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**Banking Entrepreneurship Differentials between  
Europe and USA. A Note**

by

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**BANKING ENTREPRENEURSHIP DIFFERENTIALS  
BETWEEN EUROPE AND USA. A NOTE.**

**Miltiades N. Georgiou M.Sc. and Dr. Nicholas Kyriazis Ph.D. (\*)**

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**ABSTRACT**

The present paper refers to the field of “corporate convergence theory”. A recent work on corporate convergence of Krishna et al. (2002) points out that there is little evidence that common standards in corporate governance have been implemented. Besides, in the same study (page 2) it is mentioned that so far there is no empirical evidence on whether there is a convergence in corporate governance between countries. Therefore, the contribution of the present paper is that: at first It introduces a new concept (the entrepreneurship reward in banking sector); second it evaluates numerically for each country the ability (capacity) of entrepreneur by using various criteria (such as profitability, cost control, market share, etc.); third, it compares numerically the above defined evaluation in each country and each year with that of the USA (of the same year), defining for each year a new variable called “entrepreneurship ability differential”. This differential in other words is the numeric difference of the ability (capacity) of entrepreneur that each European country has from the USA in the same year; forth, finally, it shows that in the long run this “entrepreneurship ability differential” declines. In economics this means that in the long run there is a convergence regarding the entrepreneurship ability (or corporate governance ability) between each European country and the USA. Hence, in this paper an attempt is made to introduce a new tool for comparison between each European country and the USA and also a method to check whether there is a convergence between each European country and the USA. Further, in this paper two concepts can be discussed: “the local entrepreneurship ability convergence” and “the global entrepreneurship ability convergence”. By local we mean the convergence according to only one criterion about entrepreneurship ability (or corporate

governance ability). By global we mean the convergence according to all possible criteria about entrepreneurship ability (or corporate governance ability).

Of course, it is well known that, as mentioned in the study of Krishna et al. (2002), convergence depends on labour law, free mobility of labour and capital, free trade and entrepreneurship. In the present paper however we shall concentrate on entrepreneurship itself and we shall examine only the banking sector, although the same method can be generalized in any sector. It is of great importance to examine entrepreneurship, for (apart from the legal structure and other barriers to entrepreneurship) entrepreneurship is the force generating company profits, cost control and generally economic growth (Carree and Thurik 2005). Especially in the banking sector in which Europe lags behind US, it becomes evident the need to see whether European banking entrepreneurship will approach some day the US one.

There are a lot of theories dealing with banking profitability of banking cost effectiveness, but in none theory so far entrepreneurship was measured as a crucial factor for profitability or cost control. In the present paper however, not only entrepreneurship will be measured, but also the effectiveness of entrepreneurship will be estimated for each European country and the USA. By comparing each country with the USA in terms of effectiveness of entrepreneurship, we will be in a position to predict econometrically if there is a banking corporate convergence for each European country and the USA in each year. This approach will be based on the article of "Governance Structures, Efficiency and Firm Profitability", by E.E. Lehmann, S. Warning and J. Weigand, MPI, that firms with more efficient governance have higher profitability, as well as on the "A Practical Method to Measure Entrepreneurship's Reward", by M.N. Georgiou, MPI. A panel data regression will point out that in the banking sector the differential in entrepreneurship between each European country in

each year and that of the USA (of the same year) decline in the long run. As a criterion to compare entrepreneurship will be the elasticity of banking profitability over the banking entrepreneurship reward. Extending the present paper, many additional criteria, of either macroeconomic or microeconomic nature, can be used.

Keywords: bank, profitability, entrepreneurship, globalization  
JEL classification: E50, L25, M13, F02

This article expresses only the personal opinion of the authors and of nobody else.  
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**BANKING ENTREPRENEURSHIP DIFFERENTIALS  
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**PART 1. THEORY**

Differences in entrepreneurship between Europe and US are examined in many ways. According to the work of Thurik and Grilo (2005, p.14) in a general entrepreneurial comparison between European countries and the US it is concluded that European countries have lower odds than the US for levels of engagement up to having a young business, but higher odds than that of the US for the category “having an older business”. Besides, differences in entrepreneurship between European countries and the US are also due to external factors (like bureaucracy) as analyzed in the work of Berthold and Fehn (2003), as well as to many other factors apart from the entrepreneurship itself (like market segmentation, science-industry linkages, technology-information, labour markets, financial markets) (Andersson 2002).

Although there are entrepreneurial differences (due either to the entrepreneur himself or to external factors (legal system, bureaucracy, etc.), these differentials are expected to be eliminated (or more generally decreased) in the long run as a result of many reasons. At first, the increased factor mobility due to globalization will tend in the long run to equalize factor prices of the same skill (capital, labour and entrepreneurship). A second possible reason could be the relaxation of wage rigidities through a change in the labour legal system. A third possible reason would be the creation of more competitive prices as a result of globalization. A fourth reason could be the improved information about market segments leading to a more efficient use of them. A fifth reason could be the education spread around the world bringing about an

equalization of entrepreneurial ability. However, according to the work of Krishna et al. (2002) there is little evidence that common standards in corporate governance have been implemented. Besides, in the same study (page 2) it is mentioned that so far there is no empirical evidence on whether there is a convergence in corporate governance between countries. To the best of our knowledge there is not any similar study so far.

In the present paper entrepreneurship's reward  $[r_E]$  may be defined either based on microeconomic theory or on macroeconomic theory. No matter what the based definition is, the proposed paper can be regarded as a tool for examining corporate convergence in many ways such as:

1. As convergence in prices per-se (convergence in prices of entrepreneurship either in banking (Georgiou M. 2005) or in the total economy (Georgiou M. 2006).
2. As elasticities of entrepreneurial ability examined by a criterion  $[\theta]$ , where  $[\theta]$  stands for either microeconomic indicator (profitability, labour cost control, market share, risk, etc) or macro economic indicator (GDP growth, investment, FDI, exports, etc). The general formula of this elasticity is:

$$e = \frac{\text{percentage change in } [\theta]}{\text{percentage change in } [r_E]} \quad (1)$$

3. As a tool for checking convergence during time (as convergence rate) or alternatively as a growth rate in the absolute difference between the elasticity of each European country an any year from the elasticity of the USA in the same year.

To the best of our knowledge the above mentioned tools (methods) to check convergence have not been so far examined. This opinion is also shared in the study of Krishna et al. (2002). However, until today a lot of studies are dealing with the estimation of the influence of factors on banking profitability and banking cost control, but in none of these studies the estimation of entrepreneurship reward was mentioned. More specifically:

Regarding banking profitability the article of Molyneux and Thornton (1992), based on Bourke (1989), a multiple regression on many European countries during the years 1986, 1987, 1988 and 1989 was used to examine the factors that affect banking profit annually. These factors were macroeconomic (external to the bank) as well as microeconomic (internal to the bank like various accounting indices). Also, the study on rich and poor countries, as well as countries not belonging to the euro zone area is made by (Asli et al. 1999). These data refer to 790 commercial banks in 80 countries during the period 1988 - 1995. Further, these data refer to all O.E.C.D. area as well as to transition economies.

Regarding cost control. The question of cost control is examined from various points of view. Regarding the cost efficiency at branch level (Berger et al. 1997), if branches are efficient, then the whole bank is efficient. Therefore, corrective measures should be taken at local level (branch level). The resulting cost reduction through merger and acquisitions, which will reduce the number of branches, is questionable. To some economists (Berger and Humphrey 1992), and (Linder and Crane 1992) mergers and acquisitions might end up with some cost reduction but they will have side effects such as the deposit reduction. However, there are some studies concluding that economies of scale at branch level, by the construction of more branches, will yield cost reduction.



As for the measurement of cost efficiency at bank level, and by splitting the bank turnover into certain types of bank products (services), there are many studies such as: (Noulas et al. 1990), (Hunter et al. 1990), (McAllister and McManus 1993), *and* (Mitchell K. and Onvural N. M. 1993). In the above mentioned works translog cost functions were used, but they produced biased estimates. Hence, these estimated translog cost functions were incompatible between the various cross-section levels of the examined banks. The above weakness concerning the translog cost functions seems to have been overcome by the introduction of the Fourier flexible cost function (Mitchell K. and Onvural N. M. 1996). According to this study, bank efficiency can be measured in four ways. Firstly, by the elasticity of cost relatively to production (RSE), while keeping stable the production structure. Secondly, by the elasticity of cost increase relatively to the production increase (RSE). Thirdly, by the cost saving from the combined production of two products relatively to the cost of the specialized production of one only product (SCOPE). Fourthly, and more general than the third, if the operation cost of the production of a “combination of products” in a large bank is lower than the operation cost of the production of a “combination of products” which is the sum of the productions of two smaller banks (EPSUB). The main conclusions of their work are that the banking industry has not a translog cost function, and that the small banks have increasing returns to scale, while the large ones show constant returns to scale. The same opinion is also shared by a more recent study of (Rudi Vander Vennet 2002).

The economic literature on banking profitability and cost efficiency is endless. However, in no theory the entrepreneurship factor was neither estimated nor its contribution to banking profitability or cost control (or to whatever other) has ever been mentioned.

Further, there are studies in which there is an effort to compare Europe with USA. For instance, according to the work of Garry Shinasi (1997) European banks are behind the USA ones, for European banks in comparison with the USA ones are overstaffed, offer less competitive prices and face difficulties in cost reduction.

However we should not neglect the importance of entrepreneurship. In the study of Lehmann et al. (2004) it is shown that firms with more efficient governance have higher profitability. In addition, in the study of Thurik and Grilo (2005. p.14) it is pointed out that European entrepreneurs face fewer difficulties in their start than the US ones. Thus, it comes the need not only to measure entrepreneurial ability (in terms of entrepreneurship reward), but also to compare this ability between countries.

Hence, the contribution of the present paper is that it introduces a new way to continue the examination of the convergence in the banking entrepreneurship ability between each European country and the USA at any time period. Therefore, we shall give an example by using the criterion of banking profitability and examining “local entrepreneurship ability convergence”. In the interesting discussion paper of Lehmann et al. (2004) it stressed the effect of entrepreneurship on company performance. Hence, we take the opportunity to define a measure of banking entrepreneurship’s ability as: the elasticity of banking profitability over the banking entrepreneurship reward. Thus, we will be in a position to compare for each year and for each European country this elasticity with that of the United States of the same year and see if this differential declines in time. This differential is found out in the present note that it declines in time. Therefore, we come to the conclusion that the European banking sector and that of the United States tend to converge in terms of entrepreneurial capability (effectiveness), or corporate governance effectiveness.

To estimate the above elasticities, we will first recall the work of Georgiou M. N. (2005) concerning the estimation of banking entrepreneurship reward. Let  $[r_L]$  denote the average annual interest rate of selling capital (lending rate),  $[r_D]$  to stand for the average annual interest rate of buying capital (deposit rate), and  $[i]$  for the average annual inflation rate. Hence,  $[r_E]$  expresses the residual as the average annual reward of entrepreneurship as in equation (2). Equation (2) is based on the realistic assumption that wages and salaries increase at the same rate as inflation does.

$$r_E = \frac{(1+r_L)}{(1+i)*(1+r_D)} - 1 \quad (2)$$

Banking profitability is expressed by [**spread**] as:

$$spread = r_L - r_D \quad (3)$$

The definition of entrepreneurial profitability elasticities [**ef<sub>1</sub>**] and [**ef<sub>2</sub>**] is as follows.

$$ef1_{it} = \frac{\frac{(spread_{it} - spread_{it-1})}{spread_{it-1}}}{\frac{(r_{Eit} - r_{Eit-1})}{r_{Eit-1}}} \quad (4)$$

for each European country [i] at year [t]. It is in other words the elasticity of European banking entrepreneurship ability to generate profits in each European country for each year.

Similarly for the United States for each year:

$$ef2_t = \frac{\frac{(spread_t - spread_{t-1})}{spread_{t-1}}}{\frac{(r_{Eit} - r_{Eit-1})}{r_{Eit-1}}} \quad (5)$$

It should be noted that a positive sign in the above defined elasticities implies that the banking entrepreneurship ability is good. A negative sign indicates a weak

entrepreneurship, while if the elasticity is zero the entrepreneurship is unable to change profits no matter how much it is paid for.

Thus, the relative elasticity defined as:

$$d1_{it} = ef1_{it} - ef2_{it} \quad (6)$$

expresses at each year [t] the differential (difference) between banking entrepreneurship ability of each European country [i] and that of the USA in the same year [t]. In economics it measures how much better is for each year in each European country the banking entrepreneurship ability than that of the USA for the same corresponding year. Finally, since we attempt to measure the growth rate of this differential (difference), we define the variable:

$$d3_{it} = \ln |d1_{it}| \quad (7)$$

In fact equation (7) comes from

$$|d1_{it}| = Ae^{c_1 t} \quad (7a)$$

which is assumed to follow an exponential growth curve. Therefore, using the log-linear regression equation (9), (with  $c_0 = \ln A$  and  $c_1 =$  the growth with constant percentage) we estimate the growth rate  $c_1$ . (See: Pindyck and Rubinfeld 1998, Section 15.1.1., p. 469). In the next section it will be shown that this differential (difference) declines during time.

## **PART 2. AN ECONOMETRIC EXAMPLE WITH PANEL DATA**

### **2.1 The Formulation of the Model**

We test the hypothesis that the differential (difference) between each European country banking entrepreneurship ability and that of the USA declines in time. The model is shown in (8) as:

$$d3_{it} = c_0 + c_1 t + \text{error}_{it} \quad (8)$$

The subscript [i] refers to the country and the subscript [t] refers to the year. Data are taken from International Financial Statistics, which are elaborated. These data are annual, refer to the period 1981 - 2004, and cover the following countries: Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden and UK. The produced sample has 322 observations in total. The countries examined are in sum shown in table 3. It is ex-ante expected  $c_1 < 0$ . Panel data equation (8) will be elaborated based on the software package EVIEWS.5.

## 2.2 Econometric Comments

The method of EGLS (period weights) will be used. We used this method because we needed to handle heteroskedasticity. According to the work of Yaffee (2003, p.10) the methods of “fixed effect” as well as “random effect” are not efficient when there is heteroskedasticity (either between time periods or between cross sections). In large samples however the method of EGLS or FGLS (feasible generalized least squares) can handle the above-mentioned problem of heteroskedasticity. In fact, and more precisely, in the earlier years of the period 1981 - 2004 national economies were not harmonized yet, which caused a period heteroskedasticity. In other words, the selection of the above method as the best one, can be explained by the fact that it gives more weights to recent years in which monetary harmonization took place. The detailed results are shown in table 1 and diagnostic tests in table 2. The estimated regression is:

$$d3_{it} = 122,454 - 0,062 t \quad (9)$$

We observe that model (8) estimated as in (9) meets the three required criteria of homoskedasticity, specification and normality. Further there is not autocorrelation.

The constant term is positive and statistically significant. Besides, the coefficient of  $t$  is negative and statistically significant, as initially assumed. The adjusted  $R^2$  is 0,024.

### **PART 3. CONCLUSIONS**

In this paper we pointed out, using the above definition of entrepreneurship's reward, that the differentials of banking entrepreneurial (managerial) abilities (efficiencies) in terms of banking profitability between each Western European country and the United States tend to be eliminated in the long run. In fact, according to the estimated regression, this differential (difference) decreases at the rate of 6,2% per year. The above proposed model does not explain the reasons of this outcome, but it enables the researchers to measure trends, since the entrepreneurship is now measurable. This trend could be due to many reasons, like the globalization, the relaxation of restrictions concerning mobility of labour and capital, etc.

We believe that this note will trigger future research, especially when the reward of entrepreneurship is now measurable. We think that possible fields of research would be the estimation of extent of convergence even between banks within a country, applying criteria of managerial ability not only regarding profitability but also cost control etc. besides, this method may be used to compare if some countries converge with the US faster than the others.

The contribution of this paper is that it proposes a new method to estimate numerically the banking entrepreneurship reward. Hence, it enables the researcher to compare entrepreneurial abilities between the US and each Western European country banking sector numerically by using various criteria about the entrepreneurial ability. Hence, the present paper contributes to economic theory by

introducing a practical method to check if there is a convergence between countries in the banking governance in terms of the criterion of profitability.

Furthermore, the proposed in the present paper method to check convergence can be applied in the total economy, or to any sector of the economy. Finally, we would like to recommend future economists to use the following method about the “local” and “global” corporate convergence check. They shall repeat the same panel regression as in the present paper by applying various criteria  $[\theta_i]$ ,  $i = 1, 2, 3, \dots, N$ . Some of these criteria will be of microeconomic nature, others of macroeconomic nature. Then, if only some estimated coefficients  $[c_i]$  are negative and statistically significant and diagnostic tests are good, we have “local corporate convergence” or “partial corporate convergence”. If however all estimated coefficients  $[c_i]$  are negative and statistically significant and diagnostic tests are good, we have “global corporate convergence”. This is demonstrated in the following table.

**Table: The examination of entrepreneurial convergence  
between each European country and the US according to various criteria.**

$\theta$	$c_1$	Diagnostic Tests
$\theta_1$		
$\theta_2$		
$\theta_3$		
...		
$\theta_N$		

The strength of this paper is based on the introduction of a new method to compare numerically the entrepreneurial ability of the banking sector between the US and each Western European by using various criteria. Many criteria can be also used to compare these two entrepreneurships. The present paper just opens the way for new research regarding if there is actually a convergence regarding banking (and not only) entrepreneurial ability between each European country and the US and calls for theoretical explanation or even remedy through corrective actions (measures).



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**APPENDIX****Table 1: Results**

Model	Method EGLS (period weights)
Constant	122,454 (1,99)
C <sub>1</sub>	-0,062 (2,00)
Adjusted R <sup>2</sup>	0,024
Durbin-Watson	2,027

**Table 2: Diagnostic Tests**

TESTS	Method EGLS (period weights)	Critical values (at 95%)
Heteroskedasticity	1,160	3,881
Heteroskedasticity	0,630	3,881
Heteroskedasticity	1,163	3,841
Heteroskedasticity	2,757	5,991
Heteroskedasticity	0,297	7,815
RESET <sub>1</sub>	0,712	3,841
RESET <sub>2</sub>	0,712	5,991
RESET <sub>3</sub>	0,698	7,815
Normality	0,120	5,991

Test 1: Regression of the squared residuals on X. That is,  $u_t^2 = x_t' \gamma_1 + v_{t,1}$

Test 2: Regression of absolute residuals on X. That is,  $|u_t| = x_t' \gamma_2 + v_{t,2}$  (a Glejser test)

Test 3: Regression of the squared residuals on  $\hat{Y}$

Test 4: Regression of the squared residuals on  $\hat{Y}$  and  $\hat{Y}^2$

Test 5: Regression of the log of squared residuals on X (a Harvey test)

Test 6: Regression of residuals on  $\hat{Y}^2$

Test 7: Regression of residuals on  $\hat{Y}^3$

Test 8: Regression of residuals on  $\hat{Y}^4$

Test 9: Normality test

**Table 3. Data Collection**

Countries	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00	01	02	03	04
Belgium	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	
Denmark	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	
Finland		v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v		
France	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
Germany	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
Greece	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
Ireland	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	
Italy	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	
Netherlands	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
Norway	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
Portugal	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v		
Spain	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v		
Sweden	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
UK	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v		

Source: International Financial Statistics, calculations are ours.

Note: US covers the period 1981- 2004