

2011	5.363804	0.459909	7	6300
2012	0.313315	0.49461	8	14050
2013	0	0.645703	8	0
2014	0	0.531993	8	0
2015	0	0.505809	8	0
2016	13.62679	0.360454	8	22500
2017	14.60764	0.346447	8	10000
2010	0	0	0	0
2011	0	0	0	0
2012	0	0	0	0
2013	1.713204	0.405095	0	50000
2014	5.086257	0.132008	4	0
2015	7.891069	0.178994	4	0
2016	34.89272	0.169699	4	0
2017	53.95127	0.353383	4	9500
2010	13.87936	0.216816	13	186750
2011	11.84646	0.224234	13	203450
2012	22.25798	0.168954	13	0
2013	25.82383	0.085934	13	0
2014	22.76221	0.142547	15	218250
2015	30.85493	0.180864	15	152900
2016	13.04913	0.150153	8	272113
2017	10.40214	0.132255	9	235667
2010	1.413927	0.146835	5	0
2011	74.74725	0.105068	5	0
2012	61.23432	0.112631	5	216000
2013	43.9379	0.235512	5	4500
2014	33.58548	0.248174	5	126500
2015	36.35016	0.212817	5	6000
2016	40.63558	0.275153	5	0
2017	35.38313	0.276066	5	570375
2010	100	0.119362	5	0
2011	11.4404	0.104565	5	196800
2012	19.79958	0.063201	5	100000
2013	35.99518	0.190919	5	0
2014	51.44532	0.291371	6	5000
2015	18.6162	0.37161	6	2458136
2016	64.44812	0.699707	6	0
2017	106.7423	0.666418	6	8500

Source: Annual Reports of the selected Microfinance Banks in Oyo state, Nigeria.

Table 2 showed variations in portfolio quality, business model design, business model innovation, and business model analysis of Micro Finance Bank in Oyo State, Nigeria. The data revealed upward and downward trend in portfolio quality of the selected Microfinance banks. Furthermore, there were variations in business model design, business model innovation, and business model analysis across the Micro Finance Banks. The data presentation revealed an inverse relationship between Portfolio quality and Business Model Analysis. Therefore, there is likelihood that with improvement in business model analysis with particular reference to the banks will lead to improvement in portfolio quality of the selected banks.

To determine the business model dimensions on portfolio quality of Micro finance bank in Oyo State, Nigeria, Panel regression was used with the independent variables being business model design (BMD), business model innovation (BMI), and business model analysis (BMA). The dependent variable is portfolio quality. Before the analysis, a series of diagnostic tests were carried out to ascertain the statistical soundness of the models and whether they could be used for forecasting.

Serial Autocorrelation Test (LM Test)

the output EViews offers three versions of the test, Breusch-Pagan LM, Pesaran scaled LM and Pesaran CD version. The results show that the Breusch-Pagan LM and Pesaran scaled LM had a p-value of 0.0156 and 0.0077 respectively leading to the acceptance of the null hypothesis of autocorrelation. The Pesaran CD result had a p-value of 0.1264 confirming the rejection of the null hypothesis of no autocorrelation. This implies that there is an evidence for the presence of serial correlation. The variables were transformed for analysis.

Hausman Test

The Hausman test was conducted and the chi-square value was 21.428750 with a probability value of 0.0001 which showed high statistical significant at the 5% significance level. Therefore, the null hypothesis which states that the individual specific effects are constants within the panel was rejected. Thus, the fixed effect estimator was found to be more appropriate than the random effect estimator. The fixed effect model is preferred in the presence of correlation as it allows for cross sectional heterogeneity by letting the intercept differ across entities.

Table 3: Regression Model 1 Estimates for Fixed Effect (Portfolio Quality Results)

Dependent Variable: PQ				
Method: Panel Least Squares				
Date: 12/03/19 Time: 23:28				
Sample: 2010 2017				
Periods included: 8				
Cross-sections included: 5				
Total panel (unbalanced) observations: 31				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
BMD	44.71061	29.75132	1.502811	0.1465
BMI	4.080825	2.775910	1.470085	0.1551
BMA	-1.83E-05	9.27E-06	-1.973164	0.0606
C	-5.085135	20.78334	-0.244674	0.8089
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.517427	Mean dependent var	32.23462	
Adjusted R-squared	0.370558	S.D. dependent var	27.34506	
S.E. of regression	21.69486	Akaike info criterion	9.209664	
Sum squared resid	10825.34	Schwarz criterion	9.579726	
Log likelihood	-134.7498	Hannan-Quinn criter.	9.330295	
F-statistic	3.523033	Durbin-Watson stat	1.995749	
Prob(F-statistic)	0.010226			

Source: Authors Computation using Eviews 9 (2019)

The regression model in algebraic/general form is:

$$PQ_{it} = \alpha_0 + \alpha_1 BMD_{it} + \alpha_2 BMI_{it} + \alpha_3 BMA_{it} + \mu_{it}$$

The specific regression model from the Eviews regression analysis is:

$$PQ = -5.085135 + 44.71061BMD + 4.080825BMI - 1.83E-05BMA \dots\dots\dots (eq. 1)$$

Table 3 showed the panel regression results (UEM fixed effect) of effect of Business Model dimensions (business model design, business model innovation, and business model analysis) on portfolio quality (PQ). The adjusted r-squared value showed that 37.05% of variations in portfolio quality were caused by individual specific effects. This indicates that individual bank specific factors causing variations in portfolio quality of the Micro Finance Bank in Oyo State.

The p-value associated with the F-statistic of 0.010226 was less than the critical value of 0.05 leading to the overall F-test rejection of the null hypothesis that none of the independent variables is significant and therefore leading to the conclusion that one of the independent variables is significantly related to the dependent variable (portfolio quality).

Regarding the relationship between the dependent variable (portfolio quality), and the independent variables (BMD, BMI, and BMA), the model showed that portfolio quality is inversely and insignificantly related to business model analysis (BMA) as indicated by the negative coefficients of $\beta_3 = -1.83E-05$ implying that improvement in business model analysis does not contribute to an increase in portfolio at risk as a measure of portfolio quality (PQ) of Micro finance banks, but rather have the opposite effect (decrease in portfolio at risk). A study by Nyamsogoro (2010) supports this negative relationship between portfolio at risk and financial sustainability.

The model also indicates that BMD and BMI have direct positive relationship with portfolio quality as indicated by the positive coefficients of $\beta_1 = 44.71061$ and $\beta_2 = 4.080825$ respectively. The relationship is however not statistically significant. The fixed effect model result showed that business model dimensions had joint significant effect on portfolio quality of ($F_{(3, 26)} = 3.523033, p < 0.05$). Based on the UEM fixed effect model, the hypothesis for the model was rejected. Therefore, the null hypothesis which states that Business Model dimensions have no significant effect on the portfolio quality of Micro Finance Bank in Oyo State, Nigeria is hereby rejected.

Discussion

The effect of business model dimensions on portfolio quality of microfinance banks in Oyo state, Nigeria has been scientifically determined in this study. The analyses results (descriptive and

inferential) were presented in tables 1 – 3. The inferential results revealed that business model dimensions had joint significant effect on portfolio quality. This finding is consistent with Masyhud (2004) which states that the lower the value of NPL or portfolio at risk, the better the quality of bank's assets. Non-Performing Loan and Portfolio at risk demonstrates the ability of bank management in managing the problem of financing provided by the bank. Therefore, the higher this ratio the worse the Portfolio quality of banks that caused the greater number of problem loans, the likelihood of a bank in the greater problematic conditions.

From theoretical perspective, the result of this study supports the proposition of the RBV as value creation emanates from within the firm. This aligns with the variations observed across the MFBs considered for the study. Empirical support for this finding exists in the study of Killen, Hunt, and Kleinschmidt (2008) on the link between product innovation and portfolio management among a section of organizations in Australia.

4. CONCLUSION AND RECOMMENDATION

The study concluded that business model dimensions have significant effect on portfolio quality of MFBs in Oyo state, Nigeria. The implication is that, business model enhances portfolio quality of MFBs in Oyo state, Nigeria. Therefore, the study recommends that the management of MFBs should initiate policies, program and procedures aimed at enhancing appropriate model alignment, innovation and analysis so as to improve performance through quality portfolio. Furthermore, the government needs to initiate policies aimed at promoting research aimed at aligning MFBs business model with their operating environment so as to guaranty long term sustainability of the financial system.

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Appendices

1. Names of the MFBs used for the research

Name	MFB	Street Address	Date Licensed
Apex Trust Microfinance Bank Limited	MFB	FMBN Building, 1, Adekunle Fajuyi Road, Dugbe	4/21/2010
Polybadan Microfinance Bank Limited	MFB	The Polytechnic, Ibadan Ventures, Ibadan	4/21/2007
Unibadan Microfinance Bank Limited	MFB	1, Elkanemi Road, University of Ibadan, Ibadan Oyo State, Nigeria	7/28/2008
Oja Tesan Egbeda Microfinance Bank Limited	MFB	2, Station Market Road, Erunmu Egbeda Local Govt A	1/2/2008
Kadupe Microfinance Bank Limited	MFB		2008