

Credit Information Sharing and Credit Availability in Kenya

Rosemary James^{1*} Iraki X. N² Korir Julius³

1.Lecturer, Department of Management Science, School of Business, Kenyatta University, Kenya

2.Senior Lecturer, Department of Management Science, School of Business, University of Nairobi, Kenya

3.Lecturer, Department of Economic Theory, School of Economics, Kenyatta University, Kenya

Abstract

This study provides an empirical investigation of the effect of credit information sharing on credit availability in Kenya while controlling for bank characteristics. The study employed the explanatory non-experimental research design. A census of the 43 financial institutions that are licensed under the Kenyan Banking Act was conducted. Both primary and secondary data were collected. The key source documents for the secondary data were the financial disclosures prepared by the banks on a quarterly basis for the period 2008-2012. Fixed effects regression results showed that presence of information sharing had significant positive effect on credit availability as measured by the volume of lending. However, the intensity of information sharing had very little effect on credit availability. The study recommends that the government should ensure that the recently introduced credit reference bureaus cater for all types of credit institutions and also organized informal groups so that prospects of enhanced credit availability can be further improved. Secondly, the government needs to embark on effective awareness creation of the benefits of credit information sharing to the financial institutions.

Keywords: Asymmetric Information, Credit Availability, Information sharing

1. Introduction

Credit availability is critical for the economic development of any country. However, asymmetric information between borrowers and lenders results in inefficient allocation of credit and credit rationing (Jappeli & Pagano, 1999). Banks respond to the problem of information asymmetries either by charging high interest rates or by rationing credit. High interest rates can lead to adverse selection where banks lack adequate information on the credit worthiness of new applicants will not lend to them as safely as they would do with their long-standing clients. Even after credit is granted lenders need information to control the actions taken by the borrower who might lack the motivation to avoid default because with no information sharing they can still get credit from other lenders (Jappeli & Pagano, 2000). Anticipating this “moral hazard” and the problem of adverse selection that stems from asymmetric information, lenders will ration credit.

Credit information sharing presents an opportunity to improve credit availability through the development of information capital. This information capital reduces the danger linked with information asymmetry leading to a decline in search costs. In Kenya credit from the banking sector, to a great extent, has been guaranteed by physical collateral such as land. Borrowers who lack access to such security have often been barred from getting credit. Credit information sharing enables borrowers build a track record that can be used in accessing credit. This is particularly important to the borrowers from the low-income households and micro and small scale enterprises that have developed a good track record to use it to access credit.

1.1 Statement of the Problem

In Kenya, information asymmetry in the credit market has for long inhibited financial intermediation between the surplus and deficit sectors of the economy leading to high costs of credit that have hampered the growth of businesses and prevented access to credit by a considerable section of Kenyans (CBK, 2010).

It is in this regard that the government rolled out credit information sharing by Credit Reference Bureaus (CRBs) effective 31st July 2010 to reduce problems of information asymmetry. Credit information from the CRBs would guide the costing of loans by banks using immensely improved information set as compared to the past situation. Customers would use their credit histories to negotiate better terms for credit with banks. The search costs incurred by banks in costing loans would also reduce as a result of credit information sharing. This would promote access to credit and also reduce the cost of doing business, catalyze expansion of credit for investment and wealth creation, leading to faster achievement of the country's Vision 2030 aspirations of being a middle - income country.

However, the theoretical predictions of the effect of credit information sharing on credit availability differ from one model to another. For instance, the effect is unclear in the adverse selection model, whereas in the hold-up and the multiple-bank lending models it is positive. In addition, Brown, Jappelli & Pagano, (2007) assert that the extent and efficiency of credit information sharing mechanisms differ greatly between countries and whether sharing of borrower information is linked to improved credit availability is left to the empirical evidence. This study therefore sought to provide an empirical investigation of the effect of credit information sharing on credit availability in Kenya controlling for bank characteristics.

2. Literature Review

2.1 Theoretical Review

The study was underpinned by three models: The Adverse Selection Model, the Multiple Bank Lending Model and the Hold – up Model. The adverse selection model developed by Pagano and Jappelli (1993) asserts that when banks share information on clients' quality adverse selection is reduced. In this model, every bank has personal information about the credit worthiness of their clients but has no information about new applicants. These new applicants therefore face adverse selection. However, they might have acquired credit before from another bank and are therefore known to that bank. If lenders share information about their borrower characteristics, they can assess also the credit worthiness of the new applicants and lend to them as securely as they do with their long – standing clients (Jappelli & Pagano, 2005).

However, the effect of Information sharing on aggregate lending in this model is unclear. The volume of lending may improve or decline, because when banks share information about clients' quality, the implied improvement in lending to safe borrowers may not compensate for the eventual decline in lending to risky types (Brown et al., 2007). The positive effect of credit information sharing on lending strengthens banking competition which in turn leads to greater lending (Jappelli & Pagano, 2000).

In the Multiple – Bank Lending Model, a customer can simultaneously apply and get credit from several lenders. The borrower has the motivation to over – borrow if this information is not available to lenders. Faced with this moral hazard, lenders will ration the amount of credit given and/or charge a higher interest rate. They may even deny all credit unless guaranteed by physical collateral or supported by agreements limiting total debt (Jappelli & Pagano, 2000). Bernardo, Pagano and Piccolo (2007) demonstrate that the risk of over - lending that stems from multiple bank relationships may provoke lenders to ration credit for fear that the customer's total credit exposure may become so large resulting in default. However, when lenders share information about their clients, lending becomes safer, and incidences of credit rationing decline.

In the Hold-up Model, Information sharing encourages competition for safe customers by improving the information available to competitors which in turn reduces the informational rents enjoyed by current lenders (Barron & Staten, 2003). This competition which stems from credit information sharing can induce borrowers to put higher effort to repay, making banks to be more willing to lower lending rates and extend more credit (Padilla and Pagano, 1997). However, the increase in competition between banks due to information sharing may also reduce credit availability, especially for new applicants.

2.2 Empirical Review

To test these theoretical predictions, Jappelli and Pagano (1999) used the Ordinary Least Squares (OLS) regression to study the effects of private and public information sharing on bank lending. The results of the study showed that the breadth of credit markets was associated with information sharing. Total bank lending to the private sector scaled by Gross National Product (GNP) was higher in countries where credit information sharing was strong and widespread. These cross-sectional relations persisted even after controlling for other economic and institutional determinants of bank lending such as country size, GDP, growth rate and variables capturing respect for the law and protection of creditor rights

The analysis by Kallberg and Udell (2003) expands the empirical work of Jappelli and Pagano (1999). Their study, however, focused on the value added by information sharing at the micro or individual level rather than at the macro level. The study results indicated that information sharing was valuable in evaluating the credit worthiness of a borrower and that it added economic value.

Barron and Staten (2003) carried out a study on the impact of credit reporting on the availability of credit to households. The study described a series of simulations demonstrating how credit availability is hindered when the amount of information in personal credit histories is restricted. The study found out that consumer credit availability would be less in countries where credit reporting left out the kind of information that would provide a more complete picture of the borrower characteristics. The negative impact was greatest for those who were young, had short time on the job or at their residence, had lower incomes, and were not financially stable.

Love and Mylenko (2003) combined cross-sectional firm-level data from the 1999 World Bank Business Environment Survey (WBES) with data on private and public credit registries to investigate whether the presence of the credit registry in a country was associated with lower financing constraints, as perceived by managers and a higher share of bank financing. The WBES was conducted in 1999–2000 and covered more than 10,000 firms in 80 countries. The study results found that private credit bureaus were associated with lower perceived financing constraints and a higher share of bank financing, while public credit registries did not seem to have significant effect on availability of financing. The main drawback for this study was the lack of proof for causality between creation of the private registries and their resultant effect on financing restrictions. It is probable that in a country with greater use of bank finance, the establishment of credit registries is more likely. The results in this study should therefore be interpreted only as correlations and not as causal effects.

Brown et al., (2007) investigated the role of information sharing in countries with weak company law and

creditor rights. They analyzed the impact of private credit bureaus and public credit registries on the availability and cost of credit to firms in 24 transition countries of Eastern Europe and the former Soviet Union. The study results showed that information sharing was linked with enhanced credit availability mostly in countries where the legal environment is not strong. The cross – sectional results suggested that information sharing and firm – level accounting transparency were surrogates in improving credit availability: the correlation between information sharing and credit access was stronger for firms that do not use international accounting standards or external auditors (opaque firms) as compared to those firms that do (transparent ones). In addition, the panel estimates suggested that the impact of information sharing on credit access was stronger for small firms than large ones. Both these results were in agreement with the idea that information was particularly valuable to assist banks in assessing borrowers who would be otherwise expensive to screen due to poor accounting information. This study extends from other researchers by using panel data to estimate the effect of credit information sharing on credit availability in Kenya while controlling for bank characteristics such as bank ownership structure, bank size and bank age.

2.3 Conceptualization and Measurement of Variables

The dependent variable for this study was credit availability. Data on the volume of lending, which was an indicator of credit availability, were gathered from the Bank Supervision Department at Central Bank of Kenya headquarters.

The independent variable was information sharing which had two indicators; presence of Information Sharing and intensity of Information Sharing. The rationale for the inclusion of the variable presence of information sharing was to capture the differential performance of credit availability after the roll out of credit information sharing. The presence was a dummy variable taking a value of 1 for presence and 0 otherwise. Presence of information sharing was expected to improve credit availability in the country (Jappelli & Pagano, 1993).

Intensity of information sharing referred to the total number of consultations to the bureau’s database made by the various banks. It was hypothesized that if banks made reference to the credit reports from CRBs while assessing the credit worthiness of their borrowers, they would improve their knowledge of the applicants’ characteristics and permit more accurate prediction of repayment probability. This would increase credit availability (Jappelli & Pagano, 2000).

Bank characteristics, that is, bank ownership structure, bank size and bank age were the control variables. The variable bank ownership structure was categorised as local and foreign. It was expected that foreign banks would benefit more from information sharing than their local counterparts. The variable bank size was as per the peer grouping of the financial institutions by CBK as small, medium or large based on a weighted composite index comprising assets, deposits, capital size, number of deposit and loan accounts. Based on the weighted composite index a large bank has a market share of 5 percent and above; medium bank between 1 percent and 5 percent and a small bank has less than 1 percent of the market share. Based on this peer grouping, there were six large banks, 15 medium banks and 22 small banks as at 30th December 2011. The mortgage finance company has also been categorized as medium. It was expected that small banks would benefit more than larger institutions from sharing credit information. Bank age referred to the years of operation since its establishment. It was expected that young banks would benefit particularly from information sharing.

Hypothesis

- i) There is no effect of the presence of information sharing on credit availability in Kenya.
- ii) There is no effect of the intensity of use of information sharing on credit availability in Kenya.
- iii) Bank characteristics have no effect on credit availability in Kenya.

3. Methodology

This study adopted an explanatory non-experimental research design to analyse the effect of credit information sharing and bank characteristics on credit availability among financial institutions that are licensed under the Kenyan Banking Act (2010). Explanatory research establishes causal relationships between variables (Saunders, Lewis & Thornhill, 2009 & Robson 2002). An explanatory non-experimental research design was appropriate since the study sought to explain the effect of credit information sharing and bank characteristics on credit availability with no manipulation of the independent variable anticipated (Kerlinger & Lee, 2000).

The 43 financial institutions that are licensed under the Kenyan Banking Act (2010) and CRB-Africa formed the target population. The financial institutions comprised of 42 commercial banks and 1 mortgage finance company. Out of the 43 institutions, 30 were locally owned and 13 were foreign owned. The study excluded the non-banks which include Micro-Finance Institutions (MFIs), Savings and Credit Cooperatives (SACCOs), other financial sector regulators and utility companies. The choice of the 43 financial institutions was based on the fact that these institutions are under obligation to submit the required data sets to licensed CRBs on a monthly basis. They are also the dominant players in the Kenyan banking system.

The study adopted a census approach because the financial institutions and CRBs in Kenya are relatively few. This approach improves validity of the data by including certain information-rich cases for study (Saunders *et al.*, 2009).

Both primary and secondary data were collected; primary data were collected using a semi structured questionnaire administered to the credit managers at the headquarters of each of the commercial banks. Secondary data on volume of lending which was an indicator of credit availability were obtained from the Bank Supervision Department at Central Bank of Kenya (CBK) headquarters. The key source documents were the financial disclosures prepared by banks on a quarterly basis for a period of five years between 2008 and 2012. The study utilized panel data which is a combination of time series with cross-sections. Such a combination enhances the quality and quantity of data to levels that would otherwise be impossible to achieve with only one of the two dimensions (Gujarati, 2003). CRB-Africa provided the total number of consultations to the bureau's database made by the various banks for the same period, which was the measure of intensity of use of information sharing. Data were analysed using descriptive statistics and panel data regression methods. The following empirical model was used:

$$CrAV_{it} = \alpha_i + \beta_1 (ISpresence)_{it} + \beta_2 (ISintensity)_{it} + \beta_3 (Ownershipstruc)_{it} + \beta_4 (MediumBank)_{it} + \beta_5 (LargeBank)_{it} + B_6 (BankAge)_{it} \dots\dots\dots(3.2)$$

Where

$CrAV_{it}$ = Credit Availability in bank i at time t

$ISpresence$ = Presence of Information Sharing

$ISintensity$ = Intensity of Information Sharing

$Ownershipstruc$ = Ownership structure of bank i at time t

$Mediumbank$ = A dummy variable = 1 for medium bank zero otherwise

$Largebank$ = A dummy variable = 1 for large bank zero otherwise

$BankAge$ = Age of bank i at time t

α_{it} = Unobserved random variables specific to cross sectional units capturing individual heterogeneity

Diagnostic tests were done to check for statistical problems inherent in the panel data. The Hausman test of model specification was used to determine the appropriate model for estimating the panel data in the study.

4. Results and Discussions

4.1 Descriptive Statistics

This study sought the opinion of the informants on whether there has been an improvement in their lending activity after the introduction of credit information sharing in the country; the results are shown in Table 1.

Table 1: Improvement in Credit Availability

	Response	Number of Respondents	Percent
Has there been an improvement in the lending activity in your bank since the introduction of CIS?	Yes	29	80.6
	No	7	19.6
	Total	36	100

Source: Survey data, 2013

The majority of the respondents (80.6%) reported that they had witnessed an improvement in lending activities following the introduction of Information Sharing. The study also sought to establish the relationship between the bank characteristics and the improvement in credit availability. The results are reported in Tables 2, Table 3 and Table 4.

Table 2: Ownership Structure and Improvement in Credit Availability

			Improvement in credit availability		Total
			No	Yes	
Ownership Structure	Foreign	Number of Respondents	4	7	11
		Percent	36.4	63.6	100.0
	Local	Number of Respondents	3	22	25
		Percent	12.0	88.0	100.0
Total	Number of Respondents		7	29	36
	Percent		19.4	80.6	100.0

Source: Survey data, 2013

According to key informants, as shown in the results in Table 2, the majority of the banks that had witnessed an improvement in lending were local. However, the chi-square tests show that there was no significant relationship between the ownership structure and credit availability ($\chi^2 = 2.895$, $p = 0.089$, $\alpha = 0.05$), which implied that improvement in credit availability was independent of ownership structure. It should be noted that test of independence was based on responses of the key informants and not the actual data on credit availability.

Table 3: Bank Size and Improvement in Credit Availability

			Improvement in Lending		Total
			No	Yes	
Bank Size Category	Small	Number of Respondents	3	13	16
		Percent	18.8	81.2	100.0
	Medium	Number of Respondents	2	12	14
		Percent	14.3	85.7	100.0
	Large	Number of Respondents	2	4	6
		Percent	33.3	66.7	100.0
Total	Number of Respondents		7	29	36
	Percent		19.4	80.6	100.0

Source: Survey data, 2013

The results in Table 3 indicate that the majority of the banks that had witnessed an improvement in credit availability were medium banks. However, there was no significant relationship between bank size category and credit availability ($\chi^2 = 0.982$, $p = 0.612$, $\alpha = 0.05$). This showed that improvement in credit availability was independent of bank size.

Table 4: Bank Age and Improvement Credit Availability

			Improvement in Lending		Total
			No	Yes	
Bank Age Category	Young	Number of Respondents	2	5	7
		Percent	28.6	71.4	100.0
	Old	Number of Respondents	5	24	29
		Percent	17.2	82.8	100.0
Total	Number of Respondents		7	29	36
	Percent		19.7	80.6	100.0

Source: Survey data, 2013

The results in Table 4 indicate that the majority of the banks that had witnessed an improvement in credit

availability were old banks. However, there was no significant relationship between bank age and credit availability ($\chi^2 = 0.462$, $p = 0.497$, $\alpha = 0.05$) which implied that improvement in credit availability was independent of bank age.

The chi-square results indicating no relationship between the bank characteristics (bank ownership structure, bank size and bank age) and credit availability could be attributed to the fact that the banking sector in Kenya is a highly - regulated industry.

4.2 Diagnostic Test Results

To test for heteroscedasticity the modified Wald test for group wise heteroscedasticity in FE regression model was used. The null hypothesis is homoscedasticity or constant variance against heteroscedasticity of some unknown general form. The computed test statistics had a p-value greater than 0.05, (Wald Chi2 (10) = 232, $p = 0.118$), which led to the non-rejection of the null hypothesis of homoscedasticity at the five percent level.

To test for multicollinearity, the Variance Inflation Factor (VIF) which quantifies the severity of multicollinearity in a regression analysis was used. The magnitude of multicollinearity was analyzed by considering the size of VIF. A common rule of the thumb is that if $VIF > 10$, then multicollinearity is high (Kutner, Nachtsheim & Neter, 2004). The results gave a mean VIF value of 1.54 indicating that there was no multicollinearity among the variables of the study.

The test for normality of the residuals was conducted based on the Jarque-Bera statistic. The null hypothesis under this test is that the residuals are not significantly different from a normal distribution. The test statistic is distributed as a chi-square with 2 degrees of freedom. Given that the p-value was greater than 0.05 ($\chi^2 = 0.967$, $p = 0.512$) the study failed to reject the null hypothesis thus the conclusion that the residuals were normally distributed.

The test for autocorrelation was carried out using Breusch-Godfrey Serial Correlation LM test. The null hypothesis for the test was that there is no serial correlation. The LM test statistic was statistically significant (Chi2 (4) = 46.09, $p = 0.000$) at the five percent level of which shows that there was presence of serial correlation. However, serial correlation is not a problem in micro-panels with few years (Baltagi, 2008). The study used panel data for only five years and therefore the estimates of the regression coefficients were efficient.

The Im-Pesaran-Shin (2003) panel data unit root test was used to test for stationarity in the series. The test has the null hypothesis that all the panels contain a unit root, and the alternative is some panels are stationary. The IPS panel unit root test gave a value of -16.4104 with a p-value of 0.0000 indicating that there was no unit root and therefore the data was stationary.

In order to choose between fixed and random effects model the Hausman test was used. The null hypothesis of the test was that the random effects model was preferred to the fixed effects model. The test provided a p-value less than 0.05 (Prob>chi2 = 0.0025) leading to the rejection of the null hypothesis and therefore Fixed Effects (FE) model was used.

4.3 Hypothesis Testing

The volume of lending was regressed on the measures of information sharing that is presence and intensity of information sharing, controlling for the bank age. The variables ownership structure and bank size were excluded from the model because FE model includes only time-varying regressors. Ownership structure and bank size did not change within the study period. The regression results are summarized in table 5.

Table 5: Regression Results for the Variable Credit Availability

Variable	Coefficient	Standard Error	Z	$P > Z $
Presence of IS	0.6049215***	0.026078	23.20	0.000
Intensity of IS	1.32e-06	1.20e-06	1.10	0.271
Bank Age	0.099488***	0.027918	3.56	0.000
Constant	15.50325***	0.0255283	607.30	0.000
Observation	848			
F-Statistic	F(3,802) = 204.13			
P-Value	0.0000			
Hausman Test	Prob>Chi2 = 0.0025			

*** Significant at 1% level of significance; ** Significant at 5% level of significance; * significance at 10% level of significance

Source: Survey data, 2013

The coefficient of the presence of information sharing was positive and statistically significant at 1 percent level, which implied that information sharing was an important determinant of credit availability. These results

confirmed previous findings that presence of information sharing was linked to enhanced credit availability (Brown et al. 2007). The study findings were also in conformity with the adverse selection model of Pagano and Jappelli (1993). The model posits that if banks exchange information about their clients' quality, they can identify which of the loan applicants who have recently joined the bank are creditworthy, and led to them as securely as they do with their long-standing clients. This increases bank competition which in turn leads to greater lending.

The results suggest that when banks collate information about the amount lent to each of their clients, the danger of over-lending is eliminated making lending safer. Lenders will therefore not ration the amount of credit supplied or require that all credit be assisted by collateral. They can thus expect to increase the supply of lending to credit seekers leading to a more efficient credit market. Exchanging of information among lenders about clients' quality, therefore, has a positive economic impact. According to the estimates, the effect of the presence of information sharing was for credit availability to increase by 0.605 percent after the introduction of information sharing.

The coefficient of intensity of use of information sharing was positive but not statistically significant at the 5 percent level. This implies that intensity of use of information sharing was not a determinant of credit availability. These results do not conform with the conjecture that information sharing can induce changes in bank lending policies, shifting from collateral-based lending policies to information-based ones (Jappelli & Pagano, 2000). The result could be an indicator that most banks were only submitting credit information to licensed CRBs because they are under obligation to do so but did not make reference to the data from the credit bureaus when assessing the credit worthiness of their borrowers. This could mean that most banks are skeptical about the reliability of the credit reports in reducing the probability of default. This is an indicator that credit in the Kenyan banking sector is still guaranteed by physical collateral even after the introduction of information sharing.

The coefficient of the variable bank age was positive and statistically significant at one percent level. The positive coefficient indicates that old banks were associated with higher credit availability as compared to the young banks. The estimates indicate that the old banks are likely to exceed the young banks in their credit availability by 0.995 percent.

5. Summary and Conclusion

The empirical results showed that the presence of information sharing significantly increased credit availability in the country. However, the intensity of information sharing had very little effect on credit availability. The study therefore concludes that sharing of credit information leads to greater lending. The study further established that old banks were associated with higher credit availability as compared to the young banks. This could be attributed to the fact that the older banks have been in operation for a longer period of time and have therefore accumulated their asset base. Moreover, these banks have established long standing relationships with their clients and therefore do not need to ration credit for them.

5.1 Recommendations of the Study

The study recommends that the government should ensure that the recently introduced CRBs caters for all types of credit institutions and also organized informal groups so that prospects of enhanced credit availability can be further improved. This emanates from the fact that credit availability improved after the roll out of credit information sharing despite the fact it was not mandatory for non-banks such as microfinance institutions, SACCOs, other financial sector regulators and utility companies. It is therefore imperative for the government to find ways of expanding credit information sharing to capture other non-bank credit providers.

Secondly, the government needs to embark on effective awareness creation of the benefits of credit information sharing to the financial institutions. This stems from the fact that there was very low usage of the credit reports by the financial institutions implying that most banks were only submitting the relevant information to the licensed CRBs as an obligation but they were not utilizing the credit reports from these bureaus in assessing the credit worthiness of their borrowers. By creating awareness, the financial institutions would improve on the usage of the credit reports thus shifting from collateral based lending to more information based policies.

The government should also take an active role in fostering the exchange of information among lenders by creating a public credit register managed by the CBK where lenders can share their data and obtain a return flow of reliable data for use in their lending decisions at an affordable rate. This will encourage banks to move from collateral-based lending policies.

5.2 Suggestions for Further Research

The study considered the effect of credit information sharing on credit availability from the lenders perspective where bank data on credit availability were used. Further research could consider the borrowers perspective and use firm level data on credit access to investigate the relationship between information sharing and credit availability in the country and possibly explore the effect of information sharing on the conduct of borrowers.

References

- Adams, W., Liran, E., & Jonathan, L. (2009). Liquidity constraints and imperfect information in subprime lending. *American Economic Review*, 99 (1), 49–84.
- Aghion, P., & Bolton, P. (1992). An incomplete contracts approach to corporate bankruptcy. *Review of Economic Studies*, 59, 473-494.
- Bae, K., & Goyal, V. (2009). Creditor rights, enforcement and bank loans. *Journal of Finance*, 64, 823-860.
- Baltagi, H. (2008). Forecasting with panel data. *Journal of Forecasting*, 27 (2).
- Barth, J., Lin, C., Lin, P., & Song, F. (2009). Corruption in bank lending to firms: cross-country micro evidence on the beneficial role of competition and information sharing. *Journal of Financial Economics*, 91, 361-388.
- Barron, J. M., & Staten M. (2003). The value of comprehensive credit reports: lessons from the U.S. experience. *Credit Reporting Systems and the International Economy*, Boston: MIT Press
- Beck, T., Levine, R., & Loayza, N. (2000). Finance and the sources of growth. *Journal of Financial Economics*, 58, 261-300.
- Berger A. N., Udell, M. S. & Miller, N. (2005). Credit scoring and the availability, price and risk of small business credit. *Journal of Money, Credit, and Banking*, 37.
- Bernardo, A., Pagano, M., & Piccolo, S. (2007). Information sharing with multiple – bank lending. *Mimeo, University of Salerno*.
- Bizer, D. S., & Peter, M. D. (1992). Sequential banking. *Journal of Political Economy*, 100(1), 41-61.
- Brown, M., Jappelli, T., & Pagano, M. (2007). Information sharing and credit: firm – level evidence from transition countries. *Swiss National Bank Working Papers*.
- Brown, M., & Zehnder, C. (2006). Credit reporting, relationship banking, and loan repayment. *Journey of Money, Credit, and Banking*.
- Brownbridge, M. (1998). The causes of financial distress in local banks in Africa and implications for prudential policy. *UNCTAD Discussion Paper No. 132*.
- Central Bank of Kenya (2010). *Press briefing on the roll-out of credit information sharing*. Nairobi, Kenya.
- Chris, B. (2008). *Introductory econometrics for finance*. Cambridge, Cambridge University Press.
- Coopers, D. D. & Schindler, P. S. (2003). *Business research methods* 7th edition Boston McGraw-Hill
- Detragiache, E., Paolo, G. G., & Luigi, G. (1997). Multiple versus single banking relationships. *CEPR Discussion Paper no. 1649*.
- Djankov, S., McLiesh, C., & Shliefer, A. (2007). Private credit in 129 countries. *Journal of Financial Economics*, 84, 299-329.
- Diamond, D. W. (1989). Reputation acquisition in debt markets. *Journal of Political Economy*, 97, November, 828-62.
- Doblas-Madrid, A., & Minetti, R. (2009). Sharing information in the credit market: contract level evidence for U.S. firms.
- Dong, H. E. (2009). Credit information sharing, creditor protection, and bank cross-border consolidation. *Journal of Corporate Finance*.
- Galindo, A., & Miller, M. J. (2001). Can credit registries reduce credit constraints? empirical evidence on the role of credit registries in firm investment decisions. *Paper prepared for the annual meetings of the Inter – American Development Bank, Santiago Chile*.
- Gay, L. R., (1981). *Educational research competencies for analysis and application*. London: Charies E. Mervil Publishing Company A. Bell and Howell Company.
- Green, W. H. (2008). *Econometric analysis*. Upper Saddle River, N.J.: Prentice Hall.
- Jaffee, D., & Russell, T. (1976). Imperfect information, uncertainty, and credit rationing. *Quarterly Journal of Economics* 90, 651-666.
- Jappelli, T., & Pagano, M. (1999). Information sharing, lending and defaults: cross- country evidence. *CSEF Working Paper No. 22*.
- Jappelli, T., & Pagano M. (2000). Information sharing in credit markets: a survey. *CSEF Working Paper No. 36, University of Salerno*.
- Jappelli T., & Pagano, M. (2005). Role and effects of credit information sharing. *CSEF Working Paper No. 136*.
- Kallberg, J. G., & Udell, G. F. (2003). The value of private sector credit information. *Journal of Banking and Finance* 27, 449-69.
- Kerlinger, F. N., & Lee, H. B. (2000). *Foundations of behavioral research* (4th ed.). Fort Worth, TX: Harcourt.
- Klein, D. B. (1992), “Promise keeping in the great society: A model of credit information sharing. *Economics and Politics* 4, 117-36
- Kutner, M. H., Nachtsheim, C. J., & Neter, J. (2004). *Applied linear regression models*, 4th Edition McGraw-Hill Irwin
- La Porta, R., Lopez de Silanes, F., Shleifer, A., & Vishny, R., (1997). Legal determinants of external finance. *Journal of Finance*, 52, 1131-1150.

- Lavan, M. & Robinson, P. (2004). Unit root testing to help model building. *Handbooks in Central Banking No. 22*.
- Love I., & Mylenko, N. (2003). Credit reporting and financial constraints. *World Bank Policy Research Working Paper 3142*.
- Luoto, J., McIntosh, C., & Wydick, B. (2007). Credit information systems in less-developed countries: a test with microfinance in Guatemala. *Economic Development and Cultural Change, 55*, 313-334.
- Micco, A., Panniza, U., & Yanez, M. (2004). Bank ownership and performance. *Inter-American Development Bank. Research Department Working Paper 518: Washington D.C., United States*.
- Ongena, S., & Smith, D. C. (1998). Bank relationships: a review. *The Performance of Financial Institutions*, P. Harker and S. A. Zenios editors, Cambridge University Press.
- Padilla, A., J., & Pagano, M. (1997). Endogeneous communication among lenders and entrepreneurial incentives. *The Review of Financial Studies* 10(1), Winter, 205-236.
- Padilla, A. J., & Pagano, M. (2000). Sharing default information as a borrower discipline device. *The European Economic Review* 44(10), 1951-1980.
- Pagano, M., & Jappelli, T. (1993). Information sharing in credit markets. *The Journal of Finance* 43(5), 1693-1718.
- Petersen, M. A., & Rajan, R. G. (1994). The benefits of lending relationships: evidence from small business data. *Journal of Finance, 49*, 3-37.
- Petersen, M. A., & Rajan, R. G. (1997). Trade credit: theories and evidence. *Review of Financial Studies* 10, 661-691.
- Powell, A., Mylenko, N., Miller, M., & Majnoni, G. (2004). Improving credit information, bank regulation and supervision: on the role and design of public credit registries. *World Bank Policy Research Working Paper 3443*.
- Robson, C. (2002). *Real World Research: A Resource for Social Scientist and practioners*, Research oxford Blackwell.
- Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research methods for business students, 5th edition*. Italy, Prentice Hall.
- Stiglitz, J. E., & Weiss, A., (1981). Credit rationing in markets with imperfect information. *American Economic Review* 71, 393-410.
- Turner, M. A., & Varghese, R. (2010). The economic consequences of consumer credit information sharing: efficiency, inclusion, and privacy. *The Policy & Economic Research Council*