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BALKAN COUNTRIES: CATCHING UP AND THEIR INTEGRATION IN THE EUROPEAN FINANCIAL SYSTEM

ABSTRACT

This paper aims to show the impact of financial variables on the process of convergence between selected European Union and Balkan countries. Indeed, after a delay in the realization of structural changes – result of historical legacy and circumstances in which the transition process took place –, Balkan countries started at the end of 1990s essential reforms in their financial systems with the adoption of concrete measures directed towards the growth and increase of the financial sector efficiency. So, using panel data over the period 1999-2007 for a sample of 21 countries, we test the convergence's hypothesis by the Bayesian iterative estimation method; two financial variables are introduced to control the differences in steady-state. Our empirical results sustain the importance of the domestic credit and the market capitalization in the catching-up process by a significant increase in the speed of convergence.

***Key words**: Balkan countries, European Union, financial systems, convergence, empirical analysis, finance-growth model estimations*

***JEL classification**: C51, G10, N2, O16, 047, P34*

1. INTRODUCTION

The aim of this paper is to check if Balkan countries are converging with the European Union (EU) countries. According to Kocenda (2001), a certain degree of convergence in macroeconomic fundamentals was achieved among advanced Central and Eastern European countries. Contrary to studies which are exclusively focused on the convergence of real measures of economic activity of the transition economies with those of the EU countries (Korhonen, Fidrmuc [2001]), our empirical analysis introduces variables relating to the financial system (the domestic credit provided by banking sector in percentage of GDP and the market capitalization of listed companies in percentage of GDP). Indeed, several studies test convergence of financial variables in the EU or among transition economies (Brada, Kutan [2001]; Kocenda [2001];

Murinde et al. [2004]). Moreover, the relationship between financial system and economic growth is subject to academic discussion (Beck et al. [2001]; Wachtel [2001]). There would exist a positive link between financial development and long-run growth rate (Pagano [1993]) so that the financial system would be a growth-factor : "countries with larger banks and more active stock markets grow faster over subsequent decades even after controlling for many other factors underlying economic growth" (Levine [1997]). Indeed, the financial system affects economic growth by reducing some of informational asymmetries (Schiantarelli [1995]), by influencing the capital accumulation of endogenous growth factors (Romer [1986]; Lucas [1988]; Rebelo [1991]) and by altering the rate of technological innovation (Romer [1990]; Grossman, Helpman [1991]; Aghion, Howitt [1992]). Many empirical analyzes support the assumption that the financial system is an important determinant for growth and economic development (King, Levine [1993a, 1993b, 1993c]; Galetovic [1994]; Rajan, Zingales [1996, 1998]; Beck et al. [2000]; Cetorelli, Gambera [2001]; Carlin, Mayer [2003]). In addition, the insufficiency of financial development can even be a real barrier to growth and blocks the economy in a poverty trap (Berthelemy, Varoudakis [1996]). Empirical evidence also suggests that the positive relationship between financial development and economic growth is associated with large differences across the structure of financial systems of countries (World Bank [1989]; Boyd, Smith [1996]). According to Rajan and Zingales (2000) or Holmström and Kaplan (2001), the market-based system is better for economic growth. However, it's difficult to draw conclusions about the dominance of one financial structure over another (Levine [1997]). Indeed, stock market liquidity (measured by stock trading relative to GDP and market capitalization) and the level of banking development (measured by bank credits to private firms divided by GDP) both predict economic growth (Levine, Zervos [1996, 1998]). In the same way, Rousseau and Wachtel (2000) find a positive influence of both stock market activity (per capita value traded) and banking sector development (per capita liquid liabilities [M3]) on growth. Thus, "the debate should not focus on bank-based versus market-based systems because these two components of the financial system enter the growth regression significantly and predict future economic growth" (Levine [1997]). In practice, the two types of financial system coexist in the same country (Hölzl [2003]) so that the financial systems are a configuration of complementary elements. Consequently, this paper is organized as follows. Section 2 describes the financial system of Balkan countries and gives us some ideas about the progress steps of European Union financial market integration. Section 3 introduces the empirical methodology of test of (absolute and conditional) convergence (the Bayesian iterative estimation method) and presents results for a panel of 21 countries (selected European Union and Balkan countries) over the period 1999-2007. Finally, section 4 concludes.

2. FINANCIAL SYSTEM OF BALKAN COUNTRIES

The financial institutions of the South-East of Europe hold out, in spite of the world-wide crisis which abuses the stock exchange places. In 2007, the banking credits increased by 30% in the area, and the rise continued the first months of 2008. Until

now, the relative insulation of the banks of Balkans protected from the world-wide crisis. However, whereas their activity of credit increased much to stimulate the economic growth, will they be able to remain with the variation of the total tendencies?

The Balkan banking environment recorded strong growth during the last year, in spite of the financial crisis which currently shakes Wall Street, the UE and the stock markets of Asia[1]. Extension of the crisis to the other sectors of the money market and the economy world its long duration, marked the development of the banking environment during first half of the year 2008, the dynamics of growth in the area of Balkans remained vigorous. The rather low level of exposure to the international financial institutions, weak integration at the international markets and the strong capitalization of the international banks operating in the Balkan area are some of the factors quoted to explain connect it immunity of the area vis-à-vis the current financial disappointments. Nevertheless, the financial experts of Balkans and the large bankers warn against any kindness. They estimate that there are serious risks which could materialize very well and inflict serious damage with their financial system.

The area remains moreover heterogeneous from the economic point of view, like in terms of European integration. Slovenia joined the UE in 2004, Romania and Bulgaria in 2007. As for Croatia, it will be undoubtedly the next one to join the club, having started into 2006 the negotiations for its adhesion. Macedonia for its part signed the *Agreement of stabilization and association* (the first step towards adhesion) in 2001 and obtained the statute of applicant country to the EU in 2005. But, contrary to Croatia, the talks for its adhesion supplements did not start yet. Albania, Serbia, Montenegro and Bosnia-Herzegovina are even less advanced. These States signed only the *Agreement of stabilization and association*, without to have obtained the statute of applicant country. The reorganization of the financial sector, the banking environment and privatizations took steps of giant in Balkan countries these last years and are almost finished (probably not yet!). We find that the privatization of the public credits had a decisive impact on "the improvement of the banking services and the stimulation of competition".

New legal and institutional, obligatory reforms under the terms of the process of European integration, should also have durable positive effects on the regional economies and the banking structure. The volume of loans thus knew a growth record of 42 % in 2007, pulled by a boom of the national economies which reached almost 4 % of the GDP in 2007. The economists, of which those of the IMF[2], expect that the growth of the GDP turns around 5 % this year in this part of South-East Europe. Over all, the economies of the area now need co-operation as regards credit whereas these last years, the stress was laid on the maintenance of the profitability of the companies and the diversification of the sources of income, it acts from now on to finance the growth of the credit. Indeed, because of the contraction of the credit available on the international markets, the companies of the area turn more and more to the local banks to secure a loan. In a number growing of countries of Balkans, the mortgage loans became besides one of the most dynamic products in the sector of the detail. The

[1] Indicates one report of the *Raiffeisen Ban*k, entitled the "EEC Banking 2008".
[2] See reports of the IMF on these economies of Balkan countries!

financial institutions became able to support the strong growth of the deposits of the last years, as confidence increased in the banking environment. To that are added the completion of the privatization of the banks, various institutional reforms in financial systems and the rise of the levels of incomes. Slovenia enjoys the strongest base of saving of all Balkan countries, with approximately 108% of the GDP in 2007. This significant increase followed the inclusion of the country in the euro zone (also, these figures are compared favorably with the 144% recorded in the euro zone). As, increasingly solid confidence in the banking environment of Balkan countries (and their financial system), stimulated by privatizations and the arrival of foreign banks during last years, was confirmed by a continuous increase in the saving expressed as a percentage of the GDP. The opinion of the most of Balkan countries citizens is: "One always thought as the banks of the West were sure and that the banks of the East were risky", but it is confirmed in their economies that the banks (presented there) showed a very responsible attitude in businesses in this part of the world – region of the Balkan!

3. TEST OF CONVERGENCE: EMPIRICAL METHODOLOGY AND RESULTS

In this article, data used are from the source "World Development Indicators" (World Bank Group, 2007). The variables analyzed by authors are based on the following data:

1. GDP per capita, PPP (constant 2005 international $): GDP per capita based on purchasing power parity (PPP). PPP GDP is gross domestic product converted to international dollars using purchasing power parity rates;
2. Domestic credit provided by banking sector (% of GDP) includes all credit to various sectors on a gross basis, with the exception of credit to the central government, which is net. The banking sector includes monetary authorities and deposit money banks, as well;
3. Market capitalization of listed companies (% of GDP): also known as market value, the market capitalization is the share price times the number of shares outstanding. Listed domestic companies are the domestically incorporated companies listed on the country's stock exchanges at the end of the year.

In the following "panel", we've especially focused for the period from 1999 till 2007 for 21 countries: Austria (AUT), Belgium (BEL), Bulgaria (BLG), Croatia (HRV), Denmark (DNK), Finland (FIN), France (FRA), Germany (DEU), Greece (GRC), Ireland (IRL), Italy (ITA), Luxembourg (LUX), Macedonia (MKD), Netherlands (NLD), Portugal (PRT), Romania (ROM), Serbia (SRB), Slovenia (SVN), Spain (ESP), Sweden (SWE), United Kingdom (GBR).

3.1. Absolute Convergence Testing

The test of absolute or unconditional convergence consists in identifying the correlation between the growth rate ($\log(y_{i,t}/y_{i,t-1})$) and the initial income per capita. Barro R. and Sala-I-Martin X. [1996] specified the model of absolute convergence (rewritten in dynamics for panel data):

$$\log(y_{it}/y_{it-1}) = a - (1-e^{-\beta})\log y_{it-1} + \varepsilon_{it} \qquad (1)$$

with a indicating the constant term, and $-(1-e^{-\beta})$ the slope coefficient. Note that, if β is a positive value, the annual growth rate, $\log(y_{i,t}/y_{i,t-1})$, is negatively correlated with $\log(y_{i,t-1})$. In this case, the poor economies tend to grow faster than the rich ones, which implies the absolute convergence.

Table 1: Empirical Iterative Bayes' Estimators of the Rates of Convergence ($\hat{\beta}_i$). Hypothesis : Absolute Convergence.

"Beta-shrinkage" country by country : Number of iterations 8				
Country	Half-life	Beta	StdErrors	T-Stat
AUT	12,6	**0,023826**	0,007016	3,3960518
BEL	12,4	**0,024317**	0,007069	3,4397074
BLG	11,4	**0,026336**	0,007606	3,4625103
HRV	11,6	**0,025885**	0,007458	3,4706773
DNK	12,5	**0,024089**	0,007035	3,4240816
FIN	13,4	**0,022441**	0,007102	3,1597696
FRA	12,3	**0,024509**	0,007096	3,4537230
DEU	12,3	**0,024460**	0,007102	3,4440032
GRC	12,0	**0,024986**	0,006535	3,8233106
IRL	13,0	**0,023188**	0,006955	3,3342152
ITA	12,2	**0,024767**	0,007176	3,4535731
LUX	14,0	**0,021547**	0,006549	3,2901620
MKD	11,2	**0,026982**	0,008359	3,2277620
NLD	12,6	**0,023981**	0,007015	3,4184342
PRT	12,3	**0,024453**	0,007430	3,2911305
ROM	11,3	**0,026678**	0,008063	3,3088342
SRB	11,2	**0,026919**	0,008117	3,3166104
SVN	12,0	**0,025135**	0,007242	3,4709115
ESP	12,5	**0,024037**	0,007169	3,3529871
SWE	12,9	**0,023370**	0,007066	3,3072523
GBR	12,3	**0,024390**	0,007010	3,4793084

Table 1 contains the results of estimates: empirical iterative Bayes' estimators for rates of convergence and the computed "half-life", or the number of time periods necessary for the per capita income gap to be halved. The criterion to end the procedure being fixed at 0,005, there are eight iterations. The coefficients are significantly different from zero and have theoretically correct signs (positive for the constant and negative for $\log y_{it-1}$). Note that the less economically advanced countries like Bulgaria,

Croatia, Macedonia, Romania and Serbia have higher rates of convergence than the richest countries of the Union. This result is in conformity with the theoretical lesson: the rate of convergence decrease with increasing in the per capita income level. According to predictions of the convergence theory, the "half-life" is longer for the countries of the EU's "core" than for the Balkans countries. Thus, according to these results, Luxembourg and Finland would need more than 13 years to catch-up a half of the distance which separates their economies from the path of steady state growth. On the other hand, the "latecomers" of the sample, Bulgaria, Croatia, Macedonia, Romania and Serbia, need about 11 years.

The countries' distribution according to their rates of convergence (Figure 1) seems to be consistent with the indicators of economic growth performance: "poor" countries having rates of convergence systematically higher than their "rich" neighbors of the sample. However, the dynamic convergence model is limited to only one explanatory variable, $\log y_{it-1}$. The augmenting of the model by the market capitalization and the ratio domestic credit on GDP lets to test the conditional convergence hypothesis.

3.2. Conditional Convergence Testing

Islam N. [2000][3] proposes to test the following specification for the model of conditional convergence in panel data:

$$\log(y_{it}/y_{it-1}) = a - (1-e^{-\beta})\log(y_{it-1}) + \gamma x_{it-1} + \varepsilon_{it} \qquad (2)$$

$$\text{with } x_{it-1} = \log(Capitalization_{it-1}/y_{it-1}) - \log(Credit_{it-1}/y_{it-1})$$

The specification introduces in the catching-up relation some "control" variables of the process of growth over the considered period. The model of conditional convergence contains thus three explanatory variables: initial GDP per capita $\log(y_{it-1})$, market capitalization of listed companies (% of GDP) and domestic credit provided by banking sector (% of GDP). The theoretically expected signs are positive for the market capitalization and the domestic credit.

Table 2 contains the empirical iterative Bayes' estimators of the rates of convergence obtained for 21 countries on the period 1999-2007. The column on the left of the table contains the rates of convergence estimated for the model of conditional convergence whose three explanatory variables are the initial GDP per capita, the market capitalization and the share of the domestic credit in the GDP. The sign of this "control" variable is theoretically expected and the estimated parameters are statistically significant. The rates of conditional convergence estimated over the considered period vary from 13,92 % (for Luxembourg) to 16,57 % per year (for Macedonia). As for the Balkan's countries, their rates of conditional convergence are higher on average, which implies a "half-life" of two years only.

[3] Islam N. [1995, 2000] (for the last reference, see p. 323 in Baltagi B.H. [2000]).

The results of conditional convergence model's estimation are significantly different from the preceding results. Indeed, the augmenting the initial growth model by market capitalization and the share of domestic credit in the relation of conditional convergence lets to obtain higher rates of convergence. The rates of conditional convergence for countries like Serbia, Bulgaria and Macedonia begun higher (about 1,6 % per year), which implies a "half-life" of 1,9 years only. Figure 2 represents the distribution of the rates of conditional convergence estimated for the finance-growth dynamic model with. The Balkan countries' distribution in term of convergence dynamics leads us to stress the diversity of the growth trajectories borrowed over the "post-Socialist" period.

Table 2. Empirical Iterative Bayes' Estimators for the Rates of Convergence ($\hat{\beta}_i$). Hypothesis: Conditional Convergence

Estimated Model : $\log(y_{it}/y_{it-1}) = a_i - (1-e^{-\beta_i})\log(y_{it-1}) + \gamma x_{it-1} + \varepsilon_{it}$

with $x_{it-1} = \log(Capitalization_{it-1}/Y_{it-1}) + \log(Credit_{it-1}/Y_{it-1})$

"Beta-shrinkage" country by country :

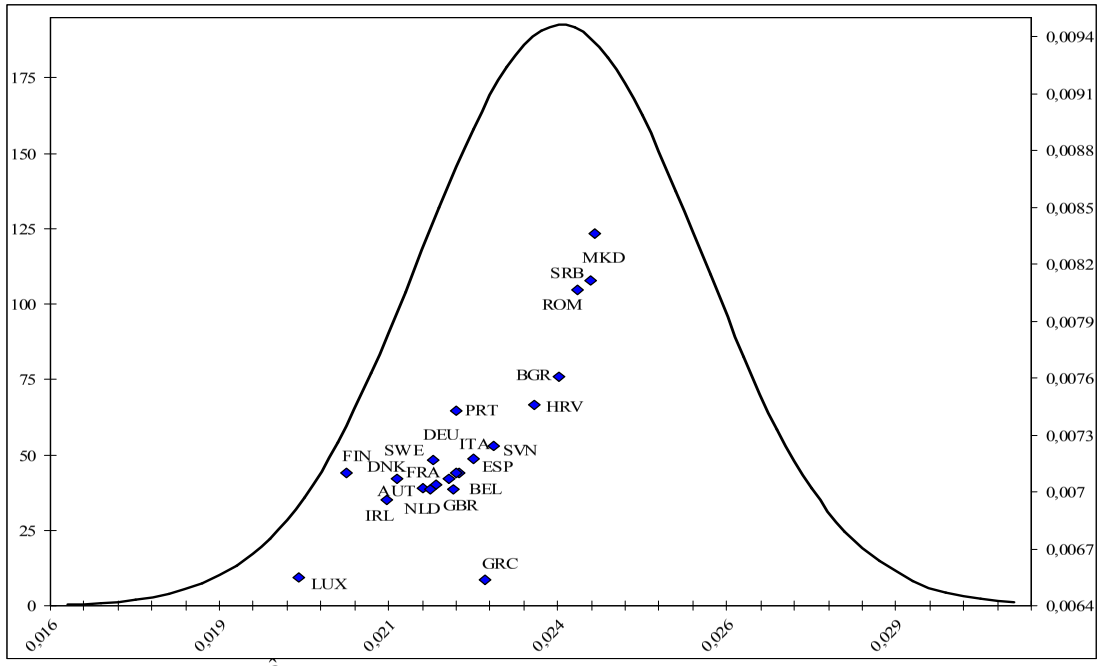
Number of iterations 11

Country	Half-life	Beta	StdErrors	T-Stat
AUT	2,0	**0,148042**	0,015285	9,685025
BEL	2,1	**0,146572**	0,016155	9,072594
BGR	1,9	**0,159206**	0,014725	10,81143
HRV	2,0	**0,154251**	0,016510	9,342487
DNK	2,0	**0,147049**	0,016250	9,048686
FIN	2,1	**0,140719**	0,015700	8,962594
FRA	2,0	**0,150197**	0,015947	9,418207
DEU	2,0	**0,147697**	0,016032	9,212349
GRC	1,9	**0,154951**	0,016480	9,402333
IRL	2,0	**0,149956**	0,015364	9,760194
ITA	2,0	**0,154177**	0,016070	9,593588
LUX	2,2	**0,139275**	0,015474	9,000329
MKD	1,8	**0,165778**	0,015478	10,710539
NLD	2,0	**0,148543**	0,016146	9,199613
PRT	2,0	**0,150742**	0,016710	9,020963
ROM	2,0	**0,153703**	0,016958	9,063638
SRB	1,9	**0,160944**	0,016474	9,769097
SVN	2,1	**0,146568**	0,015512	9,448136
ESP	2,0	**0,150808**	0,016560	9,106549
SWE	2,0	**0,146932**	0,016039	9,160919
GBR	2,1	**0,145746**	0,015342	9,499582

4. CONCLUSION

In order to reveal the national specificities of catching-up process within 21 European and Balkan countries, we introduce more heterogeneity into the specification of the equations of absolute and conditional β-convergence. The Bayesian iterative estimation method lets to calculate the rates of convergence for each country. Thus, contrary to the traditionally accepted idea of a common rate of convergence, considered countries don't converge at the same rate. The distributions of convergence rates (absolute and conditional) revealed the similarity of growth dynamics for certain EU's countries and their diversity for the others. Their economies could be classified according to theirs catching-up dynamics. Thus, Luxembourg, Finland and Ireland are the "leaders" of the sample in terms of income per capita growth. These countries having known an economic "takeoff" in the 80's years for Luxembourg and more recently for Ireland are distinguished from the other EU's members by a slower rate of convergence. The relative distribution of the "core" in terms of rate of convergence seems relatively concentrated and proclaims a significant homogeneity. As for the Balkan countries, their distribution is characterized by the diversity of the growth trajectories borrowed over the period of economic transition. Slovenia and Croatia are "at the head" of the catching-up process compared to other transition countries. Macedonia and Serbia are the "latecomers" of the sample. The empirical results show that it's necessary to relativize the idea according to which the European construction process leads to the standardization of the economic development's trajectories.

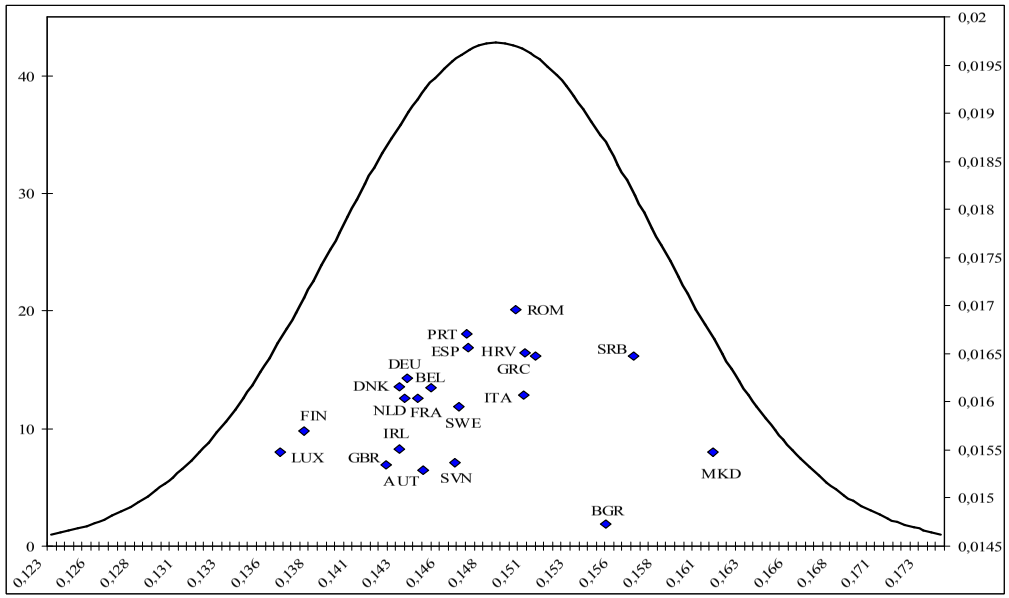
Figure 1: Distribution of Convergence Rates for 21 European and Balkan countries over the period 1999-2007.
Hypothesis : Absolute Convergence



$\hat{\beta}$ (Bayesian Shrinkage Iterative Estimator for the Rates of Convergence)

Figure 2: Distribution of Convergence Rates for 21 European and Balkan countries over the period 1999-2007. Hypothesis: Conditional Convergence

« Control » variables: $x_{it-1} = \log\left(\frac{Capitalization_{it-1}}{Y_{it-1}} + \log\frac{Credit_{it-1}}{Y_{it-1}}\right)$



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APPENDIX

The empirical iterative Bayes' estimators belong to the family of the shrinkage estimators. In the framework of the random-coefficients model, a single equation model in its matrix notation for the i^{th} individual can be written as:

$$y_i = X_i \gamma_i + u_i \quad \text{with} \quad i=1,...,N$$

where y_i is a vector $(T,1)$, X_i is a matrix with (T,k) observations and γ_i is a vector of $(k,1)$ parameters.

The model is assumed to be dynamic: X_i contains lagged values of y_i. If all the parameters are treated as fixed and different for cross-sectional units and time periods, there are *NTk* parameters to estimate with only *NT* observations. Obviously, we cannot obtain any meaningful estimates of vector γ_i. Alternatively, each regression coefficient can be viewed as a random variable with a probability distribution. The random-coefficients specification substantially reduces the number of parameters to be estimated, while still allowing the coefficients to differ from unit to unit and/or from time to time.

In the Bayesian framework, the *prior* distribution of γ_i is given by : $\gamma_i \sim N(\mu,\Sigma)$. Since the parameters μ (average of γ_i), Σ (variance of γ_i allowed as a measurement of heterogeneity) and σ_i^2 (residual variance) are unknown, we must

make some assumptions on the *prior* specification of these parameters. Then, we can obtain the *posterior* distribution of γ_i . If μ , Σ and σ_i^2 were known, then the *posterior* distribution of γ_i will be given by :

$$\gamma_i^* = \left[\frac{1}{\sigma_i^{*2}} X_i' X_i + \Sigma^{*-1} \right]^{-1} \left[\frac{1}{\sigma_i^{*2}} X_i' X_i \hat{\gamma}_i + \Sigma^{*-1} \mu^* \right] \quad (1)$$

where $\hat{\gamma}_i$ is the OLS estimator of γ_i^* . The *posterior* distribution means of γ_i and its variance are defined by:

$$\mu^* = \frac{1}{N} \sum_{i=1}^{N} \gamma_i^* \quad (2)$$

$$V[\gamma_i^*] = \left[\frac{1}{\sigma_i^{*2}} X_i' X_i + \Sigma^{*-1} \right]^{-1} \quad (3)$$

But, in general, Σ and σ_i^2 are unknown parameters, so we have to make some *prior* assumptions about them. Smith [1973] proposed for Σ^{*-1} the conjugate Wishart distribution and independent inverse χ^2 distributions for σ_i^2 (Lindley and Smith, 1972). The author used the mode of the joint *posterior* distribution:

$$\sigma_i^{*2} = \frac{1}{T + \varsigma_i + 2} \left[\varsigma_i \lambda_i + (y_i - X_i \gamma_i^*)' (y_i - X_i \gamma_i^*) \right] \quad (4)$$

and $$\Sigma^* = \frac{1}{T - k - 2 + \delta} \left[R + \sum_{i=1}^{N} (\gamma_i^* - \mu^*)(\gamma_i^* - \mu^*)' \right] \quad (5)$$

where ς_i , λ_i , δ and *R* are parameters arising in the *prior* distributions. Smith [1973] proposed to approximate these parameters by using $\varsigma_i = 0$, $\delta = 1$ and *R* is a diagonal matrix with small positive entries (for example, equal to 0,001).
The estimators are:

$$\sigma_i^{*2} = \frac{1}{T + 2} \left[(y_i - X_i \gamma_i^*)' (y_i - X_i \gamma_i^*) \right] \quad (6)$$

$$\Sigma^* = \frac{1}{T - k - 1} \left[R + \sum_{i=1}^{N} (\gamma_i^* - \mu^*)(\gamma_i^* - \mu^*)' \right] \quad (7)$$

$$\gamma_i^* = \left[\frac{1}{\sigma_i^{*2}} X_i' X_i + \Sigma^{*-1} \right]^{-1} \left[\frac{1}{\sigma_i^{*2}} X_i' X_i \hat{\gamma}_i + \Sigma^{*-1} \mu^* \right] \quad (8)$$

and $$\mu^* = \frac{1}{N} \sum_{i=1}^{N} \gamma_i^* \quad (9)$$

The equations (6) to (9) have to be estimated by iterative procedure. The initial iteration uses the OLS estimates of $\hat{\gamma}_i$ to calculate μ^* , Σ^* and σ_i^2 . The second

iteration is based on the empirical iterative Bayes' estimator γ_i^*. The third iteration and the following ones are identical to the second.

The empirical Bayes' estimator has been proposed by Maddala G.S. and *alii* (1996). The only difference with Smith's estimator is the computation of the parameters σ_i^2 and Σ^*:

$$\sigma_i^{*2} = \frac{1}{T-k}(y_i - X_i\gamma_i^*)'(y_i - X_i\gamma_i^*) \tag{10}$$

$$\Sigma^* = \frac{1}{N-1}\left[R + \sum_{i=1}^{N}(\gamma_i^* - \mu^*)(\gamma_i^* - \mu^*)'\right] \tag{11}$$

Maddala G.S. and Hu W. [1994] have shown, by Monte Carlo study, those iterative processes for estimating Σ^* and μ^* tend to more efficient estimates for dynamic models than the two-step procedures. Hsiao C., Pesaran M.H. and Tahmiscioglu A.K. [1999] have also confirmed that, in the case of dynamic panel data model with coefficient heterogeneity, the Bayesian approach performs fairly well even if the time dimension is small.