Relationships between loans granted and interest spreads in the UK: Empirical research on panel data from 2004 – 2011 [#] [*]

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Abstract

This paper estimates relationships between interest rate spreads and amounts of loans granted. Interest spreads we make between interest rates on loans granted both, to individuals and companies in all its fixation categories, and the market rates. We use panel cointegration analysis to estimate relationships between our variables and differences, which may exist due to the official bank rate fixation on 0.5 %. Comparison on monthly data from National Bank of England´s database is made between two periods, from January 2004 to March 2009 and April 2009 to August 2011.We find some differences between the cases of corporate loans and loans to individuals. Discussion on our results brings some differences together also with some sufferings of this paper. Theoretical part copes also with the loans collaterals. There are some recommendations for future research in that area, too.

Keywords: Interest Spread, Loans granted, Loans Collateral, Panel Cointegration Analysis.
JEL codes: G21, G39, C01.

1. Introduction

Loans interest spreads are important for borrowers as a cost of foreign capital as well as for lender for who it means yields from lending. The problematic of the credit market should not be neglected in the market based financial system which is typically for the United Kingdom, too. This paper focuses on the impact of different interest spreads on the amount of loans granted. An important difference between this study and most other related studies is that here we try to explore causalities between loans granted and loans interest spreads. It provides also comparative study that examines differences between two time periods.

The National Bank of England issues quarterly publication called Trends in Lending. The focus of this report is on lending, but broader credit market developments, such as those relating to capital market issuance, or trade credit, are discussed where relevant. Its arguing is that the total cost of bank finance to a company or individual can generally be decomposed into the fees charged by the lender to provide loan facilities, the spread over a given reference rate (such as three-month LIBOR or Bank Rate) at which loans are offered, and the prevailing level of that reference rate in the financial markets.[1] In 2009 March the Bank of England's Monetary Policy Committee voted to reduce the official Bank Rate. They noted that a very low level of bank rate could have counter-productive effects on the operation of some financial markets and on the lending capacity of the banking system. From 2009 April is the bank rate fixed at 0.5 % level.

The aim of this paper is to estimate differences in relationships between interest rate spreads for loans and amounts of loans granted in the United Kingdom, which may exist due to the official

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[1] Loan pricing, In *Trends in Lending, July 2011*. [online, 10-10-2011], p. 9.

bank rate fixation in 2009. The paper contributes to current empirical research on loans interest spreads as follows: first, we compare causalities between interest spreads for the corporate loans and for loans to individuals. Our divided period into pre-fixed and fixed bank rates periods is an important addition to the current research on loans interest spreads. Second, we examine differences between loans interest spreads over 3-month LIBOR and over the bank rate, and we suggest also some policy implications.

The paper is organized as follows. In the next section, theories of loans collateral and loans interest rate spreads, and some of the empirical work in this area are critically examined. Section 3 describes our used data and methodology. The next section brings our empirical results together also with the discussion on that. Section 5 concludes.

2. Literature overview

Several studies which examine interest spreads for loans in developed countries, cope with LIBORs. Mariscal and Howells (2011) examine in their study also cointegration causalities between loans interest spreads in the UK. They use vector error correction model to look at the way in which the recent financial crisis has affected a wide range of interest rate spreads. As first, using cointegration they examine causalities between interest spreads, but do not compare the results. Therefore they do not hesitate to use a different number of lags in their models. They divided their estimated period due to financial crisis into two periods, from 1997 January to 2007 July, and from 2007 January to 2010 July. They examine LIBOR spreads and also the official bank rate´s, but do not examine impacts of the bank rate´s fixation.

Chotigeat et al. (2009) report the spread based on LIBOR in Asian-Pacific as well as in the US credit market. They argue that loans there are usually floating-rate based and typically priced over the benchmark rate, including the prime rate, the LIBOR, and Certificate of Deposit (CD) rates. However, the Loan Pricing Corporation reports the spread over the LIBOR most of the time and finds that the spread over other benchmarks are time-consuming and prohibitively costly. They find that the interest spreads for loans (mostly term loans with longer maturities) in the Asia-Pacific region are smaller than those in the US.

Booth and Booth (2006) argue some determinants of interest rate, e.g. proportion of assets serving as collateral, or riskless interest rate. In this paper our attention will be paid to the problematic of loan´s collateral, too. Even if we cannot get UK loans collaterals´ data for our empirical work, we show some reasons why the problematic of loans collateral could be examine in future. Loans collateral can influence the amount of credit used by a new venture either by affecting the cost, interest margin, or the actual amount of credit offered to a new venture by a bank (Burke and Hanley, 2006).

In according to Hao and Roberts (2008) borrowers with lower credit quality and higher risk are required to pledge collateral on the US domestic credit market. They use OLS regression to make models with loans interest rate spreads as dependent variables. Loans collateral they use as a dummy variable to separate secured and unsecured loans. We do not construct a regression model in our paper, but if we would, the cointegration relationships will be important in the case of panel data using.

Loans collateral as dependent variable use Hashi and Toci (2010). But their model´s output with collateral suffer from unavailability of the data in South and Eastern Europe. They construct models in three periods but collateral´s can be constructed only in one period. They explored determinants of firm´s self-reported obstacles for their operation and growth due to high collateral requirements and access to long-term loans. On their results and findings we can see that firms with better prospect and good performance seem to face fewer financing obstacles.

One step in the lending process is called Assessing Possible Loan Collateral. The loan officer or committee will usually check on the property or the other assets to be pledged as collateral in order to ensure that the lending institution has immediate access to the collateral if the loan agreement is defaulted. This is often referred to as perfecting the lender´s claim to collateral.[2] Due to Rose and Hudgins (2008) the credit collateral is also one from the 6 basic *C*s of lending (Character, Capacity, Cash, Collateral, Conditions, and Control). There exist several reasons to take the collateral. One of

[2] Rose and Hudgins (2008). *Bank Management & Financial Services.* Part 6, Providing Loans to Business and Consumers, p. 521.

them could be that if the customer takes it to the lender, the lender could offer him a lower loan´s interest rate. The lender´s interest could be protected by pledging the assets as collateral. Abrahams and Zhang (2009) argue that collateral value should motivate borrower to repay the loan as agreed. It means less risk for lender who could cut a little bit of interests. Of course, there are some differences in collateral taken by businesses and consumers. The business clients could pledge their assets as collateral behind the loan. The consumers have not assets, but they usually pledge their estates or chattel. Taking collateral depends also on the loans maturity (the length of lending) and the type of the credit. If bank customer would take just short-term loan, the lender does not need the collateral all the times. But if there is another type of short-term loans repayments than ordinary annuity (e.g. revolving loans), then the lender could require some collateral.

Interest rates on loans are not a free market rates like that on long-term bonds or Treasury bills. Each of them varies according to the client, according to the magnitude of the loan, and other criteria. In England most clients pay loans rate of one per cent above the discount rate (Lutz, 2007). The banks indicate the prime rate as the cost of borrowing for their most creditworthy clients. This is not important only for the most creditworthy clients because of some borrowers have floating interest rate on loans. In case of fixed interest rates on loans is important the development of benchmark rates (LIBORs).

3. Data & Methodology

We obtained the dataset from the Bank of England´s official financial database. The sample includes data in monthly frequency from period 2004 January to 2011 August. Interest rates on loans granted to households and private non-financial companies are taken. Interest rates differ in our paper according to its initial fixation or floating. We define two kinds of interest spreads´ variables, against LIBOR and the bank rate, and examine causalities between amounts of loans granted. Concretely, as corporate loans we take monthly amounts outstanding of monetary financial institutions' sterling loans excluding securitisations granted to private non-financial corporations. Loans to individuals mean monthly amounts outstanding of monetary financial institutions' sterling net secured lending excluding securitisations to individuals. The both time series are in sterling million and not seasonally adjusted. Other amounts of loans granted are not collect for our sample period. The structure of data you can see in Table 1.

Table 1: Data structure

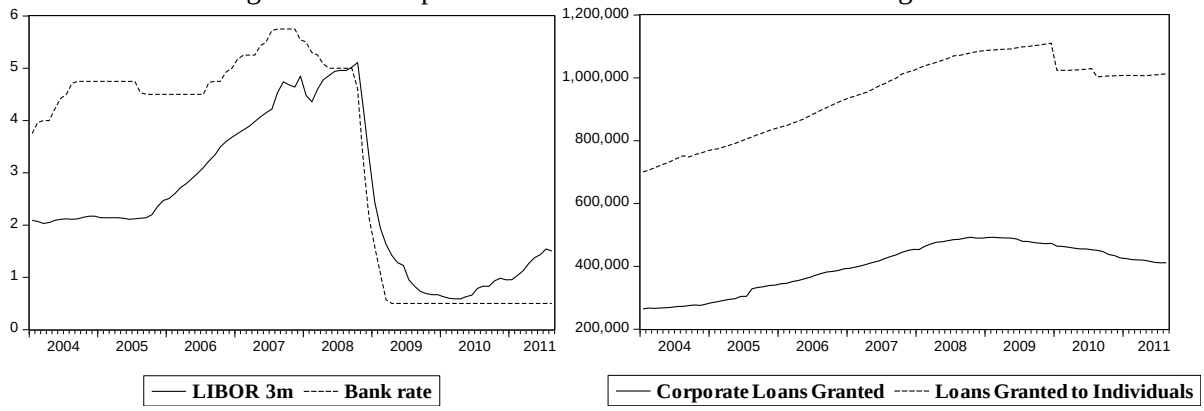
Households interest rates		**Private Non-Financial Companies**		**Banks**
Secured loans	***Other loans***	***Other loans interest rate***		Bank rate
Floating rate	Floating rate	Floating rate	Loan´s amount <=£1m	LIBOR 3m
Initial fixation <=1 year	Initial fixation <=1 year	Initial fixation <=1 year	Loan´s amount >£1m<=£20m	
Initial fixation >1yr<=5yrs	Initial fixation >1yr<=5yrs	Initial fixation >1yr<=5yrs	Loan´s amount >£20m rate	Amount of loans granted to companies
Initial fixation >5yrs<=10yrs	Initial fixation >5yrs rate	Initial fixation >5yrs rate		
Initial fixation >10yrs rate				Loans granted to individuals secured

Source: Author´s illustration.

Note: All interest rates loans granted are monthly averages of UK resident monetary financial institutions´ (excl. Central Bank) sterling weighted average interest rates – new advances, not seasonally adjusted.

The London interbank offered rate (LIBOR) is the rate at which the banks will lend. At the London interbank bid rate (LIBID) they will borrow. Of course, borrowers would rush to the cheapest source and lenders on the opposite site would flock to the most expensive one. For example three-month LIBOR represents the cost of three-month funds to banks – an alternative to selling three-month Treasury bills to generate cash (Ritter et al., 2009). Due to Trends in lending (2011), official document of the Bank of England, reference rate is the rate on which loans are set, with an agreed margin over the reference rate (typically this will be Bank Rate, LIBOR or a swap rate). Swap rates are a key factor in the setting of fixed mortgage rates. Swap rate is the fixed rate of interest in a swap contract in which floating-rate interest payments are exchanged for fixed-rate interest payments. In our paper we define two kinds of spread panel data variables. As first we define spread variable between interest rates loans granted in its all categories and three-month´s LIBOR. The second variable we define as a spread between interest rates loans granted in its all categories again and the official bank rate.

Figure 1: Development of market interest rates and loans granted



Source: Author´s illustration.

In Figure 1 on the first graph we can see that before financial crisis in 2008 the official bank rate was higher than 3 month´s LIBOR. After fall of the both rates LIBOR is on a higher level. For our paper it is important that from 2009 April the official bank rate is fixed on 0.5 % level. Due to this fact we split our work into two periods, before and after its fixation. We can clearly see differences in the both interest spreads and also loans margins for banks in pre-fixed and fixed period of bank rate. Therefore we try to explore causalities between both interest spreads and amounts of loans granted to demonstrate possible differences in pricing policies of commercial banks in the UK. The second graph shows that amount of loans granted companies in sterling millions is on the lower level that amount of loans granted to individuals. We can see its similar trend, the both. Due to financial crisis there is slowdown in development and decrease. But the strongest effect we can see in fall of amount loans granted to individuals in time period when market interest rates have decreased.

3.1 Methodology

We use EViews 7 software to examine causalities between our time series. As the first we make Johansen cointegration test on panel data to show causalities between cross-sections. Due to no cointegration equation output there, just verification of null hypothesis, we will compare number of cointegrated pairs in cross-sections between our constructed panels.

To test for cointegration, it is necessary to evaluate whether the disturbance term is a stationary process. Linear combination of two or more time series will be nonstationary if one or more of them is nonstationary, and the degree of integration of the combination will be equal to that of the most highly integrated individual time series. When two or more time series are linked in long-run increase or decrease, ignoring short-run dynamics and differences, they are said to be cointegrated. More generally, there is a relationship between a set of variables according to next equation: [3]

[3] Dougherty (2011). *Introduction to Econometrics.* Chap. 13.5, Cointegration, pp. 504-505.

$$Y_{it} = \beta_{i1} + \beta_{i2}X_{i2t} + \cdots + \beta_{in}X_{int} + \varepsilon \quad (1)$$

where *Y* is dependent variable of *i*-exogenous in the time *t*, *X* is independent variable of *i*-exogenous in the time *t*, and the disturbance term ε can be thought of as measuring the deviation between the components of the model.

We will cannot see any cointegration equation in our panel estimation, just maximum eigenvalue and trace statistic from zero up to two cointegration vectors between pairs of our panel time series exogenous. If the hypothesis verifications of the both tests bring the same results, we can verify number of cointegration vectors. To test the hypothesis that there are *r* cointegration vectors against the alternative of (*r*+1) cointegration vectors, there is the following maximum eigenvalue statistic:

$$\lambda_{max} = -Tln(1 - \hat{\lambda}_{r+1}) \quad (2)$$

where $\hat{\lambda}_r$ is the eigenvalue corresponding to *r* cointegration vectors and *T* is the number of observations. The trace statistic is calculated as follows:

$$\lambda_{trace} = -T \sum_{i=r+1}^{k} ln\,(1 - \hat{\lambda}_i) \quad (3)$$

The trace statistic for the existence of *r* cointegration vectors is the sum of the maximum eigenvalue statistics for from zero up to *r* cointegration vectors.[4]

Wang (2009) argue that panel unit root tests for testing the stationarity provide an overall aggregate statistic to examine whether there is a unit root in the pooled cross-section time series data and judge the time series property of the data accordingly. He says that it can avoid obtaining contradictory results in individual to which no satisfactory explanations can be offered, on the one hand. On the other hand, there can be reached good asymptotic properties with relatively small samples in individual time series that are sometimes too small to be effectively estimated. So for the stationary process testing of the pooled cross-section time series we use four different tests, concretely developed by Levin and Lin (1992, 1993), Im et al. (1995), Dickey and Fuller (1979, 1981), and Phillips and Perron (1988).[5]

To make a comparison we divided our estimation into two periods to show impacts of the bank rate fixing on the UK credit market. The first pre-fixed period will be from 2004 January to 2009 March. The second, fixed period, is from 2009 April, when bank rate is at 0.5 % level, to 2011 August. Due to fixation of the official bank rate at 0.5 % in the second period we should also show differences between using LIBOR and official bank rate to make interest spreads.

4. Empirical results

Our empirical part is made as follows. As the first, we proved non-stationarity of our time series at level. Then there are lag exclusion tests in unrestricted VAR model between all pairs of loans granted and interest spread. Finally we make cointegration analysis with the same number of significant lags in all cases. We make two kinds of comparison. It is the comparison between relationships using different interest spread, and the second between two periods, before and after fixing the official bank rate.

In Table 2 we can see results of lags exclusion Wald tests in VAR model. We do not describe the both, vector autoregressive model and lags exclusion tests, and tests for non/stationary time series in methodology in our paper, cause the aim of the paper is solved using cointegration analysis. We use lags exclusion tests in VAR models constructed between each pair of our variables as endogenous,

[4] Statistic equations the both are according Wang (2009). *Financial Econometrics.* Chap. 4, Unit roots, cointegration and other comovements in time series, p. 51.

[5] All tests´ characteristics in Baltagi (2002). *Econometric Analysis of Panel Data*. Chap. 12, Nonstationary Panels, pp. 233-256.

with constant in the model. As we can see, we could use maximum 2 lags for our cointegration analysis to make a comparison between all cases.

Table 2: VAR Lag Exclusion Wald Tests

	Corp. Loans	Spread Bank Rate	Joint	Individ. Loans	Spread Bank Rate	Joint	Individ. Loans	Spread Bank Rate	Joint
Lag 1	541.05 [a]	69.223 [a]	607.86 [a]	302.47 [a]	158.06 [a]	459.17 [a]	321.32 [a]	290.00 [a]	612.46 [a]
Lag 2	15.518 [a]	3.8894	18.924 [a]	**0.8251**	**14.681** [a]	**16.027** [a]	**0.3757**	**17.772** [a]	**18.178** [a]
Lag 3	**11.073** [a]	**9.7865** [a]	**19.578** [a]	3.9467	3.9176	7.5717	0.0454	0.8626	0.9101
Lag 4	11.733 [a]	2.2676	14.831 [a]	16.470 [a]	4.2675	20.449 [a]	0.2822	3.6499	3.939
	Corp. Loans	Spread LIBOR	Joint	Individ. Loans	Spread LIBOR	Joint	Individ. Loans	Spread LIBOR	Joint
Lag 1	538.51 [a]	104.36 [a]	641.09 [a]	315.55 [a]	144.78 [a]	460.21 [a]	324.68 [a]	281.46 [a]	607.75 [a]
Lag 2	15.694 [a]	13.735 [a]	29.316 [a]	**0.6575**	**16.612** [a]	**17.595** [a]	**0.0316**	**13.499** [a]	**13.550** [a]
Lag 3	**13.496** [a]	**13.273** [a]	**25.350** [a]	3.8167	2.8545	6.4721	0.0510	1.6389	1.7025
Lag 4	8.1205 [b]	0.1162	8.3891 [c]	19.366 [a]	3.2540	22.592 [a]	0.3919	1.6269	2.0158

Source: Author´s calculation.

Note: Characters a, b, and c, mean statistical significance at 1 %, 5%, and 10 % level.

4.1 Discussion on empirical results

Appendix chart in the end of this paper brings results for our cointegration analysis. We construct the Johansen Fisher panel cointegration test for each pair with interest spread and its amount of loans granted in the same way. As summary VAR cointegration tests show us, the most cointegrating numbers of variables have a deterministic trend No 3 with intercept (no trend) in CE and VAR, lags 1 2, in according with our results of lag exclusion Wald tests.

4.1.1 Loans granted to companies

In the first period from January 2004 to March 2009, before the bank rate fixation, there were examine a stronger relationship between LIBOR interest spread and amount of corporate loans granted. Except 1<=5 years fixation interest spread, we find existing causalities among all of them. Against these results, in case of bank rate spread we find causality only within floating interest rate spreads and 1<=5 years fixation spread.

The second period from April 2009 to August 2011 is characterized by fixed bank rate at 0.5 % level. In the case of corporate loans granted and LIBOR interest rate spreads there is still stronger relationship than with bank rate spreads, where is no cointegration. If we compare that with Period 1, the cointegration is on weaker level in LIBOR and bank rate interest spread, the both.

On the comparison between two kinds of interest spreads we can see that UK private non-financial companies pay after bank rate fixation lower bank margins. We prove that through a stronger relationship between LIBOR interest spreads and amounts of corporate loans granted. From our point of view we would recommend to the Bank of England to consider cancellation of bank rate´s fixation, when LIBOR will increase in near future. If LIBOR will reach its values from 2004, cancellation of fixation could be a good policy decision to stimulate financial markets.

4.1.2 Loans granted to individuals

Unfortunately, causalities with interest spreads of other loans to individuals we can´t examine because we have only net amount of secured loans, not other´s. Our results in this case are absolutely insignificant. However, we recommend to the Bank of England´s statistics to collect the data for all loans granted categories. For example, if we have interest rates on loans divided to some categories,

we could have also amounts of loans granted in the same categories. But we have not even amount of other loans granted to individuals, only amount of loans granted secured on dwellings. It is the biggest weakness of this study.

Between interest spreads of secured loans granted and amount of loans granted to individuals is detected a stronger relationship in the case of bank rate spread. But there is no causality within LIBOR spreads. It is maybe due to the fact, for banks in the setting of fixed mortgage rates the key factor is swap rate. This part of our empirical work suffers from unavailability of the data, too. Official discount rates there were only LIBOR and bank rate, in databases of National Bank of England.

In the case with amounts of loans granted to individuals we cannot see any cointegration with fixed bank rate spreads. There is one weak relationship existing with LIBOR interest spreads. There is lower level of cointegration than in Period 1, definitely.

It is impossible to make any implications for banks´ pricing policy, or National Bank of England´s policy. We can only recommend also collect swap rates as discount rates for mortgages.

5. Conclusion

The aim of this paper was to estimate differences in relationships between interest rate spreads and amount of loans granted in the United Kingdom, which may exist due to official bank rate fixation in 2009. Our work differs from the others. We do not split our sample period due to recent global financial crisis, but due to fixing of bank rate in the UK. Comparison is made also between different types of interest spreads. This study contributes to current studies in examining causalities between the credit market and loans interest spreads.

We confirm some differences in relationships between interest spreads and amounts of loans granted to companies in periods before/after the fixation of the official bank rate. The cointegration between LIBOR spread and amount of corporate loans granted is on weaker level in fixed bank rate´s period. But we consider stronger relationship with LIBOR spread than with the bank rate spread. It means lower margins from loans for UK banks in the second period. We could only recommend cancel of bank rate´s fixation, if LIBOR´s increasing will continue in future.

This paper has also some weaknesses. Mainly, we cannot compare causalities with interest spread for other loans to individuals. We have just amount of secured loans granted to them, not other´s. Secondly, we do not use swap rate to construct interest spread for secured loans on dwellings. Finally, our work suffers the most from unavailability of loans collateral data. This is the information by Money & Credit Group from Monetary and financial statistics of National Bank of England. They do not collect data on the extent of collateral for either lending to individuals or lending to businesses. They do only collect data on secured lending to individuals.

As future research we will also compare causalities between loans benchmark interest spreads and corporate loans granted in the UK with situation in another country. It could be more interesting to examine relationship between interest rate spreads and loans collateral in the future, too.

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Appendix Chart:

PERIOD 1
(January 2004 – March 2009)
Before fixing the official bank rate

			Trace Test		Max-Eign Test	
			Statistics	Prob.**	Statistics	Prob.**
LOANS GRANTED TO COMPANIES		Hypothesis of no cointegration				
	Interest	FX =0 year	17.7870	0.0222	17.1222	0.0172
	Spread	FX <=1 y	8.5273	0.4109	7.7505	0.4046
	Bank	FX 1<=5 y	17.4084	0.0254	15.1784	0.0358
	Rate	FX >5 y	13.5761	0.0953	13.1795	0.0737
		FX <=1m	6.8495	0.5952	5.8233	0.6360
		FX 1<=20m	10.1717	0.2678	9.0741	0.2800
		FX >20m	14.1824	0.0781	13.5626	0.0643
		Hypothesis of no cointegration				
	Interest	FX =0 year	26.3635	0.0008	23.0326	0.0016
	Spread	FX <=1 y	21.5499	0.0054	17.6895	0.0138
	LIBOR	FX 1<=5 y	9.9166	0.2872	9.5432	0.2437
		FX >5 y	18.7482	0.0156	18.2984	0.0109
		FX <=1m	20.5312	0.0080	18.5014	0.0101
		FX 1<=20m	27.6970	0.0005	24.3008	0.0010
		FX >20m	23.2753	0.0028	20.7395	0.0041
OTHER LOANS GRANTED TO INDIVIDUALS		Hypothesis of no cointegration				
	Interest	FX =0 year	14.1088	0.0800	10.5195	0.1800
	Spread	FX <=1 y	10.8921	0.2182	5.7745	0.6423
	Bank	FX 1<=5 y	33.1008	0.0001	23.6289	0.0013
	Rate	FX >5 y	13.1824	0.1083	9.5461	0.2435
		Hypothesis of no cointegration				
	Interest	FX =0 year	5.6735	0.7337	4.4632	0.8075
	Spread	FX <=1 y	7.1659	0.5585	5.1393	0.7241
	LIBOR	FX 1<=5 y	23.8943	0.0022	17.0966	0.0174
		FX >5 y	4.9095	0.8184	2.8943	0.9535
LOANS GRANTED TO INDIVIDUALS SECURED ON DWELLINGS		Hypothesis of no cointegration				
	Interest	FX =0 year	27.2393	0.0006	20.1271	0.0053
	Spread	FX <=1 y	19.1516	0.0134	15.9509	0.0268
	Bank	FX 1<=5 y	19.5951	0.0114	12.2434	0.1018
	Rate	FX 5<=10 y	20.4605	0.0082	16.0537	0.0258
		FX >10 y	13.8328	0.0876	9.5794	0.2411
		Hypothesis of no cointegration				
	Interest	FX =0 year	12.4229	0.1377	10.8588	0.1614
	Spread	FX <=1 y	10.1009	0.2730	8.9756	0.2882
	LIBOR	FX 1<=5 y	9.4301	0.3271	6.3669	0.5666
		FX 5<=10 y	8.4312	0.4205	5.0990	0.7293
		FX >10 y	11.7449	0.1696	10.8177	0.1636

PERIOD 2
(April 2009 – August 2011)
After fixing the official bank rate

			Trace Test		Max-Eign Test	
			Statistics	Prob.**	Statistics	Prob.**
LOANS GRANTED TO COMPANIES		Hypothesis of no cointegration				
	Interest	FX =0 year	8.4091	0.4227	8.1240	0.3662
	Spread	FX <=1 y	7.3377	0.5387	7.1155	0.4756
	Bank	FX 1<=5 y	12.9438	0.1169	12.9228	0.0806
	Rate	FX >5 y	12.4010	0.1387	12.3976	0.0966
		FX <=1m	10.1583	0.2688	10.0182	0.2107
		FX 1<=20m	6.5490	0.6306	6.3948	0.5631
		FX >20m	13.3716	0.1019	13.3516	0.0693
		Hypothesis of no cointegration				
	Interest	FX =0 year	7.3524	0.5370	7.2358	0.4616
	Spread	FX <=1 y	17.6351	0.0235	17.0000	0.0180
	LIBOR	FX 1<=5 y	23.5305	0.0025	23.2013	0.0015
		FX >5 y	7.8459	0.4820	7.8438	0.3948
		FX <=1m	15.0221	0.0588	14.0622	0.0538
		FX 1<=20m	13.1457	0.1096	13.0453	0.0772
		FX >20m	10.1495	0.2694	9.8798	0.2199
OTHER LOANS GRANTED TO INDIVIDUALS		Hypothesis of no cointegration				
	Interest	FX =0 year	27.7837	0.0004	23.6148	0.0013
	Spread	FX <=1 y	11.4159	0.1872	7.9462	0.3842
	Bank	FX 1<=5 y	26.8133	0.0007	24.7278	0.0008
	Rate	FX >5 y	17.0798	0.0286	15.1232	0.0365
		Hypothesis of no cointegration				
	Interest	FX =0 year	7.1949	0.5551	5.8466	0.6330
	Spread	FX <=1 y	7.7390	0.4937	4.7055	0.7785
	LIBOR	FX 1<=5 y	13.1836	0.1082	8.8061	0.3027
		FX >5 y	8.6440	0.3993	6.9010	0.5009
LOANS GRANTED TO INDIVIDUALS SECURED ON DWELLINGS		Hypothesis of no cointegration				
	Interest	FX =0 year	8.1218	0.4525	6.3304	0.5712
	Spread	FX <=1 y	7.4657	0.5242	7.0846	0.4792
	Bank	FX 1<=5 y	12.0279	0.1556	9.9515	0.2151
	Rate	FX 5<=10 y	8.0438	0.4607	6.0579	0.6058
		FX >10 y	15.8590	0.0441	13.0948	0.0759
		Hypothesis of no cointegration				
	Interest	FX =0 year	18.3819	0.0179	13.6175	0.0631
	Spread	FX <=1 y	12.5532	0.1323	9.6537	0.2357
	LIBOR	FX 1<=5 y	19.0457	0.0140	14.9012	0.0396
		FX 5<=10 y	9.1216	0.3543	6.7232	0.5224
		FX >10 y	16.6339	0.0336	12.5617	0.0913