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## Abstract

Microfinance empower low-income individual who are capable of lifting themselves out of poverty if given access to financial services but most of microfinance institutions in the world  "charge high rates but not make high returns on account of large credit write-offs". This paper expects to ponder the association/ co-integration between the write off ratios of microfinance establishments of the globe. Quite many attempts have been observed to investigate the return vs. risk but no one tried to observe the co movements among the  risks/ write offs ratios of different countries or region. The data of four regions of the world which include south Asian, African, East Asian Pacific and Latin American regions are taken while 15 Microfinance (MF) banks are opted from each region to interrogate the common trends in their write off ratios. The findings of this paper reveal that the write of ratios of South Asia and Africa MF banks are Co integrated while no common trends in write off  ratios are found and observed in the MF banks of South Asian and East Asian regions and as well as South Asian and Latin American regions.

**Keywords**: Microfinance, write-off ratios, Johansen Co-integration

# 1. Introduction

Microfinance empower low-income individual who are capable of lifting themselves out of poverty if given access to financial services but most of microfinance institutions in the world "charge high rates but...not make high returns on account of large credit write-offs." . Write-offs are an expense that straightforwardly diminishes the profit levels of an MFI. This pointer basically acts for the loans that the foundation has evacuated from its books due to a significant remain skeptical about that they could be recouped. The making off out of an advance is an accounting transaction to escape assets from being unreasonably stretched by credits that could not be recovered. The making off out of a loan impacts the gross loan portfolio and loan disaster keeps proportionally. Unless acquirement keeps are hurting for, the transaction ought to not update total assets, net loan portfolio, overheads or net pay.

Make-offs has no bearing whatsoever on aggregation endeavors or on the client's duty to repay. Economists have advanced various apparatuses to test if economic variables incline as a single unit in routes conjectured by speculation, most prominently co-integration tests. In the final several decades, Co-integration routines have been quite mainstream apparatuses in connected economic work. This study has contemplated Masood, Aktan and Chaudhary (2009) overview on deviations effect gained by the unit root assumption through co-integrating rank of Johansen's (1991, 1988) eigen and trace test.  The main objective and proposition of this paper is to study the Co-integration of Write off Ratios in Microfinance bank working in different regions of the world which include south Asian, African, East Asian Pacific and Latin American regions.

# 2. Literature Review

Subhani, Hasan, Meher, and  Osman (2011) investigated and interrogated the co-movements or the relations among the apparently uncorrelated stock markets of South Asian countries The day-to-day co-movement of the four well-known Indices comprising of KSE-100, BSE Sensex, DSE Composite Index, and NSE Index is examined by applying the Johansen co-integration analysis. They found the relationship of KSE with DSE in terms of the stock prices.

Masood, Aktan, and Chaudhary (2009) examined  monetary institutions' productivity in the Kingdom of Saudi Arabia (KSA) (1999-2007). Co-integration and causal connection amidst Return on Assets (ROA) and Return on Equity (ROE) of Saudi monetary institutions was analyzed. The connections among the several variables are investigated. The observational consequences have dead set unyielding confirmation that the variables are co-coordinated.

Subhani  and Osman (2011) is an accentuation on the financial sustainability of micro financing in Pakistan where Banks and establishment utilize distinctive units & aids that assistance in decreasing the poverty by adapting up to subjective & target poverty, this investigation found that banks were more popularized in terms of payback & premium rates while engaged in micro financing but in spite of that Banks are endeavoring more dares to uplift poverty in Pakistan through micro financing to unfortunate.

Maksudova (2010) Well known updates in the microfinance landscape are portrayed by expanding plans of its coordination with national money related frameworks and entrance of commercial banks. Microfinance is no longer recognized as a confined peripheral division of casual intermediation but rather constitutes specific lower-closure portion of the broader fiscal framework. Speaking to the confined examination on the communication of microfinance with the broader economy our plan to disclose if and how microfinance is transferred to development through the ID of causality. This research is moreover recognize the aberrant effect of microfinance through its complement/substitute nature with mainstream banks. The experimental investigation is dependent upon information from 1433 microfinance organizations pooled into 102 countries on which perform a Granger-causality test. The outcomes demonstrate offbeat transfer channels of microfinance to development for middle and low-income countries, inferring that the robustness of the effect hinges on the underlying level of growth. The nature of microfinance communication with commercial banks and coin totals is of huge vitality unpaid to rivalry, spillover impacts and (counter) cyclical impact, which indicates the potential of microfinance foundations to alter fiscal segment structure in the long run.

The research of Cull, Demirgu, Kunt, and Morduch (2009) towering rates for microfinance Establishments were credited to redone loaning penetrates; absolutely "Group Loan" and backing theorists

took note. In the initial models, clients were regularly framed into small assembles and would have done well to affirmation each others' credit repayments, modifying their sparks with these of the loan specialist. Today a broader set of mechanisms is recognized as additionally dedicating to microfinance strokes of good fortune—in particular the valid danger to refuse defaulters' accession to fate credits, with or without bunch contracts.

Hoque (2007) investigates motion of stock cost developments in the setting of an improving nation, Bangladesh. The creator roots out no research project that absolutely examined the mix of capital business sector of Bangladesh with alternate nations For example USA, Japan and India Co combination model is connected with test the extended-run balance connection around the time progression. The outcomes indicate that stock costs in those nations impart a common stochastic incline and share trading system is prevailed upon by different showcases.

Podder and Mamun (2004) examined the influence of of making too much procurement to compose off remorseful credits by testing the effects on cost and owners' esteem. This research project additionally looks at that provision of loan has no allusion to recuperation of write offs. On account of making provision has no alter with gathering of heightened-peril credits to enhance the advance misfortune scenario, credits turning unfavorable might as well be minimized in any event feasible level, level, which will Summation in flatter credit Loss Provision.

Onyeaso and Johnson (2006) applied co-integration techniques for the estimation of interconnectedness of aid value and client dedication as immaterial strategic stakes inside administration determination.

Hye and Dolgopolova (2011) examined the association between the FDI (Fiscal Development Index) and economic development of China. They determined the long run relationship among variables by using co integration test.

Sadorsky (2000) investigates and found co integration between future prices of energy and exchange rates. Outcomes are suggested that index of exchange rates are co integrated with futures prices for oil and gasoline.

Karim, Chan, and Hassan (2010) illustrated that the points of this paper are twofold. In the first place, the paper tests in case in that regard is critical contrasts in saving money Productivity among Malaysian and Singaporean financial organizations. Second, the paper attempts to represent the association near non-performing developments and Lender Proficiency. Interfacing existent qualified information of both Malaysian and Singaporean money related organizations from 1995 to 2000, they check lender's cost proficiency by the stochastic cost boondocks routine. The Proficiency scores are then used in the second level Tobit examination to enquire the association in the middle of non-performing credits and Bank Efficiency.

Rottke and Gentgen (2006) gauge the magnitude of the non-performing loan- situation to be understood so as to advance the business once again into a fit environment. A business sector broadly advances a measure of NPLs as time goes on. The structural explanations behind the going at of such businesses fluctuate for each nation. German monetary institutions experience a level profit for value. There are diverse purposes behind this wonder which advance to ventures in expense investment funds and fixation on heart capabilities and hence to the prerequisite of an engaged administration of non-and sub-performing land advances.

## 2.1 Proposed hypotheses

H1: There is co-integration in Write off Ratios of South Asian and East Asian banks

H2: There is co-integration in Write off Ratios of South Asian and Latin American banks

H3: There is co-integration in Write off Ratios of South Asian and African banks

# 3. Research Methods

## 3.1 Description of data, sampling and econometrical tool
The write off ratios of 60 microfinance banks/ institutions from four outlined regions include south Asian, African, East Asian Pacific and Latin American (15 bank each) have been used to find out the common trends among them for the period from 1998 to 2010. While, the series of write off ratios was taken from the public web portal (www.mixmarket.org). Moreover, Johansen multivariate co-integration was deployed to assess the possible common trend among the outlined write off ratios.

# 4. Results

## 4.1 Findings and Results

Table 1: Co-integration for write-off ratios of South Asian and East Asian banks

| Hypothesized No. of CE(s) | Eigenvalue | Trace Statistic | 0.05 Critical Value | Prob.** |
|---|---|---|---|---|
| None | 0.148181 | 4.771663 | 15.49471 | 0.8326 |
| At most 1 | 0.016215 | 0.441381 | 3.841466 | 0.5065 |

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

| Hypothesized No. of CE(s) | Eigenvalue | Max-Eigen Statistic | 0.05 Critical Value | Prob.** |
|---|---|---|---|---|
| None | 0.148181 | 4.330282 | 14.26460 | 0.8229 |
| At most 1 | 0.016215 | 0.441381 | 3.841466 | 0.5065 |

The findings of this paper as shown in table 1 reveal that the write-off ratios of all major 15 South Asian banks are not commoved with the major 15 East Asian banks in terms of their write-off ratios when being operated for extending microfinance for their people as Trace statistics and Maximum Eigen value < McKinnon critical values at p= 5%.

Table 2: Co-integration for write-off ratios of South Asian and Latin American banks

| Hypothesized No. of CE(s) | Eigen value | Trace Statistic | 0.05 Critical Value | Prob.** |
|---|---|---|---|---|
| None | 0.075520 | 2.356175 | 15.49471 | 0.9886 |
| At most 1 | 1.50E-05 | 0.000449 | 3.841466 | 0.9848 |

Unrestricted Co integration Rank Test (Maximum Eigen value)

| Hypothesized No. of CE(s) | Eigen value | Max-Eigen Statistic | 0.05 Critical Value | Prob.** |
|---|---|---|---|---|
| None | 0.075520 | 2.355726 | 14.26460 | 0.9801 |
| At most 1 | 1.50E-05 | 0.000449 | 3.841466 | 0.9848 |

The further findings of this paper as shown in table 2 confirm that the write-off ratios of all major 15 South Asian banks are not commoved significantly with the major 15 Latin American banks in terms of their write-off ratios when being operated for extending microfinance for their people as Trace statistics

and Maximum Eigen value both are lesser than McKinnon critical values at p= 5%.

**Table 3:** Co-integration for write-off ratios of South Asian and African banks

| Hypothesized No. of CE(s) | Eigen value | Trace Statistic | 0.05 Critical Value | Prob.** |
|---|---|---|---|---|
| None * | 0.591942 | 22.97136 | 15.49471 | 0.0031 |
| At most 1 | 0.137401 | 3.251728 | 3.841466 | 0.0713 |

Unrestricted Co integration Rank Test (Maximum Eigen value)

| Hypothesized No. of CE(s) | Eigen value | Max-Eigen Statistic | 0.05 Critical Value | Prob.** |
|---|---|---|---|---|
| None * | 0.591942 | 19.71963 | 14.26460 | 0.0062 |
| At most 1 | 0.137401 | 3.251728 | 3.841466 | 0.0713 |

It is further revealed as shown in table 3 that the write-off ratios of all major 15 South Asian banks are co-integrated and commoved significantly with the major 15 African banks in terms of their write-off ratios when being operated for extending microfinance for their people as Trace statistics and Maximum Eigen value are greater than McKinnon critical values at p= 5%.

**Table 4:** Hypotheses Assessment summary

| Hypotheses | | Trace/ Max-Eigen Stats | Critical Values at 5% | Empirical Conclusion |
|---|---|---|---|---|
| Write of Ratios of South Asian and East Asian banks are Co integrated | Trace | 4.771663 | 15.49471 | Failed to be accepted |
| | Max-Eigen Stats | 4.330282 | 14.26460 | |
| Write of Ratios of South Asian and East Asian banks are Co integrated | Trace | 2.356175 | 15.49471 | Failed to be accepted |
| | Max-Eigen Stats | 2.355726 | 14.26460 | |
| Write of Ratios of South Asian and African banks are Co integrated | Trace | 22.97136 | 15.49471 | Failed to be rejected |
| | Max-Eigen Stats | 19.71963 | 14.26460 | |

## 5. Discussions and Conclusion

This research put forth basic examination on Write off Ratios of the microfinance institutions working in different region of the world. The procedure considers the choice predisposition innate in ready information in that MFIs that make a point not to report advance write-off information are less possible to be better performers. In this examination, it is assumed, for effortlessness of article that returns for all MFIs are drawn from an identical lognormal distribution. The dissection can be adjusts to cases in which more particular data regarding an exact region is promptly ready. Besides, it is posited that the self-reported credit write-off numbers are correct. The objective here was to show the methodology instead of give exact quantitative responds in due order regarding a specific case.

The conclusions were that out of the various outlined regions, there is co-integration of Write off Ratios of the banks of two regions i.e. South Asian and African regions. The Write off Ratios of the other Three Regions are not co-integrated. Hence it is suggested that if any bank of Africa opens its operation in South Asia will be facing same recovery pattern as it would face in Africa or vice versa.

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