Competitive Environment Hypothesis in Turkish Banking System

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ABSTRACT: This paper investigates the persistence of profit in Turkish banking system for the period of 2004:1 – 2009:4 by focusing net income after tax to total equity (ROE) as profit measures by utilizing panel unit root tests. We found that competition among surviving banks is high in the Turkish Banking System for the period 2004:1 – 2009:4 which means that competitive environment hypothesis is valid for Turkish banking system.

Keywords: Persistence, ROE, Turkish Banking System.

1. Introduction

Much empirical research after Second World War focus on a casual relationship exists between the structure of a market (the number and size distribution of firms, product differentiation, and entry and exit barriers) and conduct and performance of the firms operating in that market. The researches attempted to quantify relationships between structure variables such as profit or growth rates (Bain 1956).

In the theoretical literature, it has been shown that there exits close relationship between market structure and economic performance of the firms in the sector. Competition leads to higher efficiency and productivity and hence contributes significantly to the rate of growth of the economy. Understanding the nature and degree of competition has also important implications for national and international policy making. The argument that the lack of competition in emerging markets was the fundamental causes of the Asian crisis seems to be a good example of it (Kaplan and Aslan, 2008).

There is a fast growing empirical literature on Persistence of Profit (PP) in non-financial sector. Starting with the seminal contributions by Mueller (1977), Geroski and Jacquemin (1988), a vast number of empirical studies have been initiated in order to verify the basic idea that profits persist. Cubbin and Geroski (1987), Goddard and Wilson (1999), Glen and Singh (2001), Maruyama and Odagiri (2002), Glen et al. (2003), Yurtoglu (2004), Bentzen et al. (2005), Goddard et al. (2006), Cuaresma and Gschwandtner (2006), Cable and Mueller (2008), and Aslan et al. (2010) are just some of the papers that searches evidence for PP for different economies and different time periods.

Since banking has a major role, as being an agent in the transfer of funds from savers to borrowers, evaluating borrowers, and providing liquidity in economies, understanding the intensity of competition in banking system is mainly important. Despite the significance of persistent excess profits in evaluating the efficiency of a banking system, this question has received relatively little

empirical attention. Berger et al. (2000), Isik and Hassan (2002), Goddard et al. (2004a and 2004b), Agostino et al. (2005), Bektas (2007), Kaplan and Celik (2008) can be counted as contributions on the persistence of profit rates in the banking industry.

This article aims to examine profit persistence in Turkish banking system by employing panel unit root methodology. The paper is organized as follows. Section II provides basic background on panel data unit root testing and data set. Section III brings some final comments.

2. Data and Methodology

This study analyses profit persistency in Turkish banking system (TBS). The sample consists of 13 banks[1] which survive between from 2004:1 to 2009:4 in Istanbul Stock Exchange (ISE). The data is taken from balance sheet and income statements of related banks which are obtained from ISE. Net income after tax to total equity is calculated as ROE. ROE is employed as profit measures. The aim of this study is to examine the intensity of competition in the Turkish banking sector with persistence of profit methodology.

Im, Pesaran and Shin (2003, IPS hereafter) is based on the traditional augmented Dickey Fuller specification

$$\Delta y_{it} = \mu_i + \delta_i t + \rho_i y_{it-1} + \sum_{k=1}^{p_i} \gamma_{ik} \Delta y_{it-k} + v_{it} \tag{1}$$

IPS allows for a heterogeneous coefficient of y_{it-1} and proposes a testing procedure based on averaging individual unit root test statistics and the null hypothesis is given by the existence of a unit root in all the units of the panel against the alternative of at least one stationary cross-section. To test the hypothesis, Im *et al*. (2003) propose a standardized t-bar statistic given by:

$$Z_{tbar} = \frac{\sqrt{N}\left\{ tbar_{NT} - \frac{1}{N}\sum_{i=1}^{N} E\left[t_{iT}(p_i,0)|\beta_i = 0 \right] \right\}_{T,N}}{\sqrt{\frac{1}{N}\sum_{i=1}^{N} Var\left[t_{iT}(p_i,0)|\beta_i = 0 \right]}} \Rightarrow N(0,1) \tag{2}$$

The Levin, Lin and Chu t-test (2002, hereafter LLC) test is carried out by estimating the following equation:

$$\Delta y_{i,t} = \alpha_{i,k} + \beta_i y_{i,t-1} + \sum_{l=1}^{L_i} \partial_l \Delta y_{i,t-l} + \varepsilon_{i,t} \tag{3}$$

The panel OLS of the normalized residuals is run to obtain the β estimates. And LLC show that under the null hypothesis $H_o : \beta = 0$, the regression t-statistic (t_β) has a standard normal limiting distribution.

When one considers both IPS and LLC test results with trend and without trend analysis, the results reject in all cases the existence of a unit root for ROE which mean that there is convergence in profit rates among banks in Table 1. Results from IPS and LLC illustrate that persistence of profit tend to return to their trend path overtime.

3. Conclusion

The competitive environment hypothesis states that competitive environment will erode abnormal profits and therefore, profitability of competing firms will not be persistent and hence profit differentials across firms, will disappear in the long run. This will persist until the decrease of profitability on a competitive rate. This is very widely known as profit persistence. In this paper, profit persistence in the Turkish banking sector is examined by using the data from 13 surviving banks for the period of 2004:1 to 2009:4. It is concluded that the profit rates follow a stationary process implying convergence in profit rates in the long-run which means that competition among surviving banks is high in the Turkish Banking System. This result confirm competitive environment hypothesis for Turkey banking sector for the period from 2004:1 to 2009:4.

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[1] Akbank, Alternatifbank, Denizbank, Finansbank, Fortisbank, Garantibank, Halkbank, İsbank, Sekerbank, Tekstilbank, TEB, Vakıfbank and Yapi Kredibank.

Table 1. Unit Root Tests

Method	Augmented Lag	ROE	
		Constant	**Constant and Trend**
LLC	0	-9.842 (0.000)	-7.677 (0.000)
	1	-6.402 (0.000)	-6.374 (0.000)
	2	-2.518 (0.005)	-2.463 (0.006)
	Optimal Lag	-1.908 (0.028)	-1.975 (0.024)
IPS	0	-8.363 (0.000)	-3.988 (0.000)
	1	-6.402 (0.000)	-6.022 (0.000)
	2	-4.387 (0.000)	-6.898 (0.000)
	Optimal Lag	-2.975 (0.001)	-3.396 (0.000)

Note: Probability values appear in parenthesis and Schwarz Information Criterion (SIC) is used to decide the optimal lag.

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