, Fixed Assets to total assets, Government securities to total investment, Other assets to total assets, Interest income to Total assets and Cash deposit ratio affect risk taking negatively. The t-test results show that among all the ratio Business per Employee, Fixed asset to Total asset, Interest spread, Advances to total assets, other assets to Total assets, Interest income to Average working fund and Cash deposit ratio have a significant effect on dependent variable at 1% level. Interest income to total income, Government securities to total investment, liquid assets to total assets and interest income to total assets have a significant effect on dependent variable at 5% level.

The multiple correlation co-efficient has been found out to show the degree of relationship between all the independent variables and the dependent variable. It shows that there is high correlation between dependent and independent variables (R=0.590). The R square value shows that 34.8% contribution on risk taking is done by the set of all independent variables.

The F-test value (10.640) shows that the correlation is significant at 1% level.

The following null hypothesis has been framed to find whether the selected ratios have a significant influence on risk takings of bank.

H0: “The selected independent variables do not have a significant influence on risk taking of banks”

Table no: 1(a)
Risk Taking – Pooled OLS and Panel Data Regression – Public Sector

	Pooled OLS			Fixed Effects (FE)			Random Effects (RE)		
	B	t-value	Sig.	B	t-value	Sig.	B	t-value	Sig.
(Constant)	-27.831			45.381			34.773		
Business Per Employee	-2.038	8.244	**	16.929	1.920	Ns	19.616	2.150	*
Ratio of Fixed Assets to Total Assets	-1160.589	-4.362	**	1.504	0.300	Ns	0.994	0.190	Ns
Interest spread	1.254	3.182	**	0.005	0.250	Ns	-0.002	-0.080	Ns
Interest Income to Total Income	99.280	2.367	*	-151.829	-1.820	Ns	-165.004	-1.890	Ns
Ratio of Government Securities to Total Investment	-42.367	-2.376	*	-55.777	-0.990	Ns	-54.875	-0.950	Ns
Ratio of Advances to Total Assets	84.541	2.647	**	-0.164	-1.620	Ns	-0.220	-2.110	*

Ratio of Other Assets to Total Assets	-0.313	-3.797	**	-0.042	-0.420	Ns	-0.021	-0.210	Ns
Liquid Assets to Total Assets	1.103	2.365	*	-16.436	-1.200	Ns	-13.020	-0.910	Ns
Interest Income to Average Working Fund	3.873	3.060	**	0.380	0.980	Ns	0.495	1.220	Ns
Interest Income to Total Assets	-362.534	-2.363	*	-10.133	-0.890	Ns	0.121	0.100	Ns
Cash Deposit	-1.346	-2.226	**	0.238	1.340	Ns	0.149	0.860	Ns
R ²	0.348			0.9718			0.2497		
F-statistic	10.640		**	2.48		**			
Wald (x2)							25.76		**
Hausman (x2)							26.00		**
LM (x2)							634.85		**

Source: Computed

The regression coefficient sign has been similar in both FE and RE Model except Interest spread and Interest income to total Assets they differ in the pooled OLS model. The R² values show only moderate correlation between the independent variables and risk taking. The F value and Wald Chi square have shown a significant correlation between the selected independent variables and the risk takings of the banks.

Thus, it is concluded that Business per employee and Ratio of Advances to Total Assets have influenced the risk taking of the public sector banks during the study period.

CRAMEL Ratios Vs. Risk Taking- Private sector

Regression analysis has been done to find the effect of CRAMEL ratios on Risk Taking of banks. The regression results are given below.

Table no: 2
REGRESSION – CRAMEL Ratios Vs. Risk Taking – Private Sector
Dependent Variable: Risk Taking

	Regression Coefficients (B)	Std. Error	Beta	t	Sig.
(Constant)	-31.864	36.956			
Term Deposit to Total Deposit	154.438	20.831	0.472	7.414	**
Capital Adequacy	4.942	0.918	0.337	5.386	**

Return on Investment	1.182	0.392	0.225	3.012	**
Ratio of Fixed Assets to Total Assets	-2450.571	591.704	-0.255	-4.142	**
Ratio of Other Assets to Total Assets	-0.429	0.125	-0.219	-3.423	**
Operating Profit to Total Assets	3.258	1.338	0.149	2.436	*
Net NPA to Net Advance	10.119	2.656	0.265	3.810	**
RONW	1.552	0.474	0.245	3.273	**
Ratio of Government Securities to Total Assets	-349.861	96.803	-0.281	-3.614	**
Liquid Assets to Total Assets	-17.794	5.729	-0.208	-3.106	**
Interest spread	5.098	1.993	0.151	2.558	**
Credit Deposit	-0.533	0.258	-0.178	-2.066	*

Source: Computed

R	R Square	F	Sig.
0.755	0.570	18.034	**

Source: Computed

The ratio of fixed assets to total assets, ratio of other assets to total assets, government securities to total assets, liquid assets to total assets and Credit deposit ratio affect risk taking negatively. The t-test results show that among all the ratio term deposit to total deposit, capital adequacy, return on investment, fixed asset to total asset, other assets to total assets, Net NPA to net advances return on net worth, government securities on total assets, liquid assets to total assets and interest spread ratio have a significant effect on dependent variable at 1% level. Operating profit to total assets and credit deposit ratio has a significant effect on dependent variable at 5% level.

The multiple correlation co-efficient has been found out to show the degree of relationship between all the independent variables and the dependent variable. It shows that there is high correlation between dependent and independent variables ($R=0.755$). The R square value shows that 57% contribution on risk taking is done by the set of all independent variables.

The F-test value (18.034) shows that the correlation is significant at 1% level.

The following null hypothesis has been framed to find whether the selected variables have a significant influence on risk takings of banks.

H₀: “The selected independent variables do not have significant influence on risk taking of bank”

Table no: 2(a)
Risk Taking – Pooled OLS and Panel Data Regression – Private Sector

	Pooled OLS			Fixed Effects(FE)			Random Effects(RE)		
	B	t-value	Sig.	B	t-value	Sig.	B	t-value	Sig.
(Constant)	-31.864			-17.268			-18.290	-1.510	0.131
Term Deposit to Total Deposit	154.438	7.414	**	7.686	0.400	Ns	5.412	0.270	Ns
Capital Adequacy	4.942	5.386	**	4.481	23.140	**	4.501	22.570	**
Return on Investment	1.182	3.012	**	-0.011	-0.400	Ns	-0.015	-0.530	NS
Ratio of Fixed Assets to Total Assets	-2450.571	-4.142	**	0.102	1.650	Ns	0.094	1.480	*
Ratio of Other Assets to Total Assets	-.429	-3.423	**	432.240	2.690	**	400.845	2.420	*
Operating Profit to Total Assets	3.258	2.436	*	-0.196	-2.280	*	-0.188	-2.140	*
Net NPA to Net Advance	10.119	3.810	**	-0.141	-0.260	Ns	-0.087	-0.160	Ns
RONW	1.552	3.273	**	0.033	0.360	Ns	0.043	0.450	Ns
Ratio of Govt.Securities to Total Assets	-349.861	-3.614	**	0.605	1.380	Ns	0.650	1.440	Ns
Liquid Asset to Total Assets	-17.794	-3.106	**	-0.321	-1.430	Ns	-0.305	-1.310	Ns
Interest spread	5.098	2.558	**	5.088	0.600	Ns	7.312	0.840	Ns
Credit Deposit	-.533	-2.066	*	3.582	0.400	Ns	4.224	0.530	Ns
R2	0.570			0.8118			0.8111		
F-statistic	18.034		**	53.02		**			
Wald (x2)							596.58		**
Hausman (x2)							21.29		**
LM (x2)							345.05		**

Source: Computed

The regression co efficient sign have been uniform in both FE and RE and they differ from Pooled OLS model. The R² values show only moderate correlation between the independent variable and risk taking. The F-test and Wald Chi square have shown significant correlation between selected independent variables and risk taking (RT).

Thus, it is concluded that Capital Adequacy, Ratio of other Asset to total Asset and operating profit to total asset have influenced the risk taking of the Private Sector banks.

FINDINGS

Public Sector - The ratio of Interest spread, Interest income to total income, Advances to total assets, Liquid Assets to total assets and Interest income to average working fund to have a positive effect on Risk taking.

The result concluded that Business per employee and Ratio of Advances to Total Assets have influenced the risk taking of the public sector banks during the study period.

Private Sector - The ratio of term deposit to total deposit, capital adequacy, return on investment, operating profit to total assets, net NPA to net advances, return on net worth and Interest spread ratio have a positive effect on Risk taking.

The analysis concluded that Capital Adequacy, Ratio of other Asset to total Asset and operating profit to total assets have influenced the risk taking of the Private Sector banks.

CONCLUSION

The Banking industry has been regarded as the backbone of every economy. The health of the banking industry will predict the health of the economy. Public Sector Banks have to introduce new financial instruments and innovations in order to continue their business. AS Indian banks are moving towards modern banking changes and it has to adopt new technology in banking industry in order to fasten their business and beat the competitions. The stability of the banking is determined by its performance and quality of assets. By considering all these factors Bankers must also know the areas where the risk-taking are taken by the banks and they should concentrate on those areas in-order to avoid huge loss that transpire or to avoid bank form bank ruptcy.