Financial Management and Economic Growth:
The European Countries Experience

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ABSTRACT

The purpose of this research is to investigate the impact of financial development on economic growth applied to European Countries. The initial GDP per capita is negatively correlated with growth of real GDP per capita. Our study shows that there is convergence within European Countries for the period 1990-2009. This paper confirms relevant theoretical hypothesis as international trade and saving encourage the economic growth. The inflation has a negative impact on economic growth as previous studies.

KEYWORDS: *European Countries, Financial development, Panel data.*

JEL CLASSIFICATION: *C23, F21, O4*

INTRODUCTION

In the 1990´s emerged the empirical models that analyze the impact of financial sector on economic growth (King & Levine, 1993; Miller, 1998). This manuscript examines the link between financial development and economic growth using an unbalance panel data for the period 1990-2009. We select EU-27 countries.

The economy, i.e. the market gives information about investment projects, risk diversification and international trade. Robinson (1952) considers that financial development simplifies the "channels" of economic growth. Miller (1998) refers that financial markets promote the economic growth, i.e it will be necessary introduces endogenous growth models.

Grossman and Helpman (1991), Romer (1986), Rebelo (1991) defend that the relationship between financial institutions and economic growth are based in endogenous growth models and microeconomics foundations. These authors consider the assumptions of conditional convergence. Grossman and Helpman (1991), Romer (1986), Rebelo (1991) also admit that financial sector is positively correlated with growth.

The article is organized as follows: section 2 presents the theoretical background; section 3 explains the methodology, and econometric model; section 4 presents the empirical results and the final section provides conclusions.

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1. LITERATURE REVIEW

In this section we present a survey of the theoretical models of economic growth and their relationship with financial development. The literature (Goldsmith, 1969; Mckinnon, 1973; Levine, 2005) shows that financial system promotes the economic growth. Financial instruments as is domestic credit provided by banking sector, the liquid liabilities of the system in the economy, are correlated with gross to domestic savings, and openness trade. According to growth endogenous models these proxies are explanatory variables of economic growth.

Levine et al. (2000), Christopoulos & Tsionas (2004) consider that there is a correlation between financial system and economic growth. Hassan, Sanchez & Yu (2011) demonstrates that there are arguments to consider a causal direction within financial institutions and economic growth, i.e these proxies reinforce between them. Khan (2001) found causality between financial institutional and economic growth.

There is some robust evidence that international trade is positively correlated with economic growth (Grossman & Helpman 1991; Rebelo 1991; Leitão, 2010; Hassan, Sanchez & Yu, 2011). However some authors as in Lai, Peng and Bao (2006), and Onaran and Stockhammer (2008) found a negative association between openness trade and growth.

The liquid liabilities of the banking system (M_3) and domestic credit are usually used as proxies to evaluate the financial system. The index of monetary aggregate (M_3) permits to analyze the size of financial market.

According to the literature the financial market is positively correlated with financial services, and this promotes the economic growth La Porta, Lopez de Silanes, Shleifer, & Vishny, (1998), Levine, Loayza and Beck (2000), Leitão (2010), Hassan, Sanchez and Yu (2011) defend this idea. There is no consensus in domestic credit that this proxy promotes economic growth. Leitão (2010) finds a positive correlation between domestic credit and growth. The author examines the link between financial development and economic growth for European Union Countries and BRIC (Brazil, Russia, India and China) for the period 1980 to 2006. As in Levine, Loayza and Beck (2000), and Beck et al. (2000), the author applied a dynamic panel data.

Hassan, Sanchez & Yu (2011), Levine (1997) defend and find a negative impact of credit in economic growth. In fact domestic credit discourages the investment and saving. In this way we can consider a negative correlation within credit and growth. The empirical studies (Padovano & Galli, 2002; Koch, Schoeman, & Tonder, 2005; Lee & Gordon, 2005) demonstrate that a higher taxes system cause a decrease on economic growth. On the other hand fiscal policy can be understood as an indicator control or adjusted to the government spending and the inflation.

2. ECONOMETRIC MODEL

The dependent variable is the real GDP per capita of European Countries for the period 1990 and 2009. The data are taken from World Development Indicators, the World Bank. This research uses a panel data. In the panel, we estimated by means of pooled OLS, fixed effects (FE) and random effects (RE). The F statistics test the null hypothesis of the same

specific effects for all individuals. If we accept the null hypothesis, we can use the OLS estimator. The Hausman test can decide which model is better: random effects (RE) or fixed effects (FE).

2.1 Explanatory Variables and Testing of Hypothesis

Based on the literature, we formulate the following hypothesis:

Hypothesis 1: There is a negative correlation between initial level of GDP per capita and economic growth.

Regarding hypothesis 1 Barro (1991) and Dreher (2006) suggest a negative impact of initial level of GDP per capita and economic growth, i.e. there is economic convergence within economies. The income measure selected in this paper is the Gross Domestic Product per capita of origin countries, expressed in constant 2000 US$ and was collected from World Bank.

Hypothesis 2: The international trade promotes economic growth.

The international trade is measured by:
$$TRADE_{it} = X_i + M_i. \qquad (1)$$
Where :
X_i represents the annual exports of each trade partner at time t and M_i, represents the annual imports. The data for trade were collected from World Bank. We expected a positive sign for this proxy.

It should be noted that the previous studies (Grossman & Helpman 1991; Rebelo 1991) found a positive relationship between openness trade and growth.

Hypothesis 3: The size of the financial system increases the financial services.

The size is measured by monetary aggregate indicator as follows:
M_3, is a financial indicator. This proxy represents the liquid liabilities of the banking system in the economy. This hypothesis is support by King and Levine (1993), and Hassan, Sanchez & Yu (2011). These authors found a positive correlation between the liquid liabilities of the banking and economic growth. The data are collected from World Bank.

Hypothesis 4: The domestic credit discourages the economic growth.

Shaw (1973), Hassan, Sanchez & Yu (2011) provide theoretical and empirical supports for this hypothesis.
CREDIT - is the ratio of general government consumption expenditure.

Hypothesis 5: The higher level of government consummation discourages the growth.

Hypothesis 6: There is a positive correlation between saving and investment.

Pagano (1993) and Hassan, Sanchez & Yu (2011) consider that saving promote economic growth.

Hypothesis 7: The growth is negatively correlated with inflation.

INF- is inflation, i.e, measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly. The studies of Gillman and Nakov (2004), and Fountas, Karanasos and Kim (2006) found a negative effect on growth. The data was collected by World Bank.

2.2 Model Specification

$$Growth_{it} = \beta_0 + \beta_1 X_{it} + \delta t + \eta_i + \varepsilon_{it} \tag{2}$$

Where $Growth_{it}$ is real GDP per capita, and X is a set of explanatory variables. All variables are in the logarithm form; η_i is the unobserved time-invariant specific effects; δt captures a common deterministic trend; ε_{it} is a random disturbance assumed to be normal, and identically distributed with E (ε_{it})=0; Var (ε_{it}) = $\sigma^2 \succ 0$.

3. EMPIRICAL RESULTS

Before estimating the panel regression model, we have conducted a test for unit root of the variable. The table 1 presents the results of panel unit root test (ADF-Fisher Chi square).
The most important variables such as economic growth rate (LogGrowth), openness trade (LogTRADE), liquid liabilities of the banking (M_3), domestic credit (LogCREDIT), saving (LogSaving), and inflation (LogINF) do not have unit roots, i.e, are stationary with individual effects and individual specifications.

Table 1. Panel Unit Root Results : Intercept and Trend : ADF – Fischer Chi-Square

Variables	Statistics	Probability
LogGrowth	195.98	0.00
LogTRADE	110.56	0.00
LogM$_3$	89.35	0.00
LogCredit	92.57	0.00
LogGOV	130.88	0.00
LogSaving	92.80	0.00
LogINF	1488.27	0.00

Source: Author calculation

The model [1] is reported in table 2. Our analysis evaluates the signs of the coefficients and their significances. The results are similar with Fixed effects and Random effects. Thus it can be argued that this outcome is robust in respect to the changes in estimation methodology.

We incorporate the initial GDP per capita to analyze the economic convergence between European trade partners. The results are according to previous studies (Barro, 1991; Dreher, 2006). As expected the coefficient (GDP) presents a negative sign, i.e economic convergence.

In our estimation, the coefficient LogTRADE presents a positive sign for the three estimators (OLS, FE, and RE). The results are consistent with the hypothesis of the positive correlation between openness trade and growth. The studies of Grossman and Helpman (1991), and Rebelo (1991) found a positive sign.

Considering that the variable, $LogM_3$(liquid liabilities of the banking system in the economy) can be used as proxy for size of the financial system for this effect. The results demonstrate that this variable has the "correct" sign in Fixed effects and Random effects and it is statistically significant, i.e a positive correlation between the liquid liabilities of the banking and economic growth.

Table 2. The impact of Financial System on Economic Growth: Model [1]

Dependent Variable : Economic Growth (LogGrowth)			
Independent Variables	OLS	Fixed Effects	Random Effects
LogGDP	-0.08(-2.15)**	-1.21 (-0.62)	-0.08 (-3.13)***
LogTRADE	0.23(2.17)**	0.42 (2.89)***	0.23(4.73)***
$LogM_3$	0.19 (0.46)	2.47(2.35)*	0.19(3.11)***
LogGOV	-1.13 (-0.93)	-1.79 (-2.43)*	-1.13(-3.64)***
C	2.96 (1.22)	20.08 (0.97)	2.95 (8.12)***
N	110	110	110
Adj. R^2	0.184	0.30	0.15
Hausman test of H0: RE VS FE Asymptotic test statistics Chi-square (5)= 8.74 P-value= 0.068 F(5,17) = 4.35 P-value=0.009			

Source: Author calculation

Note: ***/** /* – statistically significant, respectively at the 1%, 5%, and 10% levels.

The government expenditures (LogGOV) presents a negative sign, confirming the dominant paradigm, i.e the higher level of government consummation discourages the growth.

The table 3 reports the model [2] .The initial GDP per capita (LogGDP) presents a negative sign. Our results confirm the empirical studies as in Barro (1991); Kai and Homori (2009); Dreher (2006); Dreher and Gaston (2008).

The variable of LogTRADE (openness trade) is statistically significant with a correct sign. This result demonstrates that bilateral trade encourages economic growth. Grossman and Helpman (1991) and Rebelo (1991) also found this result.

The coefficient of domestic credit (LogCREDIT) is negatively correlated with growth. We can infer that domestic credit and growth depend on financial climate.

Table 3. The impact of Financial System on Economic Growth: Model [2]

Dependent Variable : Economic Growth (LogGrowth)			
Independent Variables	**OLS**	**Fixed Effects**	**Random Effects**
LogGDP	-0.12 (-4.13)***	-0.65 (-1.84)*	-0.15 (-3.41)***
LogTRADE	0.02 (0.54)	0.08 (2.08)**	0.06 (1.75)*
LogCREDIT	-0.26 (-4.52)***	-0.48 (-3.49)***	-0.28 (-3.41)***
LogSAVING	0.11 (0.78)	0.56 (2.34)**	0.17 (0.84)
LogINF	-0.05 (-0.97)	-0.10 (-1.61)	-0.10 (-1.83)*
C	2.41 (7.54)***	-6.47 (-1.74)*	2.36 (4.56)***
N	392	392	392
Adj. R^2	0.14	0.34	0.31
Hausman test of H0: RE VS FE Asymptotic test statistics Chi-square (5)= 20.32 P-value= 0.001 F(26,360) = 3.96 P-value=0.000			

Source: Author calculation

Note: ***/** /* – statistically significant, respectively at the 1%, 5%, and 10% levels.

CONCLUSIONS

This paper investigates the relationship between financial development and economic growth for the period 1990-2009 by European Countries. There appears to be a positive and statistically significant impact of financial institutions size on economic growth. The general performances of the models are satisfactory. The estimates are strongly statistically significant. This study tests the impact of financial development in European Countries. The liquid liabilities of banking express the size of the financial sector. Our findings suggest that the liquid liabilities promote the economic growth.

In relationships the domestic credit, the results show a negative correlation between this proxy and economic growth. This result contradicts the previous studies. Hassan, Sanchez & Yu (2011) find a positive correlation between this proxy and economic growth for East Asia and Pacific and Latin America and Caribbean. However, the study of Hassan, Sanchez & Yu (2011) finds a significant negative correlation between domestic credit and economic growth to high-income countries in OECD and non-OECD.

As in previous studies (Grossman & Helpman, 1991; Rebelo, 1991; Leitão, 2010; Hassan, Sanchez & Yu, 2011) openness trade and saving suggest a positive correlation. The coefficient of inflation reveals a negative association with economic growth. The empirical studies of Gillman and Kejak (2005) and Fountas, Karanasos and Kim (2006) also found a negative effect on growth. We can infer that inflation discourage the growth. The governmental expenditure (LogGOV) has an impact on fiscal policy. As in previous studies (Gillman & Kejak, 2005; Fountas, Karanasos & Kim, 2006) we found a negative impact on economic growth.

This manuscript contributes in several ways. Firstly, the paper examines the impact of financial system and economic growth. Secondly, the results allow us to view financial

institutions as a vehicle that contributes to the increase of economic growth. However, there are some clear limitations of the present study. Thus, further research should be carried out into this subject, especially in what it concerns the relation between economic theory and economic growth. We need to test the empirical models with dynamic panel data (GMM-System) to solve the endogeneity of some explanatory variables and serial correlation (see Leitão, 2010).

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