Centre for International Capital Markets

Discussion Papers ***ISSN 1749-3412***

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No 2009-8

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Abstract

This paper investigates how the consolidation process has affected the degree of competition within the segment of Credit Associations (CA) and Credit Cooperatives (CC) in Japan By applying our restricted model we find that Credit Association and Credit Cooperatives operate in monopolistic markets. The results correspond to research findings by Tsutsui and Kamesaka (2005), and Uchida and Tsutsui (2005). Our estimate indicates that size of mutual financial institution has a positive impact on revenue. The same may be seen for the number of branches. In fact, it means that the growth of banks activities is reflected in higher revenues.

Keywords: International bank ratings, ordered choice models, country indicator variable.

JEL Classification: D21, G21, G23

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1. Introduction

The Japanese financial market has been significantly shaken up by the burst of asset price bubble in the late 1980s and early 1990s. As a direct consequence, the banking sector has undergone a forced consolidation process which had been reflected by a large number of bankruptcies, mergers and acquisitions and consequently stronger competition within the banking sector.

This paper investigates how the consolidation process has affected the degree of competition within the segment of Credit Associations (CA) and Credit Cooperatives (CC) in Japan. These financial institutions play a significant role within the financial mark and their share in terms of deposits and loans is 20 percent and 25 percent respectively. The methodological concept of this study is based on non-structural models H statistics (Panzar and Rosse (1987)). This methodology is considered as a standard method to estimate a degree of competition across the industry.

The empirical literature of applying the SCP and Panzar-Rosse models in the Japanese sector is rather limited. Uchida and Tsutsui (2005) analysed the competition conditions of commercial banks in Japan in the last quarter of the 20th century. Tsutsui and Kamesaka (2005) analysed the competitiveness within the Japanese securities industry. Alley (1993) research estimated competition conditions in Japan by using data of the Japanese regional financial institutions (Regional banks, Mutual banks (the former of Second regional banks), and Credit Associations). Findings supported collusive behaviours among the Japanese financial institutions.

Satake and Tsutsui (2003) focused on one prefecture Kyoto in Japan and analyzed the SCP and efficiency hypotheses in lending market by regional banks and credit associations. Their result supported the efficiency hypothesis. Tsutsui (2005) discussed the national credit associations in the period between 1993 and 1997, and the results supported the efficient hypothesis. Tsutsui et al. (2006) reapplied the methodological framework introduced in Tsutsui (2005) for City banks over the period 1974 - 2001. They concluded that that the efficient hypothesis is supported in the case of organizational efficiency measure and the efficient hypothesis is not accepted in the

case of scale diseconomy measure.

Molyneux et al. (1996) tested contestability conditions in the Japanese banking sector for City banks and Regional banks. They considered that the existing banks in Japanese banking market tend to interfere with the new entry from the outside, and it should affect to the price setting. In fact, they measured the H statistics (Panzar-Rosse test) with the revenue function using two years' cross-section data (1986 and 1988). Their results showed that the banking market in 1986 was in monopolistic or oligopolistic conditions, and, in 1988, it changed into the monopolistic competition. They concluded, therefore, that it was caused by the contestable behaviour of the existing banks that there are only a small number of de novo banks in Japanese domestic lending market. However, they also represented another conclusion that the competitive price would be realized through increased competition in the future. Niimi (1998) analyzed the H-statistics to examine the relationship between the City banks and their customer companies in Japan during 1980 and 1990. Two interesting results were found that oligopolistic condition during the bubble boom of the 1980s and the market in the 1990s was in the monopolistic competition. That is, the degree of competition had increased.

This strand of research motivates and guides our empirical research about the competition conditions in the segment of CA and CC. There are two main motivations for our research. Firstly, there is limited empirical research tackling the market structure of the Japanese mutual financial institutions. Secondly, we compare structural and non structural models that could reinforce our results and consequently policy recommendation.

The paper is structured as follow. Section 2 provides an overview about the role and place of Credit Associations and Credit Cooperatives within the Japanese banking sector. The following Section reviews the recent empirical literature. Section 4 describes applied models. Section 5 discusses empirical results and Final Section concludes.

2. The role and place of Credit Association and Credit Cooperatives

Financial institutions in Japan could be divided into three broad categories[4]: (i) City banks and Trust banks, (ii) Regional banks and Second regional banks, (iii) Credit Associations and Credit Cooperatives. Firs two groups are traditional commercial banks with their main objective function, i.e., to maximise profit. The third group includes mutual (cooperative) financial institutions that their main objective is to focus on supporting the development of their local communities.

A further distinctive characteristic is that City banks and Trust banks have their branches across the country. Regional banks and Second regional banks mainly arrange their branches only in their prefecture. CA and CC set their branches in their local communities; cities, towns and villages. CA and CC as small business financial institutions also take a different organization form from commercial banks.

Muramoto (2005) argues that the main role of CA and CC is the membership policy. Thus, the main purpose of these institutions is not only profit maximization but also welfare of their members. A further different aspect of CA and CC is the requirement to contribute to a local community. The close link with local communities and individuals supports small companies with innovative projects and particular skills. CC and CA have also different historical background compared with the ordinary banks. The act on CA was introduced on the 15th of June, 1951, and was consisted of 92 articles.

Credit Associations are similar to other financial intermediaries, i.e., provide financial services as collecting deposits and providing loans. However, the lending activities are restricted. In the article 53.2., it is defined that "... the government ordinance sets that CA can offer loan services to non-member ... unless job performance of the Credit Association is interfered". The government ordinance means the enforcement orders of the Law of CA. The article 8 in its order states that the lending services to non-member must be confined within 20% of total amount of

[4] This part does not consider Long-term credit banks because they were generally positioned as the half-government and half-private financial institutions.

lending. Additionally, it is also written that the decision-making of business policy must be done in the general representative meeting, in the article 50 of the Law of CA.

A further distinctive feature between CA and Commercial Banks is the preferential tax system. CA and CC are preferential treatments such as the reduced tax rate[5], and the inclusion in expenses of cash dividends depending on business charges (Article 60.2.).[6]

Table 1 shows the relative size of private financial institutions in Japan. It may be of interest to show that total loans and total deposits of CA are much larger than not only those of Second regional banks but also Trust banks. In particular, total deposits of CA are nearly 30% of City banks and 42.8% of Regional banks. However, the total volume asset of CA is much smaller than all kind of commercial banks. In contrast, all data of CC are much smaller than those of CA. These facts mean that CA have a very important place, but CC play a much smaller role in financial industry of Japan.

Table 2 indicates the change of institutions and employees over the analysed period. Over eight years number of institutions was reduced by 25% and the number of employees was also correspondingly reduced. However, the membership over the same period increased by 7%.

Table 3 provides the same information about Credit Cooperatives. We see that the decline was even more dramatic comparing Credit Association. The number of Cooperatives declined by more than 50% and the number of employees was cut by more than 40%. Unlike Credit Association the membership has been reduced by 16%.

[5] In fact, the amount of corporate tax for ordinary corporation such as commercial banks is '… the 34.5% of total amount of income in each year' (Article 66), while that for the cooperative unions such as Credit associations and Credit unions is '… the 25%' (Article 66.2.).

[6] The new capital adequacy requirements to the cooperative financial institutions will be started at March, 2007, as well as the case of ordinary banks. In the risk assessment for the calculation of capital adequacy ratio, not only credit risk and market risk but also operational risk will be included.

3. Data and Methodology

The sample includes about 300 Credit Associations and 200 Credit Cooperatives over the period 1999-2005. Data are collected from the annual reports.

Market concentration measures

As banking industry deals with multiple products, it is difficult to define all structures from the simple market range. And there is not adequate measurement reflecting the degree of monopoly as market structure. Heggestad (1979) indicates that there are three problems with measuring the concentration of the banking market. Firstly, to find the appropriate general index for the concentration, secondly, to select the relevant economic variables for measuring the difference of bank size, and finally to explain the difference of competition of inter-institutions, between banks and non-banks.

Research studies apply two kinds of concentration index. First, the k-bank concentration ratio as the k-bank concentration index is used most frequently in empirical studies. The following equation is employed to aggregate the market share of the k-large banks in the market;

$$CR_k = \sum_{i=1}^{k} S_i$$

where CR_k is the k-bank concentration index; S_i is the market share of bank i. Although this index emphasises on the k leading banks, the remaining banks in the market are neglected. There are no rules for the determination of the number of banks. Therefore, the number of banks included in the concentration index could be determined at discretion. The concentration index is considered as one point on the concentration curve, and is the first-order measure ranging between zero and one. In the case that there are an infinitely large number of banks having equivalent sizes (that is, if the k-bank value is relatively small to the number of total banks), its index approaches to zero. And on the contrary, the figure would be near unity if the number of the whole industry is incorporated in the calculation for the concentration

estimation. If the n-banks having same size dominate banking industry, $CR_k = \sum_{i=1}^{k} s_i = \sum_{i=1}^{k} 1/n = k/n$. This formula is a decreasing function to the number of banks in the market, and it is equal to $n_e=k/CR_k$.

Next indicator is the Herfindahl-Hirshman index (HHI). This is the most common measure as the concentration index in the theoretical literature. And it is often used as the benchmark to estimate the other concentration measures against because the HHI includes the impacts from total banks. The function form for the HHI is:

$$HHI = \sum_{i=1}^{n} S_i^{\,2}$$

It represents as the sum of squared market share. The HHI expresses the importance of large banks by assigning the large weight. And by including each bank individually, the problems such as the arbitrary cut-off and the insensitivity to the share distribution are avoided. The HHI index is ranged between 1/n and 1. If all banks have same size in the market, the HHI would approach to the minimum value, which is the reciprocal of the number of banks. On the contrary, the index would be unity in the case of monopoly. As the HHI reacts well to the number of firms and the variance, it is shown as the decent index. However, as these measures are mutually related, the selection of market structure does not have any critical importance for the test of the SCP hypothesis. (Heggestad (1979))

In general, the structure of concentration index becomes either discrete or cumulative. The discrete measure of concentration corresponds to the arbitrary point on the concentration curve. For instance, the k-bank concentration belongs in the group of this individual measure. The advantage of an individual measure is that the required data is simple and definite. There were supporters as well as opponents, in the previous literature. However, both researches discuss about the impact of concentration to the banking market structure. The most of supporters have a viewpoint that the market behaviour, which is dominated by a small number of banks, would not influence in the total number of banks in the market. In other words, the concentration index based on the total number of banks does not necessarily represent large size, and it could just

change the ultimate conclusion limitedly. In contrast, the opponents show the viewpoint that every bank in the market has some effect to the market direction and there is severe inadequacy in the individual index. That is, it is asserted that some structural changes in the industry, not including in the index, are unfortunately ignored in those individual indices. Even the competitive behaviour by small sized market players might have significant market power as well as large player.

Non structural model – H statistics

In this section, non-structural measure on the market competition is discussed with the Panzar-Rosse approach. The Panzar-Rosse approach is a test which is based on the comparative static properties of an induced-form revenue equation. The competitive behavior of banks is made decisions from the comparative static properties of a reduced-form revenue equation in the method by Panzar and Rosse (1987). Panzar and Rosse assume that banks would operate in long-term equilibrium, while bank performance is also affected by the action of the other market participants. Their model presumes that the price elasticity of demand (e) would become greater than unity, and that the homogeneous cost structure is hold. In order to calculate the output quantity and bank number in equilibrium, it is assumed that bank profits are maximized. Thus, banks attempt to maximize profits by performing business where marginal revenue of banks becomes equal to marginal cost.

$$R'_i (x_i, n, z_i) - C'_i (x_i, w_i, t_i) = 0$$

x_i is an output of bank, i, n is the number of banks, w_i is a vector of m factor input price of bank, i. z_i is a vector of exogenous variable to shift the revenue equation of bank, and t_i is a vector of exogenous variable to shift the cost function of bank. In equilibrium, this relation constrains that bank profit would become zero.

$$R^*_i (x^*, n^*, z_i) - C^*_i (x^*, w, t) = 0$$

Variables with mark, *, means the value in the equilibrium condition. Market power is measured as the ratio of the change in the factor of input price (∂w) by reflecting the

equilibrium revenue (∂R^{*}_{i}). Panzar and Rosse (1987) defined the 'H-statistic', which is the sum of the elasticity of the reduced revenue function with regard to the factor prices, as the competition measure.

$$H = \sum_{k=1}^{m} \left(\frac{\partial R_i^*}{\partial w_{ki}} \right) \left(\frac{w_{ki}}{R_i^*} \right)$$

The figure of H-statistics is located between -∞ and 1. If the market is monopolistic, the value of H is smaller than 0. The value from 0 to 1 means the monopolistic competition, and value 1 indicates the perfect competition.

In the measurement of H statistics, it is required as assumption or condition that the market attains the long-term equilibrium. The empirical test is considered from the following story. At the competitive capital market in the equilibrium, the risk-adjusted return is uniformized between banks. Thus it is considered that the input prices should not be correlated statistically with the rate of return. In contrast, if the market is not in the equilibrium, the increase (decrease) of input price makes the rate of return drop (rise) temporally. The change of input price would be correlated with the rate of return significantly. Therefore, it may be tested if the market is in a long equilibrium by replacing the bank revenues by return on asset (ROA) and calculating the E statistics in the equation.[7] In other words, if the E statistics is smaller than 0 (E stat < 0), it means the market is in disequilibrium. And if it is equal to 0 (E stat = 0) statistically, it represents the market equilibrium. (Shaffer (1982), Molyneux et al. (1994, 1996), Classens and Laeven (2004), Matthews et al. (2006))

With regards to the H statistics of the Panzar and Rosse approach, the model is specified as follows (Panzar and Rosse (1987), Nathan and Neave (1989), and DeBandt and Davis (2000)):

$$\ln R = \alpha_0 + \alpha_1 \ln PL + \alpha_2 \ln PK + \alpha_3 \ln PF + \alpha_4 \ln S + \alpha_5 \ln X + \varepsilon$$

where R is the revenue of banks, PL is the input price of labour, PK is the input price of capital, and PF is the input price of financial fund. These three input prices are used

[7] E statistics is defined as the sum of the input-price coefficient in which the explained variable is the rate of return.

as endogenous variables, and the sum of the coefficients of these three variables are defined as the H statistics. In fact, PL employs the ratio of the personnel costs to the member of employees as the proxy. The ratio of nonpersonnal expenses to the total cost of personal property and fixed property could become a proxy of PK. And the cost of raising funds to total costs (including deposits, the CD, debt loan, and credit) would be a proxy of PF. Bank-Specific Factors are additional explanatory variables, and reflect the gap such as risk, cost, size, and bank structure. Ratio of risk capital fund to asset, ratio of loans to total asset, or ratio of the nonperforming loans to total loans are considered as a risk factor. Although there are some other variables which refer to bank-properties, total asset is often accepted as the size factor of banks.

We also include the exogenous variables into our equation; market size (S) and further characteristics (X) that should capture the behaviour of CC and CA. The determinants of X are considered the difference of risks, deposit mix, and organizational structures. In this study, the risk factor uses the ratio of loan loss reserves in total gross loans, and the deposit-mix factor employs total deposits to total assets.

From the above developments, the model of the H-statistics by the Panzar and Rosse approach on the Japanese cooperative financial institutions is derived as following revenue functions:

[Equation for H statistics]

$$\ln REV = \beta_0 + \beta_1 \ln P_L + \beta_2 \ln P_K + \beta_3 \ln P_F + \beta_4 \ln AST + \beta_5 \frac{LLR}{GRSLOAN} + \beta_6 \frac{DEP}{AST} + \beta_7 \ln BR + \varepsilon$$

Equation 1

where:

REV = total revenue, P_L = Price of Labour; (Personnel Expenses / Number of Employees), P_K = Price of Capital; (Other Administrative Expenses and Other Operating Expenses / Total Asset), P_F = Price of Fund; (Interest Expenses / Deposit), AST = total bank assets, DEP = total deposit, LLR = Loan Loss Reserves, GRSLOAN =

Total gross loans and BR = number of branches. The H statistics is calculated as $H = \beta_1 + \beta_2 + \beta_3$.

[Equation for E statistics (Long-term equilibrium)]

In addition, the estimated equation for the market equilibrium is defined as follows. Here, the new explained variable, π, refers to the return on assets (ROA). The E statistics is calculated as $E = \gamma_1 + \gamma_2 + \gamma_3$.

$$\ln(1+\pi) = \gamma_0 + \gamma_1 \ln P_L + \gamma_2 \ln P_K + \gamma_3 \ln P_F + \gamma_4 \ln AST + \gamma_5 \frac{LLR}{GRSLOAN} + \gamma_6 \frac{DEP}{AST} + \gamma_7 \ln BR + \varepsilon$$

Equation 2

where:

π = Return on Asset (ROA), P_L = Price of Labour, P_K = Price of Capital, P_F = Price of Fund, AST=total bank assets, DEP = total deposit, LLR = Loan Loss Reserves, GRSLOAN = Total gross loans, BR = number of branches,

The empirical test for the H statistics incorporates the fixed effect into the error term. It is possible to estimate more properly by including the institution-specific fixed effect (η) and the period specific fixed effect (λ).

4. Empirical Results

Table 4 and 5 show the empirical results of Rosse-Panzar's H-statistics and long term equilibrium test (E stat) for Japanese Credit associations and Credit cooperatives, respectively. The H statistics is represented in the third section from the bottom in Table 4. Although the value of H-stat is 0.64 in the no fixed effect, it remarkably decrease to 0.575 in 1-way fixed effect model and 0.51 in 2-way model. These three values all are significantly different from H=0 and H=1 in 1% level, respectively. Therefore, it can be concluded that Credit associations and Credit cooperatives are in the monopolistic competitive market.

As for the other control variables, it is found that the logarithmic asset (lnAST) is positively related to total revenue (lnREV). It suggests that the scale merit acts to the cooperative financial institutions significantly. As the ratio of loan loss reserve to

gross loan (LLR/GRSLOAN) is used as the figure for risky behaviour, we expected it will have a negative relationship with total revenue. However, the result showed positive relationship with revenue. The ratio of total deposit to total asset is employed as the measure of bank performance. As the increase of its figure means the growth of the expenses in total balance, it is expected to be negative number. The result followed our expectation.

Our estimate shows that H statistics is significant and positive with values from 0.51 to 0.63 depending on an estimation technique. However, if the market is not in the equilibrium, it is difficult to use the value of H statistics as the measure of market competition. Thus, in Table 5, the result of equilibrium test by Shaffer is represented. The E statistics are indicated in the third bottom section on the table. The E-statistics on no-fixed effect is 0.07 and it could not reject the null hypothesis, E=0, in which the market attain the long term equilibrium. In contrast, the E statistics of 1-way and 2-way model are -0.266 and -0.300, respectively. These two results significantly reject the hypothesis, E=0, in 1% level. Therefore, as a result, it is difficult to conclude that the result of H statistics in Table 4 is available. In other words, from these estimations, it was not found the fact that Japanese Credit associations and Credit cooperatives are in the monopolistic competitive market.

5. Conclusions

This study analyses competition conditions of Mutual Financial Institutions in Japan. We apply a traditional non-structural methods introduced by Panzar and Rosse (1987). The analysed sample is a representative sample of Credit Associations and Credit Cooperatives operating in Japan.

By applying our restricted model we find that Credit Association and Credit Cooperatives operate in monopolistic markets. The results correspond to research findings by Molyneux et al. (1996), Tsutsui and Kamesaka (2005), and Uchida and Tsutsui (2005).

Our estimate indicates that size of mutual financial institution has a positive

impact on revenue. The same may be seen for the number of branches. In fact, it means that the growth of banks activities is reflected in higher revenues. On the other hand, the coefficient of the applied ratio (Deposits/Assets) has a negative sign and is statistically significant that corresponds with the notion that the increase in deposit means reduction of interest revenue for banks. However, a further research is needed in order to confirm our results.

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Table. 1 Relative size of private financial institutions in 2008

	No.	Loans and discounts outstanding (banking accounts)	Deposits	Assets (banking accounts)
City banks	6	2,128,980	2,707,135	415,541,661
Regional banks	64	1,485,468	1,961,177	224,747,484
Second regional banks	45	429,309	555,619	61,215,264
Trust banks	7	322,933	351,869	62,319,938
Long-term credit banks	2	93,067	76,943	168,260
Credit associations	282	635,433	1,137,275	1,204,216
Credit cooperatives	164	93,828	163,300	175,306

Note: JPY 100 millions
Source: “Economics Statistics Monthly” (Bank of Japan), “Financial Statements of all banks” (Japanese Bankers Association), “Shinkin Central Bank Monthly Review” (Shinkin Central Bank), “Main accounts of National Credit cooperatives” National

Table. 2 Number of institutions, members, & administrators of Credit Associations

	No of institutions	No of members	No of employees
1998.3	401	8,599,612	2,952
1999.3	396	8,733,839	2,950
2000.3	386	8,876,360	2,900
2001.3	371	8,941,138	2,804
2002.3	349	8,981,084	2,734
2003.3	326	9,001,391	2,557
2004.3	306	9,091,805	2,396
2005.3	298	9,134,192	2,342
2006.3	292	9,190,783	2,272

Source: Shinkin Central Bank Monthly Review

Table. 3 Number of Cooperatives, members, & administrators of Credit Cooperatives

	No of Co-operatives	No of members	No of administrators
1998.3	351	4,321,921	38,246
1999.3	322	4,146,352	35,492
2000.3	291	4,083,786	33,096
2001.3	280	4,099,015	31,078
2002.3	247	3,966,008	28,560
2003.3	191	3,426,813	24,422
2004.3	181	3,502,008	23,510
2005.3	175	3,579,427	22,953
2006.3	172	3,626,027	22,482
2007.3	168	3,643,119	22,034

Source: Financial Statement analysis of national Credit cooperatives

Table. 4 Empirical results of H statistics (t-values in parenthesis)

	Normal	1-way Fixed Effects	2-way Fixed Effects
Constant	-0.631405***	-0.239914***	-1.777894***
	(-4.782953)	(-0.974212)	(-5.48283)
lnPL	0.259295***	0.287602***	0.32601***
	(14.0167)	(15.74347)	(16.32063)
lnPK	0.253802***	0.159356***	0.151382***
	(29.01441)	(18.06289)	(18.06202)
lnPF	0.12668***	0.128344***	0.03586***
	(35.30635)	(35.13737)	(5.153545)
lnAST	0.853778***	0.866786***	0.917918***
	(124.7072)	(47.92072)	(41.93366)
LLR/GRSLOAN	0.008539***	0.005051***	0.00568***
	(7.589169)	(3.737209)	(4.413847)
DEP/AST	-0.519362***	-1.284971***	-1.186113***
	(-4.657328)	(-6.373412)	(-6.173646)
lnBR	0.16603***	0.006673	-0.020813
	(21.78269)	(0.356798)	(-1.075757)
R^2	0.983202	0.993612	0.994363
R^2 adj.	0.983159	0.99223	0.993125
H_0: $\eta = 0$	------	F(482,2260)= 7.641567***	F(482,2254)= 8.901942***
H_0: $\lambda = 0$	------	------	F(488,2254)= 50.00472***
H-stat	0.639777	0.575301	0.513253
H_0:H=0	F(1, 2742)= 1018.154***	F(1, 2260)= 870.1503***	F(1, 2254)= 567.3448***
H_0:H=1	F(1, 2742)= 322.7756***	F(1, 2260)= 474.204***	F(1, 2254)= 510.2608***
F	22927.24	718.9037	803.1922
Obs.	2750	2750	2750

Note: (i) each figure below the coefficients is t-value., (ii) *** significant at the 1%, ** significant at the 5%, * significant at the 10%

Table. 5 Empirical results of E statistics (market equilibrium) (t-values in parenthesis)

	Normal	1-way Fixed Effects	2-way Fixed Effects
Constant	2.316747***	2.145545	5.308016***
	(4.696912)	(1.573746)	(2.779088)
lnPL	0.198152***	0.041028	-0.028384
	(2.826574)	(0.406467)	(-0.239911)
lnPK	-0.130194***	-0.323123***	-0.31113***
	(-3.793688)	(-6.269437)	(-5.986621)
lnPF	0.002997	0.015924	0.039216
	(0.22061)	(0.804871)	(0.979633)
lnAST	0.03264	0.366338***	0.180626
	(1.268226)	(3.653386)	(1.410886)
LLR/GRSLOAN	-0.023581***	-0.046493***	-0.041729***
	(-5.080337)	(-5.684217)	(-5.04634)
DEP/AST	-4.310465***	-8.901956***	-9.299583***
	(-10.3369)	(-7.690717)	(-7.983086)
lnBR	-0.029418	-0.191122*	-0.077286
	(-1.031087)	(-1.851629)	(-0.692762)
R^2	0.101376	0.314664	0.321391
R^2 adj.	0.098925	0.153854	0.15974
H_0: $\eta = 0$	------	F(482,2084)= 1.345593***	F(482,2078)= 1.302494***
H_0: $\lambda = 0$	------	------	F(488,2078)= 1.380569***
E-stat	0.070955	-0.26617	-0.300298
H_0:E=0	F(1, 2566)= 0.854768	F(1, 2084)= 5.951714**	F(1, 2078)= 5.402601**
F	41.35395	1.956739	1.988175
Obs.	2574	2574	2574

Note: (i) each figure below the coefficients is t-value., (ii) *** significant at the 1%, ** significant at the 5%, * significant at the 10%