# Economic value added: Performance and Marginal Analysis of Axis bank

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### ABSTRACT

With the advancement in the era, banks look forward for the long term growth of the firm and also increase the shareholder base with time. The major hurdle in front of banks these days is creating shareholder value, as in post recession period profitability and share holder value creation of banks have been severely hit. Moreover traditional measures like Operating Margin and ROE do not completely capture shareholder value creation as they lack the inclusion of various important factors like WACC. In this paper an attempt has been made to understand the impact of various performance ratios like ROA, ROE and Margin ratios like Operating Margin and Net Interest Margin over EVA of the Bank. A true attempt has been made to assess and understand the impact of these ratios over Axis bank for a ten year period of study.

Keywords: EVA, ROA, ROE, NIM, Operating Margin, Axis Bank.

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#### **INTRODUCTION:**

Sturdy Banking system plays a very important role in the development of the country and is the backbone of the country's economy. A sturdy banking system not only drives the economy towards its development goal but also makes the economy self reliant. After the introduction of Narsimhan committee Indian economy became open for private banking as well. This resulted in steep competition integrated with innovation and advancement in technology hence every banking company tried to provide better management and services to its customers which led to expansion of their activities. With the changing economic dynamics of world every bank is trying hard to sustain its place in the economy and increase its profitability in the market.

The Economic Value Added (EVA) has emerged as a single most important indicator to assess the profitability of the banking system. As the EVA increases with time it can be said that shareholder wealth is increasing with the profitability of the banking system but as EVA decreases it shows how much value has been destroyed by the bank which is a sign of distress for its shareholders. EVA tries to quantify the value which is created by the bank for its shareholders. Many researches have been performed at international level to find out various influential factors which effect performance of the banks like ROA, ROE, EPS etc. EVA as per the traditional definition of Stern Stewart Co. (1989) can be defined as the relation of Net Operating Profit After Tax with the capital charged for that year. Empirically it can be shown as:

### EVA= NOPAT- (WACC × CAPITALEMPLOYED)

Where NOPAT refers to net operating profits after taxes. NOPAT equal to earnings before interest and tax (EBIT) minus adjusted taxes (AT). EBIT refers to the earnings before interest and tax. EVA can be estimated focusing both on Management of Capital as well as the Management of Profits (as summarized by Verma). It is the absolute measurement of firm's performance in an unadjusted format and also answers the query that whether the company has created real value for its shareholders or not.

#### EVA as a measure of value creation through Management of Profits

EVA = [Return on invested Capital (ROIC) - Cost of Capital (WACC)] x Total Capital

Invested

#### EVA as a measure of value creation through Management of Capital

The use of this formula will produce either a positive or negative EVA number. In the above formula of EVA, if NOPAT is lesser than WACC\* Total Capital Invested i.e. Capital Charge then the resultant value is negative which means if the investment in the business is increased it would lead to a bigger negative EVA. So as per management, it would be beneficial for the companies if it gives money as a dividend rather than investing in the firm itself. In such a situation the firm can either increase the NOPAT of the firm or can decrease the Capital Invested of the firm. Further if EVA = 0 it means that NOPAT earned by the company is equal to the Capital Charge of the firm which implies that return earned by the shareholders is compensated by the risk undertaken by them. If NOPAT is greater than the WACC\*Total Capital Invested i.e. Capital Charge, then the resultant value i.e. EVA would be positive which means that the return of the company is more than the cost invested which in turn indicates that the company or bank has created and generated value for its shareholders and there is a growth in the Firm's size. Therefore, the EVA may be increased in several ways, including:

1) Increasing NOPAT;

## 2) Lowering the WACC and

3) Reducing invested capital

The goal of this paper is not conceptual but an empirical analysis of various performance and growth ratios which have affected the EVA of Axis bank for the past 10 years. This work will focus on various statistical and mathematical values which influence EVA and their intensity.

## LITERATURE REVIEW

Stern Stewart Co. (1989) identified major 1000 service and industrial companies of US in "EVA versus traditional accounting measures of performance as drivers of shareholder value" (Stewart, 1989)," That was the first breakthough with EVA. After this, Stern (1990) again evaluated "EVA as a performance measure captures the true economic profit of an organization." This was a sub theme in the major work known as "way to build value in your firm. Executive compensation" This brought the whole change in the industry and EVA emerged as the economic value quantifier in the industry.

Stewart (1994) later worked in the expansion of the concept of EVA so that it could be adopted by various companies in various sectors throughout the financial world. This helped in creating a framework which converts company's energy integrated with resources in to the value creation for the shareholders and for management. The concept of EVA was soon popularized in India as well and many researches took place in various sectors keeping in mind the power of EVA. Banerjee (1997) initially conducted a research to prove that EVA is superior than other standard financial ratio: ROI. Pattanayak, J.K., Mukherjee, K. (1998) worked over "Adding value to Money" where they compared and discussed old traditional methods of evaluating and measuring accounting income and compared them with the new invented concept of EVA where it emerged as the better option to identify and quantify the value generation done by the company in the previous years.

Banerjee, Ashok and Jain (1999), later simplified the work of Pattanayak and Mukharjee (1998) and underwent through work on "Economic Value Added and Shareholder Wealth: An Empirical Study of Relationship" in which they worked on quantifiable values like DPS, EPS, RONW, Ke and Kd etc as independent variable and proved the relation with EVA. He also extended his work by involving the use of MVA in this work. Even KPMG - BS study (1998) assessed a group of companies and compared EVA with various other standard ratios like PAT, DPS, annual growth

rate etc. This study used BS-1000 list of companies of US from the period of 1996-97. As a result out of 100, 62 companies were found having positive effect of EVA while others(38) having negative EVA. Later Anand, Ajay Arora, Asha and Manoj Garg (1999) went on a step further worked on *"Economic Value Added: Business performance measure of shareholders' value"* and inferred that EVA and Refined Economic Value are better ways of measuring the business efficiency apart from traditional ratio techniques used in the past. Evans,John (1999) brought in front some important facts. In his paper he explained how adjustments are needed in order to get the actual values for true calculation of EVA of a company. Further he also explained that there are also many ways through which a financial manager could manipulate the EVA of a company and hide the real status. Banerjee (2000) worked to find out whether the EVA is a better performer as compared to operational activity ratios of manufacturing industries and concluded that EVA itself is suffice to detect the complete health of a company. Although when EVA was combined with MVA it gives added information about company's added value to its market shareholders as well.

Business Today in 2000 January published an interview of Joel Stern, one of the founder of EVA concept where he claimed that EVA is a technique which can be applied to a firm at any stage of the company, no matter whether the company is at growing phase or maturity or even in its declining phase EVA works as a single solution at any point of time and at any sector of the industry. For an effective implementation of an EVA it is important to be adopted by the existing managers and the corporate rather than outsourcing the service from somewhere else as it may not result in the desirable changes. With the adoption of EVA the complete system will change hence this change should come from within rather than from external source.

Soral and Shurveer (2009) revealed that EVA has found to have significant correlation with operating margin. Their study supports the hypothesis of Stern and Stewart's that MVA of firm was largely positively associated with EVA in all the selected sectors of Indian Automobile industry. It appears that the concept of EVA, as an emerging concept of financial management is fairly clear in the minds of almost all these researches whose studies have been reviewed above. In a fast changing business environment, the investor friendly financial performance measures may be the need of hour.

### **RESEARCH METHODOLOGY**

#### **Research Objective:**

- 1) To calculate EVA of Axis bank from 2006-07 to 2015-16 i.e. for a longitudinal time space of ten year period to understand the ups and downs in the value creation by Axis bank.
- 2) Comparison of performance ratios like ROA and ROE with EVA and evaluating their impact over EVA of Axis bank
  - H01: ROA does not have a significant impact over EVA of the Axis bank during the period of study (2007-2016)

ROA of a firm to a great extent depends upon the quality of assets. Here in this case an attempt is made to understand how the changes in ROA lead to changes in EVA. An attempt has been made to understand the intensity of the impact of ROA over EVA of the bank.

H02: ROE of the bank does not have a significant effect over EVA of the Axis bank during the period of study from 2007-2016

A firm who does not follow the standards of EVA depicts ROE as the value generated by the shareholders. On the contrary ROE does not take into consideration the changes in Cost of Capital and various other factors. Whereas EVA is an absolute factor to understand the change in shareholder value creation. Here an attempt is made to understand the effect of ROE over EVA of the bank.

- Studying the impact of various margin ratios like NIM and Operating Margin over Axis Bank.
  - H03: Net Interest Margin does not have a significant impact over EVA of the Axis bank during the period of study from 2007-2016.

Margin ratios are the most important ratios of banks as they give us the idea that what is interest income generated by the banks v.s. amount of interest income paid to the lenders in relation to the amount of their interest earning assets. An attempt has been made to understand the impact of NIM over growth or downfall of EVA. H04:Operating margin of the bank does not have any significant impact over EVA of the Axis bank during the period of study (2007-2016)

Operating Margin is the traditional measure of profitability. It gives us the understanding that how much of revenue is still left after paying the operating expenses of the bank. Here the impact of Operating margin over EVA is evaluated.

## **Study Variables:**

Economic value added (EVA) = Return on capital - Weighted average cost of capital

Net operating profit after tax = Earning/Profit adjusted with effect of Tax

Return On Asset= Net income/Total Assets

Return On Equity = Net Income/ Shareholder's Equity

Net Interest Margin = (Investment Return – Interest Expense)/Average Earning Assets

Operating Margin = Operating Income / Net Sales

#### **Data collection:**

The data necessary for calculation was collected from the balance sheet of the company (Secondary data). Data more than five year back was fetched from prowess database. While the help of various online databases like Yahoo finance, money.rediff etc were also referred for updated and missing information.

## **EMPIRICAL RESULT & DISCUSSION**

After the data collection was over, calculations for the desired result was done in the following chronological order:

- 1) Computation of WACC for the calculation of EVA
- 2) Computation of NOPAT for calculation of EVA
- 3) Computation of Capital employed for calculation of EVA
- 4) Computation of EVA for a 10 year period from of 2007-2016

- 5) Computation of Operating margin from the data available in balance sheet
- 6) Impact assessment (Regression analysis) of :
  - ▶ ROA over EVA from 2007-2016
  - ▶ ROE over EVA from 2007-2016
  - ▶ NIM over EVA from 2007-2016
  - > Operating Margin over EVA from 2007-2016
- 7) Simultaneous Analysis of Result.

## Calculation of WACC:

Weighted Average Cost of Capital for the bank is calculated for each year. As per the guidelines of Stern and Stewart (1990) and Dubey (2000) WACC used for the calculation of EVA should be calculated using CAPM model, where cost of equity is calculated using Beta of market shares. For Risk Free rate of Return 365 T bills are considered as they seem to be the standard approach for WACC calculation.

WACC= Equity/ Capital employed\*Ke + Long term borrowing/Capital employed\*Kd

Cost of Debt (Kd) = (Total interest Expenses/ Net proceed) \* (1-Tax rate) \* 100

Cost of Equity (Ke) = Risk free rate+ beta(Market Return-Risk free rate) (CAPM model )

Beta of the Axis bank was calculated from the share value available at CNX NIFTY. Although it was available in Bank NIFTY but CNX was preferred.

## **EVA Computation:**

Once WACC, Capital Employed was calculated, the data was used to calculate EVA of the bank for each year.

EVA= NOPAT-WACC\*CapEmp

NOPAT= Net operating profit after tax (Net profit + Contingencies + Interest Exp -Tax)

WACC= Weighted average cost of capital

CapEmp= Capital Employed (Net worth +Total Debt)

The following table shows the EVA of Axis bank from 2007-2016:

 Table 1 EVA Computation

Years	2006-07	2007-08	2008-09	2009-10	<mark>2010-11</mark>	2011-12	2012-13	2013-14	2014-15	2015-16
EVA	17171.32	21937.76	29073.98	45601.35	<mark>39762.66</mark>	51725.45	44185.72	77036.93	70561.49	90049.08
		4766.435	7136.225	16527.37	-5838.7	11962.79	- <mark>7539.73</mark>	32851.21	-6475.44	19487.58
Incre.EVA										

From the above data in the table it can be inferred that during the year 2012-13 was the period when least value was created by the bank in the complete ten year period while 2012-13 was the time when there was a huge downfall in the value of EVA when compared with the previous year's value. There was a consistent increase in the EVA from 2006-07 to 2010 but after that there is an alternative increase and decrease in the value creation by the bank. The Graphical representation of EVA is as follows:



Figure 1 EVA (2007-2016)

**H01:** *: ROA does not have a significant impact over EVA of the Axis bank during the period of study* (2007-2016)

Model Summary <sup>b</sup>											ANOV	A <sup>a</sup>			
Mode		R Squar	Adj ed	just R H	Std. Error of the Estima	Durbi n- Watso		Мо	del	Sum of Squa es	r df	Mea Squ e	an ar	F	Sig.
1	R	e	Squ	are	te	n		1	Regressi	2.06	7 1	2.06	67 2	9.64	.00 <sup>b</sup>
1	.887 a	.787		761 .	26407	.866			on Residual	.55	8 8	.07	70	1	
a. Predictors: (Constant), LROA								Total	2.62	5 9					
b. Dependent Variable: LEVA								a. E b. P	Dependent Predictors:	Variable (Consta	e: LEVA nt), LRC	) A			
						Coef	fici	ients'	l						
				Unstan Coeft	dardized ficients	l Standa Coeffi	irdiz icie:	zed nts			Col St	linear atistic	rity cs		
	Μ	odel		В	Std. Error	Ве	eta		t	Sig.	Tolera	nce	VIF		
	1	(Consta	nt)	9.357	.255	5			36.625	.000					
		IROA		3 032	55	7	ç	887	5 4 4 4	001	1.0	000	1 000		

## Table 2 ROA impact over EVA

a. Dependent Variable: LEVA

#### General equation: $EVA = 9.357 + 3.032(ROA) + E_0$

From the above table 2 (model summary and ANOVA) it can be inferred that there is a significant and positive effect of ROA on EVA of Axis bank during the study period. Further this argument can be substantiated by the value of  $R^2$  and Adjusted  $R^2$  which is 0.787 and 0.761 and indicates a good fit model.

 $R^2$  and Adjusted  $R^2$  reveals that the model is adequate and the current factors can interpret sufficient information from the changes in dependent variable. Although there are also other factors as well which may affect the EVA of the bank but ROA is also one of the dominant factor which affect the EVA of the bank as it has a higher  $R^2$  and Adjusted  $R^2$  value.

Since the calculated value of F (29.641) is greater than the tabled value of F (tabled value =4.03) thus it can be inferred that there is an effect of ROA over EVA of the Axis bank, thus hypothesis is not accepted. The p value of F is also less than the considered level of significance hence it acts as an add-on factor to our conclusion. We can also see that VIF factor is 1 and also the tolerance factor is 1.00 which supports the fact that there is absence of colinearity. The Durbin Watson value is 0.866 which is also less than 4 hence there is no auto-correlation between the two coefficients i.e. ROA and EVA of the bank.

The un-standardized coefficient Beta shows a value which is a measure of how strongly ROA effects the EVA of the bank. So this shows that 1 Standard deviation change in Independent variable i.e. ROA may result in 3.032 change of standard deviation in EVA.  $E_0$  is the theoretical existence of error or difference between the actual and calculated value between dependent and independent variable. Hence it can be said that statistically ROA has an impact (keeping other variables constant) over EVA of the bank.

**H02:** *ROE* of the bank does not have a significant effect over EVA of the Axis bank during the period of study from 2007-2016

Model Summary <sup>b</sup>								ANOVA <sup>a</sup>					
				Std.					Sum				
				Error	Durbin				of		Mean		
		R	Adjuste	of the	-				Square		Squar		
Mode		Squar	d R	Estimat	Watso		M	odel	S	df	e	F	Sig.
1	R	e	Square	e	n		1	Regressio	50.020	1	50.02	5.02	.051
1	.88 <sup>a</sup>	.756	.712	3.1936	2.143			n				2	b
			IDOF					Residual	81.593	8	10.19		
a. Pre	dictors: (C	Constant)	, LROE					Total	124.63	9			
b. Dej	pendent v	ariable: I	LEVA				a.	Dependent V	'ariable: L	EVA			
							b.	Predictors: (	Constant),	LROE	3		
					Coeffi	ci	ents	a					

Table 3 ROE impacts EVA

	Coefficients											
		Unstand Coeffi	lardized cients	Standardized Coefficients			Colline Statist	arity tics				
M	odel	В	Std. Error	Beta	t	Sig.	Tolerance	VIF				
1	(Constant)	8.52	3.027		2.82	.005						
	LROE	1.593	1.230	.612	2.054	.051	1.000	1.000				

a. Dependent Variable: LEVA

General equation:  $EVA = 0.853 + 1.593(ROE) + E_0$ 

From the above tables it is clear that there is presence of a positive effect of ROE over EVA of the bank. The presence of p value is approximately equal to 0.05 which will be accepted. The value of  $R^2$  and Adjusted  $R^2$  is only 0.756 and 0.712 respectively which shows that there is a definite positive relationship and the above hypothesis is not accepted.

The F value of the model is 5.022 which is greater than the tabled value as discussed above. Also the p value of F is approximately equal to 0.05 i.e. 0.051 which is acceptable in the test hence it adds on to our conclusion. Moreover to remove the possibility of colinearity and auto-correlation we have performed the VIF test and Durbin-Watson test which shows that there is no autocorrelation (as the value of test is 2.143) and further there is no colinearity as the VIF factor has the value of 1.00 which is acceptable. The un-standardized coefficient Beta shows a value which is a measure of how strongly ROE effects the EVA of the bank. So this shows that 1 Standard deviation change in Independent variable i.e. ROE may result in 1.593 units change of standard deviation in EVA.  $E_0$  is the theoretical existence of error or difference between the actual and calculated value between dependent and independent variable. Hence it can be said that statistically ROE has an impact over EVA of the bank (keeping other variables constant).

**H03:** Net Interest Margin does not have a significant impact over EVA of the Axis bank during the period of study from 2007-2016.

	Model Summary <sup>b</sup>								ANOVA <sup>a</sup>					
				Std.					Sum					
				Error	Durbin				of		Mean			
		R	Adjuste	of the	-				Square		Squar			
Mode		Squar	d R	Estimat	Watso		M	odel	S	df	e	F	Sig.	
1	R	e	Square	e	n		1	Regressio	.804	1	.804	3.53	.097	
1	.554	.306	.220	.47704	.447			n					b	
	а							Residual	1.821	8	.228			
a. Predictors: (Constant), LNIM								Total	2.625	9				
b. Depe	endent V	ariable:	LEVA				a. b.	Dependent V Predictors: (	'ariable: L Constant),	EVA LNIM	[			

**Table 4 NIM impacts EVA** 

#### **Coefficients**<sup>a</sup>

	Unstand Coeffi	lardized cients	Standardized Coefficients			Collinearity Statistics		
Model	В	Std. Error	Beta	t	Sig.	Tolerance	VIF	
1 (Constant)	6.739	2.098		3.212	.012			
LNIM	3.182	1.693	.554	1.880	.097	1.000	1.000	

a. Dependent Variable: LEVA

From the above three tables it can be seen that the p value is 0.097 which is greater than 0.05 having  $R^2$  and adjusted  $R^2$  value as 0.306 and 0.220 respectively which is very low. It also has F value as 0.3.354 which is lesser than the tabled value (F=4.03), from the above calculations it can be said that the Hypothesis is not rejected hence there is no impact of Net Interest Margin of Axis bank over EVA of Axis bank during the period of study from 2007-2016.

**H04:** Operating margin of the bank does not have any significant impact over EVA of the Axis bank during the period of study (2007-2016)

	Model Summary <sup>b</sup>							ANOVA <sup>a</sup>						
				Std.				Sum						
				Error	Durbi			of		Mean				
		R	Adjust	of the	n-			Squar		Squa				
Mode		Squa	ed R	Estima	Watso		Model	es	df	re	F	Sig.		
1	R	re	Square	te	n		1 Regressi	2.350	1	2.350	68.51	$.000^{b}$		
1	.946 <sup>a</sup>	.895	.882	.18521	2.531		on							
o Drodi	atora: ((	Constant	I OnMra	n			Residual	.274	8	.034				
h. Dene	endent V	ariable:	, LOpwig LEVA	,11			Total	2.625	9					
b. Dependent variable. ELVA							a. Dependent	Variable:	LEVA					
							b. Predictors: (	(Constant)	). LOpN	Iron				

Table 5 Operating margin impacts EVA

Unstandardized CoefficientsStandardized CoefficientsCollinearity Statistics		Coefficients											
		zed of the second secon	Unstandardized Standar Coefficients Coeffic	Collinearity Statistics									
ModelStd.Sig.ToleranceV	Model	T Sig. Tole	B Error Bet	Tolerance VIF									
1 (Constant) 10.549 .060 174.570 .000	1 (Constant)	174.570 .000	10.549 .060										
LOpMrgn .675 .082 .946 8.277 .000 1.000 1.0	LOpMrgn	946 8.277 .000	.675 .082	1.000 1.000									

a. Dependent Variable: LEVA

## **General equation:** EVA = 10.549 + 0.675(Operating Margin) + $E_0$

From the above information it can be inferred that there is a presence of relation between Operating Margin of the bank and EVA hence the hypothesis is not accepted. The value of  $R^2$  and Adjusted  $R^2$  is only0.895 and 0.882 respectively which shows that although there is a definite positive relationship which is strong enough apart from other factors effecting EVA of the bank. The F value of the model is 68.515 which is greater than the tabled value (F=4.03). Also the p value of F (0.000) which is less than 0.05 which is the general accepted level of significance hence it adds on to our conclusion. Moreover to remove the possibility of colinearity and autocorrelation we have performed the VIF test (1.00) and Durbin-Watson test (2.531) where Durbin Watson value is little more than 2 but less than the accepted level of 4, which shows that there is no auto-correlation.

The standardized coefficient Beta shows a higher value of 0.675 which shows how strongly Operating Margin affects the EVA of the bank. It can be said that 1 Standard deviation change in Independent variable i.e. Operating Margin may result in 0.675 units change of standard deviation in EVA.  $E_0$  is the theoretical existence of error or difference between the actual and calculated value between dependent and independent variable. Hence it can be said that statistically Operating Margin has an impact over EVA of the bank (keeping other variables constant).

## LIMITATIONS AND FUTURE DIRECTIONS

Findings in this paper has helps us to understand the impact of various ratios over EVA of the bank. Although all these ratios alone cannot completely explain the shareholder value creation as they may do not consider WACC or any other changing cost in the firm but EVA is a standalone process which is complete in itself.

This analysis done in this paper can be taken a step further where the impact of all the ratios for example liquidity, NPA, capitalization, growth etc ratios can be calculated where we can study that which ratio has an impact over value creation for the shareholders and which one among them has the least contribution.

Moreover this research can be extended to other banks as well and a comparative analysis can be done among various banks of India.

This extensive research of EVA has various other aspects where it can be linked to Market Value Creation, Cash Value Added etc. Moreover multiple impact analysis of various ratios over EVA, MVA and CVA can be done and hence a holistic picture of complete analysis can be laid.

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