

THE HIGH INTEREST RATE SPREAD IN GHANA: COULD POTENTIAL INCOME OPTIMIZE CONSUMER CREDIT RISK PROFILE AND MINIMIZE LENDING RATES?

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ABSTRACT

The Basel III Committee on Banking Supervision recently proposed that banks should address the problem of financial and economic shocks by moderating credit growth, and adjusting their capital buffer range immediately credit begins to show signs of high growth levels. The committee noted that losses in the banking sector spillover to the entire economy. This proposal was in response to the worldwide financial crises that witnessed general credit freeze-up. In Ghana, there is widespread perception of high interest rate spread, and lenders frequently attribute this state of affairs to high consumer credit risk profile that results in lagged nonperforming loans. The committee's proposal has the potential to further exacerbate the high interest rate spread in Ghana; through some kind of banks' self-imposed increase in 'reserve requirements.' This study, therefore, examined whether potential income could complement credit history in optimizing the consumer credit risk factor and bring the lending rate down. Results were significant, $F(2, 143) = 83.13, p < .001$; and credit history and potential income predicted 53.1% of the variance in loan repayment. This study contributes to the literature on credit risk management. This will permit a better assessment of lending policy implications, and ultimately stimulate macroeconomic activities.

Key words: Credit growth, interest rate spread, consumer credit risk profile, credit evaluation.

JEL Codes: E4, E5

I. INTRODUCTION

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Not very long ago, the Basel III Committee on Banking Supervision proposed a regulatory framework to enable banks tackle the problem of financial and economic shocks by moderating excess credit growth that cause spillover effects to the real economy. The Committee also proposed a regime that will adjust the capital buffer range of banks as soon as credit begins to show signs of excessive growth levels. Further, the Committee noted that losses incurred in the banking sector during economic crises amidst huge credit build-up can be extremely devastating, not only to the banking industry, but also to the entire real economy (“Basel III: A global regulatory framework,” 2010.) These proposals were in response to the 2007-2008 worldwide financial crises that witnessed general freeze-up of credit, leaving a rippling effect on macroeconomic activities across borders and culminating in the collapse of several banks(da Costa, 2012; Schneider, 2013).

In Ghana there is widespread perception of high interest rate spread, and lenders frequently attribute this state of affairs to high consumer credit risk profile that results in lagged nonperforming loans (Mensah, 2005; Bawumia, M., Ofori, M., Belnye, F., 2005; Aboagye, A. Q. Q., Akoena, S. K., Antwi-Asare, T. O., & A.F. Gockel, A. F., 2008). The Basel proposals, although well-intentioned, have the potential not only to further ‘justify’ lenders’ major reason for maintaining the high interest rate spreads, but also to limit credit availability. The banks may self-impose an increase in their ‘reserve requirements,’ as a way of adjusting their capital buffer range, which may diminish funds available for loaning. By the law of supply and demand, scarcity of credit could push the lending rates even further up. This may discourage investments and durable goods consumption spending, both of which have very stimulating effects on macroeconomic activities. This study, therefore, examined Potential Income as an additional independent variable that would complement Credit History to predict Loan Repayment with applicable interest in order to improve the often cited reason of high consumer credit risk profile that results in the high interest rate spread in Ghana. The results of this study were significant, $F(2, 143) = 83.13, p < .001$; and Credit History and Potential Income predicted 53.1% of the variance in Loan Repayment. This will contribute to the literature and also help banks to re-evaluate their exposure to credit risk, hopefully reducing the high interest rate spread and minimizing the burden on credit consumers in Ghana.

II.LITERATURE REVIEW

A primary activity of banks is to lend money to borrowers in return for profit (i.e., principal plus interest), and that entails a major risk of default that can potentially put a bank out of business. Risk management theories have provided elaborate guidelines for controlling risk and efficiently managing banks’ loans, yet the results of other studies (D’Silva, 2004; Stanhouse & Sherman, 1979; Timmons, 2002) indicate that the credit evaluation system does not fully avail itself of all predictors of loan repayment. One

study (Sharma, 2012) suggests that the credit scoring system that utilizes credit history and regression approach is not entirely reliable given that credit data (i.e., the predictors of repayment) are highly pervaded by multicollinearity. For example, the study noted the inability of the underlying variables to capture the probability of a borrower experiencing financial difficulty because, “the p values of the regression are not reliable as regression assumes no multicollinearity. ...[and] make sense [only] from a theoretical point of view, such as cash flow surrogates” (p. 94), making it statistically insignificant. The consequence is an increase in non-performance assets that breeds poor consumers’ credit profile, leading to banks ‘justifying’ the high charge placed on cost of money in Ghana. This, in turn, leads to a decrease in investment and consumer spending, which impact adversely on macroeconomic activities. This warrants the need for complementary predictors of loan repayment because credit history is inadequate.

An avowed goal of any developing country is to achieve economic self-reliance. However, inadequate supply of credit, due to loan defaults, is among the reasons that impede this objective. Private Banks in developed countries have shown reluctance at meeting the credit shortfall due to the high default risk in these developing countries (Evans & Dadzie, 1998). One effect is that it introduces less competition in the banking sector in Ghana, permitting local banks in this region the flexibility to price their cost of capital higher than it would be otherwise, to the detriment of credit consumers. The default risk is high because many borrowers do not have credit histories, have little equity or collateral, and have seasonal or variable income. One study (Srinivasan, 1994) suggests that the formal credit markets are typically ineffective, and that may be a contributory factor to this lack of economic growth. A number of studies (e.g., Abor, 2008; Aryeetey & Udry, 1997; Bigsten A.; Collier, P.; Dercon, S.*et al.*, 2003; Kimuyu & Omiti, 2000; & Ofei, 2004) suggest that generally credit rationing in sub-Saharan Africa, and for that matter Ghana, is not efficient. The lending institutions in this region show reluctance to extend credit facilities to individual and small businesses because of high credit risk profile. Reversing this trend on the part of individuals and small business would require viable business plans and worthy collateral.

Thus, the general consensus with regards to the high interest rate spread in Ghana appears to be grounded in the issue of high consumer credit risk profile, which is depriving the individual and small business enterprises the much needed credit for investment and economic development. The objective of this paper is to contribute to the literature by proposing that potential income may be used as complementary variable to credit history to evaluate loan consumers’ ability and willingness to repay a loan with applicable interest. This will, hopefully, reduce costly default rate, provide incentive for lenders to extend credit to consumers, encourage increased consumer spending, and stimulate macroeconomic activities.

Although, income has long been used as complementary to credit history to predict loan repayment (e.g., Avery, 2004; Paroush, 1976; Shenn, 2004; Thompson, 2003; Weston & Brigham, 1993), there appears to be scanty analytical studies into the use of potential income as a factor in predicting loan repayment. This study generally defines potential income as any activity or situation that entails the potential of adding to or subtracting from the present net worth of a borrower. For example, a borrower's investment in education can increase one's human capital; whereas, a reckless life style may entail a health hazard that can deplete financial resources of a borrower. Probably, the notion of using potential income as appraisable for taxation purposes, and by extension, other purposes for which income may be required was first mooted by Tom Daschle (1999), a former U. S. senator, when he introduced legislation in Congress that would have levied taxes on U. S. citizens on the basis of not just one's income, but also upon one's "potential income" (as cited in *Free Republic*, p. 1).

III. DATA AND METHODOLOGY

A. Description of the Data

This study was a part of a larger study that utilized questionnaires designed to examine the impact of potential income as a complementary variable to credit history for loan repayment. Access to more scientifically reliable data was particularly impeded, given the relatively higher level of awareness of legal ramifications regarding information exchange in the jurisdiction where data was collected (i.e., USA). The ideal data would have been bank's actual data on loan customers, but banks were quite reluctant to release that information for the study. Although, one would have expected that the Freedom of Information Law (FOIL) under that jurisdiction would have facilitated the gathering of such information. It was rather the contrary. One reason may be that the FOIL was not designed to enjoin the release of information for academic research purposes. Also, competitive reasons generally may have informed certain lending institutions to decide against releasing any information for this study.

To surmount those challenges, substitution technique involving a field survey of bank loan officers was employed. This target group provided participants with relevant experience in loan granting decisions that may have had a positive impact on the reliability of the survey responses. The Likert scale was used with values between 1 and 5. Dawes (2008), noted that a 5- or 7- point scale may produce slightly higher mean scores relative to the highest possible attainable score, compared to those produced from a 10-point scale. Although, the difference may be statistically significant, the study noted that there is very little difference among the scale formats in terms of variation about the mean (i.e., skewness or kurtosis).

There is no consensus in the literature (e.g., Jamieson, 2004; Norman, 2010) on whether individual Likert items can be considered as interval-level data, or whether they should be treated as ordered-categorical data. One school of thought asserts item has no objective numerical basis, and the other argues that each successive item category is not equidistant presentation of the items by the researcher. For example, a four-point Likert item with categories "Poor", "Average", "Good", and "Very Good" is unlikely to have all equidistant categories since there is only one category that can receive a below average rating. This would arguably bias any result in favor of a positive outcome. Thus, the value assigned to each Likert item is simply determined by the researcher (Norman, 2010), based on a desired level of detail or the characteristics of a variable's operational definitions.

This study relied on a five-point response levels because the questionnaire items were considered both progressive or treated as 'better' than preceding response; and infinite operational definitions of the independent variables, implying adding more points on the scale would not possibly capture the myriad of operational definitions. For example, under determinants of the independent variable (i.e., potential income), one questionnaire item asks respondents to rank loan applicants' annual income for which they would consider approving a loan: "\$40001-50000+" payments was ranked as "5" and "\$0-10000" was ranked as "1" on the scale. In this case, the higher the annual income of a borrower, the better will be the creditworthiness and ability to repay a loan with applicable interest, *ceteris paribus*. The central concept here is not the number "5", which has no objective numerical basis but "\$40001-50000+" as compared with "\$0-10000".

A total of 146 participants completed the survey questionnaires. Three of the responses were discarded for being incomplete. Participants were asked to respond according to a five point Likert scale. Reverse coding was necessary for three of the questionnaire items: Item 5 under Credit History section, Item 1 under Potential Income section, and Item 1 and 3 under Loan Repayment section; during data entry to assure uniformity in the survey instrument.

B. The model

The study used a multiple regression model given by:

$$Y = f(C, P)$$

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \dots + \beta_kX_k + \epsilon$$

where,

Y = Loan Repayment, the dependent variable, which is a function, f , on a set of k independent variables (i.e., credit history and potential income), X_1, X_2, \dots, X_k , which are considered predictors of Y .

C = Credit History

P = Potential Income

ϵ . = error term

To ensure that a linear regression relationship existed between the dependent variable, Y , and any of the explanatory, independent variables, X_i , the F -test was conducted to ascertain the appropriateness of this model for this study using,

$H_0: \beta_1 = \beta_2 = \beta_3 = \dots = \beta_k = 0$

H_1 : Not all the β_i ($i = 1, \dots, k$) are zero

The null hypothesis was rejected, constituting statistical evidence of the existence of a linear relationship between Y and at least one of the independent variables proposed in the regression equation (Aczel & Sounderpandian, 2006, pp. 493-497).

C. Descriptive Statistics

SPSS generated the means and standard deviations of the 14 data points. The mean and standard deviation for Credit History over a scale ranging from 1 to 5 was 3.83490 and 0.72810, respectively. That of Potential Income was 4.02160 and 0.69366, respectively. SPSS also generated a mean and standard deviation of 3.56080 and 0.56666, respectively for Loan Repayment (Table 1).

Table 1. Descriptive Statistics of Data

	N	Minimum	Maximum	Mean	Std. Deviation
credit1	149	1.00	5.00	4.0872	.59198
credit2	149	1.00	5.00	4.6242	.57512
credit3	149	1.00	5.00	3.04701	.85391
credit4	149	4.00	5.00	4.9396	.23903
credit5	149	1.00	5.00	2.47651	.78046
income1	149	1.00	5.00	4.4832	.76762
income2	149	1.00	5.00	4.0268	.70659
income3	149	1.00	5.00	2.80541	.54517
income4	148	1.00	5.00	4.6824	.59519

income5	149	1.00	5.00	4.1007	.82810
repay1	149	1.00	5.00	3.30871	.77786
repay2	148	1.00	5.00	2.1284	.90562
repay3	148	1.00	5.00	1.71621	.20114
repay4	148	3.00	5.00	4.5068	.51503
repay3recode	148	1.00	5.00	4.28381	.20114
credit history	149	2.40	5.00	3.83490	.72810
potential income	148	1.20	5.00	4.02160	.69366
loan repayment	148	2.25	4.75	3.56080	.56666

Note:

Independent variables: Credit History, Potential Income; Dependent Variable: Loan Repayment.

Figure 1. Normal P-P plot of regression standardized residual using loan repayment as the dependent variable.

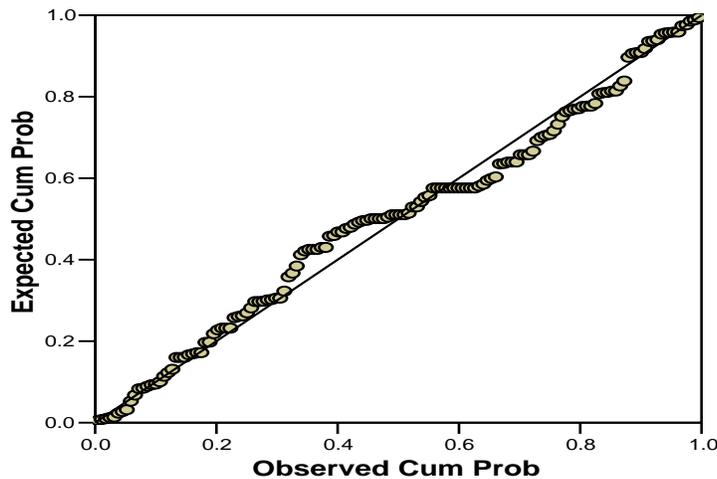
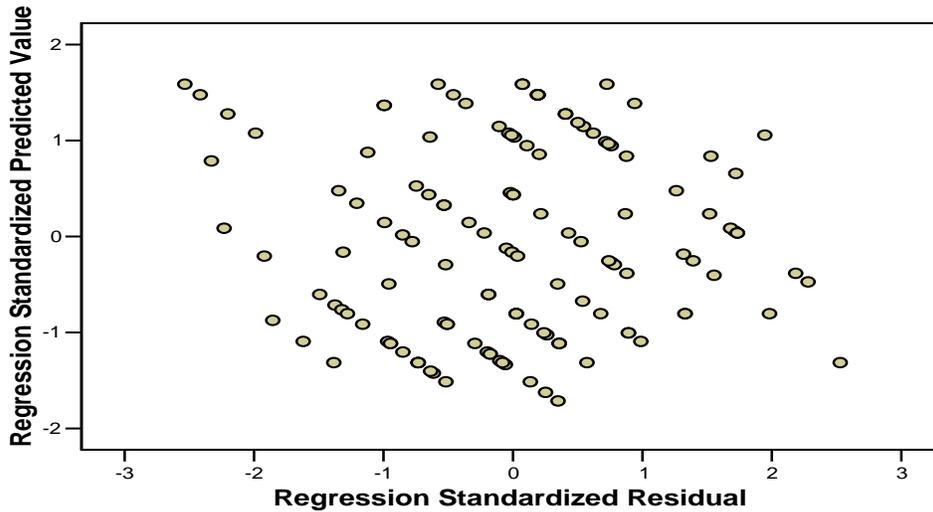


Figure 2. Scatter plot of residuals using loan repayment as the dependent variable



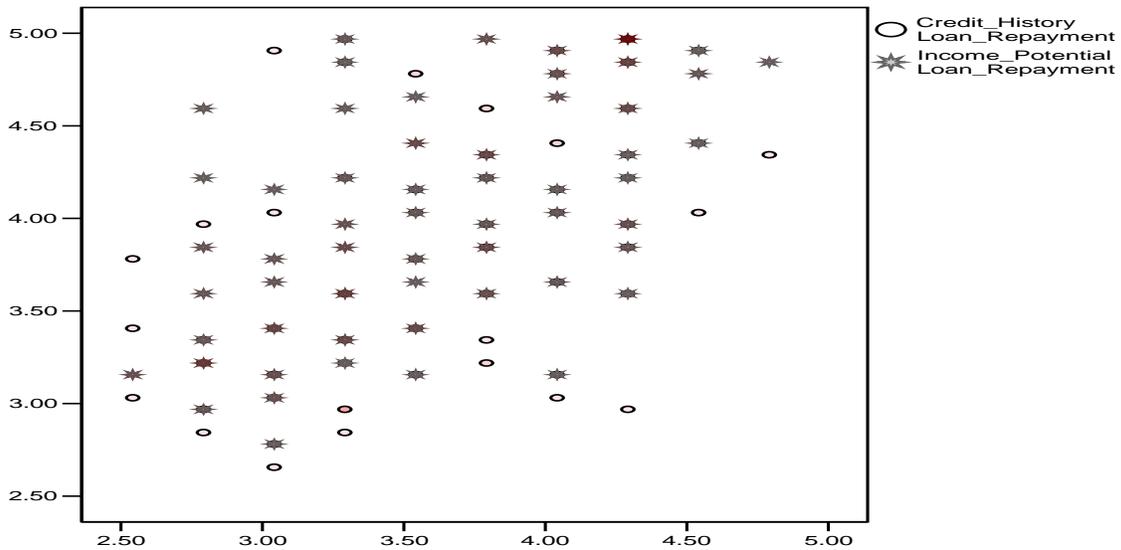
The pervasive effect of multicollinearity in every aspect of multiple regression can be explained by the fact that in examining the relationships between Y and several X_i variables, the X_i variables themselves generate internal relationships or correlations (Aczel & Sounderpandian, 2003, p. 555). Ideally, the X_i variables are those that do not correlate with one another; with each variable possessing its own unique signature data about the dependent variable, Y , or Loan Repayment. Table 2 shows the collinearity statistics; where the Variance Inflation Factor (VIF) of 2.708 for each predictor were relatively small, suggesting that Credit History and Potential Income do not present concern for multicollinearity.

Table 2. Collinearity Statistics

Independent Variables	Tolerance	VIF
Credit History	.369	2.708
Potential Income	.369	2.708

Figure 3 depicts the scatter plot for Credit History and Potential Income by Loan Repayment. If a regression line were inserted from the origin through the data points, it can readily be seen that Potential Income data are very close to the regression line, implying a very good fit. This attests to the significance of Potential Income as a predictive tool for Loan Repayment.

Figure 3. Scatter plot of credit history and income potential by loan repayment.



D. Analysis of Variance

The measure of how closely the regression line fits the data, is the coefficient of determination, R^2 (Aczel & Sounderpandian, 2003, p. 457). In this case, the value of 0.554 (Table 3) is high; the F statistic value of 83.13 is significant. This means there is a good regression relationship, which makes the two independent variables (Credit History and Potential Income) important in the multiple regression equation. The R^2 may assume a value that range from zero (0) and one (1); and that a value of zero implies that no regression relationship exists between the predictors and the criterion (p. 457.)

Table 3. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.744	.554	.548	.38234

Note: Independent Variables: Potential Income, Credit History; Dependent Variable: Loan Repayment.

IV. EMPIRICAL RESULTS

The findings suggest that Loan Repayment can be better predicted by both potential income and credit history. Both Potential Income and Credit History can predict a variability of 53.1% in Loan Repayment. The partial coefficient of Potential Income is 99.999% certainty that the results were not due to chance, and that of Credit History is 99.998% certainty that the results were not due to chance (Table 4). Standard error (*SE*) of .072 (Credit History) and .080 (Potential Income) are quite low. This indicates that the scores are tightly fitted around the regression line, which implies a good fit (Table 4). This determination can also be visually observed (Figure 3) where, the scores are closely clustered together, although the regression lines are omitted for the purpose of enhancing legibility of Figure 3.

Table 4. Multiple Regression on Credit History and Potential Income predicting Loan Repayment

95% Confidence Interval

Predictors	B	SE	t	Sig.	Lower	Upper
Credit History	.226	.072	3.12	.002	.083	.369
Potential Income	.411	.080	5.12	.001	.252	.569

Table 4 also shows that for every one unit increase in Credit History, Loan Repayment increases by 0.226 units ($\beta = 0.29$) and for every one unit increase in Potential Income, Loan Repayment increases by 0.411 units ($\beta = 0.48$), when each predictor is statistically controlled (i.e., held constant). This emphasizes the fact that Potential Income is a very important predictor of Loan Repayment. Table 4 further shows the t-Test of the significance of the regression coefficient of Loan Repayment on Potential Income, which reinforces the importance of Potential Income as an even more important predictor of Loan Repayment than Credit History ($t = 5.12$ for Potential Income versus $t = 3.12$ for Credit History). The degree of freedom, $F(2, 143)$, had a value of 83.13 making it statistically significant. The outcome of this study suggests that lenders may have to consider both predictors (i.e., Potential Income and Credit History) as complementary tools for predicting Loan Repayment, rather than over reliance on Credit History.

V. CONCLUSION

The empirical evidence buttresses the fact that in determining loan repayment with applicable interest, potential income does play a complementary role to credit history in a very significant way. Among the reasons cited for Ghana's high interest rate spread is the credit consumer high risk profile, which leads to lagged nonperforming loans (Mensah, 2005; Bawumia et al., 2005.) Thus this study suggests a policy prescription: if

the true objective of bank lenders is to reduce interest rate spreads through improvement in credit risk evaluation, then they should pay particular attention to this variable when evaluating loan consumers' ability to repay a loan with applicable interest. This will minimize the incidence of nonperforming loans, encourage investment and consumer spending, and stimulate the economy. This will also be in keeping with an honest attempt at conforming to the Basel III proposal for banks to hedge against financial and economic downturns that leave devastating marks on banks and cause spillover effects to the real economy.

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