

# Deepening European Financial Integration

## Theoretical Considerations and Empirical Evaluation of Growth and Employment Benefits

Markus Neimke, Carsten Eppendorfer, Rainer Beckmann\*

*Ruhr-University Bochum, January 2002*

### Abstract

This paper analyses some long-run macroeconomic effects of European financial integration. In particular we focus on the further reduction and abolition of cross-border barriers impeding the entry into the markets of banking and insurance products. We follow a theoretical as well as an empirical approach to make predictions about how deeper integration will affect growth and unemployment rates. In our growth model we show that enhanced foreign financial market penetration should increase the overall growth rate unambiguously. The empirical analysis includes a wide set of indicators, each of them capturing different aspects of financial development and financial market integration. On the basis of the estimations a weak growth impact of foreign market penetration can be identified. Hence, deeper financial integration generates a growth bonus. But the long-run growth effect is conditional on differences in institutional characteristics captured by country-specific effects. The analysis is supplemented by an analysis of the potential employment benefits of deeper financial integration. We show that the growth bonus can be transformed into an employment bonus, but also not without considering substantial country-specific differences.

**JEL-Classification:** F36, G15, G21, O42

**Keywords:** economic growth, unemployment, European integration

**\*Acknowledgement:** The authors gratefully acknowledge financial support from the European Financial Services Roundtable, Brussels. We have benefited from comments of Prof. Dieter Bender, Friedrich Heinemann and other seminar participants at the ZEW, Mannheim on a previous draft of this paper. We would also like to thank Inka Schöwe for technical assistance.

Markus Neimke, Ruhr-University Bochum, Universitätsstraße 150, D-44780 Bochum,  
Phone: +49-234-32-22898, Fax:+49-234-32-14520, E-mail: markus.neimke@ruhr-uni-bochum.de

Rainer Beckmann, Ruhr-University Bochum, Universitätsstraße 150, D-44780 Bochum,  
Phone: +49-234-32-22776, Fax:+49-234-32-14258, E-mail: rainer.beckmann@ruhr-uni-bochum.de

Carsten Eppendorfer, Ruhr-University Bochum, Universitätsstraße 150, D-44780 Bochum,  
Phone: +49-234-32-22899, Fax:+49-234-32-14520, E-mail: carsten.eppendorfer@ruhr-uni-bochum.de

# 1. Introduction

This paper analyses the macroeconomic effects of further integration in the European markets for financial services. In particular we are interested in growth and unemployment benefits of the reduction and abolition of cross-border barriers impeding the entry into the market of banking and insurance products. Usually, it is argued that facilitating the entry of foreign financial firms into the local market intensifies competition, improves efficiency, and increases the quality of the financial infrastructure. As such, foreign firms can be seen as an important catalyst for the sort of financial development that promotes growth.

Our main research aim - evaluation of the change in the GDP growth rate and the change in the unemployment rate following deeper financial integration respectively - is analogous to the CECCHINI Report in which the growth effects of the 1992 Single Market Programme were estimated. In particular the CECCHINI Report predicted a bonus of 4.5 percent in terms of GDP growth, resulting from a free flow of consumer products, capital and labour. One third, or 1.5 percentage points of the growth bonus were attributed to the integration of financial markets in particular. Since 1992 the average growth rate of real GDP in Europe has not exceeded 2% per year. Hence the average growth rate equals the "equilibrium growth rate" or total factor productivity growth. Based on this observation we cannot exactly assess whether the expectation of the CECCHINI Report was too optimistic, however we can strengthen the arguments for further financial integration with new empirical results. We argue that the creation of a functioning single market for financial services is a substantial prerequisite for generating higher growth rates and reducing unemployment, because the degree to which financial markets are integrated is a determinant of financial development which in turn causes economic growth.

The following section 2 analyses the connection between financial development and economic growth from a theoretical view. The approach is in line with the increasing interest for the finance-growth nexus in recent publications (e.g. WORLD BANK, 2001). It is argued that the level of financial development of an economy seems to be characterised mainly by its financial market's size, structure and efficiency and through these transmission channels influences economic growth. We implement this characterisation of the financial sector in a simple endogenous growth model. This model can be used to illustrate the influence of financial development on the overall growth rate of an economy as well as the growth effects of financial integration.

In section 3, major steps towards an integrated financial market in Europe are summarised and confronted with the empirical evidence. This descriptive analysis of foreign market penetration in banking and insurance markets already reveals the existence of substantial obstacles to cross-border business. Some attempts to abolish these obstacles are implemented in the Financial Services Action Plan in which the Euro-

pean Commission formulates policy priorities for pushing financial integration. The elements of the Financial Services Action Plan are also briefly discussed.

In the econometric evaluation in section 4, we try to assess the macroeconomic impact of an increased activity of foreign companies in domestic financial markets in Europe. The analysis of the EU member states follows a three-step approach.

In a first step, we estimate a growth equation with typical "growth determinants" - investment rate and population growth - and different indicators of financial market development on the right-hand side. The panel data estimation results of the first step reveal country-specific regression constants which can be interpreted as total factor productivity growth rates. Obviously, not all indicators are suitable to show the influence the financial sector has on the real economy. In consequence, we obtain the constants from the regression, which fits the data best. These constants - the country-specific growth rates of total factor productivity - are defined as dependent variables in the second estimation step.

To estimate the extent to which European financial integration has influenced total factor productivity growth we utilise a simple cross-country regression approach. Analogous to the first step, we estimate a number of equations with different financial integration indicators and control variables on the right-hand side. The regression results provide ambiguous evidence for a correlation between financial market integration and total factor productivity growth. However, it is possible to identify a weak influence of foreign market penetration in the sector for banking products. Hence, deeper financial integration generates a growth bonus. In the context of theoretical examinations this growth bonus does not only mean a more rapid convergence to the steady state ("neoclassical growth effect") but also a higher equilibrium growth rate in the long run ("endogenous growth effect").

In a third step, the analysis of the macroeconomic growth effects is supplemented with an analysis of the link between financial integration and unemployment. To assess the potential benefits of a fostered financial integration we estimate country-specific OKUN-coefficients that provide information about the growth rate a country needs in order to reduce unemployment. We show that a convincing increase in financial market integration is required to generate a growth bonus that can substantially reduce unemployment in the EU member states.

Section 5 provides a conclusion and points to some aspects of the estimation results and their further interpretation that must be seen with considerable reservation.

## 2. Financial development, financial integration and economic growth

This section outlines selective links between financial market development and the real economic sector. In particular it shows which transmission channels of the financial sector can be identified. The different approaches to finding causal combinations between the financial market development of an economy and its per-capita growth rate were motivated by two factors: the upcoming of the "new growth theory" and the detection of empirical phenomena such as the identification of specific convergence processes in the world economy.<sup>1</sup> The finance-growth nexus in a closed economy is discussed extensively in the literature. In contrast, theoretical approaches to determine the growth implications of financial market integration are rare. Our aim is not to remove this shortcoming but to give some intuitive indications on the basis of a simple growth model. We argue that the removal of obstacles to cross-border financial activities is a substantial prerequisite for generating higher growth rates because the degree to which financial markets are integrated is a determinant of financial development which in turn influences economic growth.

### 2.1 Transmission channels of the financial sector

In growth theory the evolution of the financial services sector as a whole represents only one determinant of country-specific differences in growth processes. Nevertheless, the financial sector appears to have special importance in two ways. First, the financial sector has the function to canalise savings into investment and innovation activities.<sup>2</sup> Second, it is possible to interpret the degree to which the financial sector is developed as a measure of something like *broad macroeconomic efficiency*. Thus financial development influences total factor productivity and the long-run growth rate.<sup>3</sup> These two characterisations of the financial sector as a determinant of economic growth already reflect the competing approaches of the *neoclassical* and the *endogenous growth theory*. In neoclassical growth theory only increases in the level of macroeconomic efficiency are responsible for a permanent growth of per capita income, which is attained by presuming an exogenous productivity growth rate. An increase, for example, of the saving rate induces a growth effect that is only *transitory*. Endogenous growth models, by contrast, permit also the possibility of a *permanent* increase in the growth rate of

---

<sup>1</sup> Influential theoretical contributions in the context of the new growth theory are ROMER (1986, 1990), LUCAS (1988) and GROSSMAN/HELPMAN (1991). The empirical approaches of BARRO/SALA-I-MARTIN (1992) and MANKIW/ROMER/WEIL (1992) should also be mentioned in this context. For an overview see BARRO (1998).

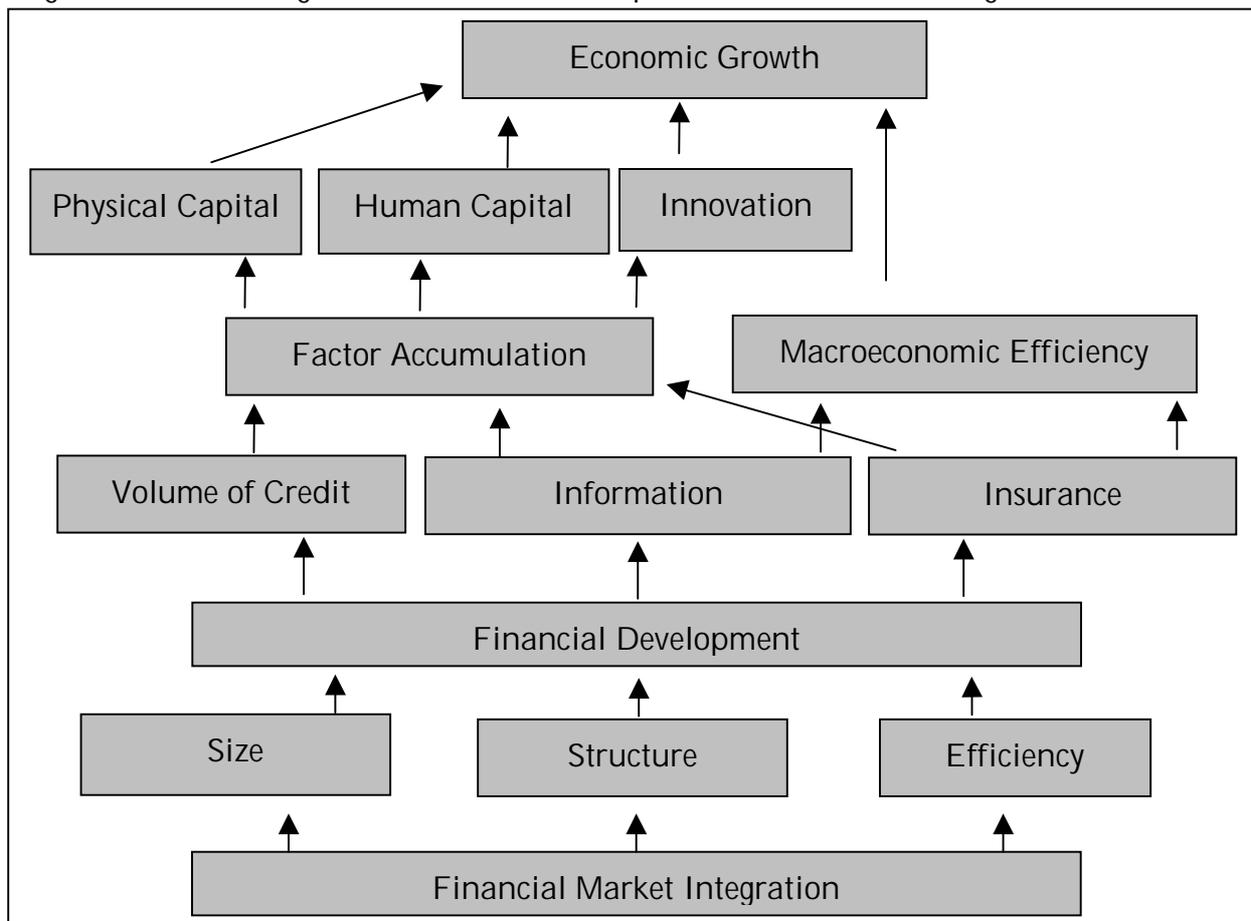
<sup>2</sup> This view is based on the work of MCKINNON (1973) and SHAW (1973). One of the first analyses of the finance-growth nexus is GOLDSMITH (1996).

<sup>3</sup> See KING/LEVINE (1993 a, b); LEVINE (1998); RAJAN/ZINGALES (1998).

per capita income through an increase of the macroeconomic savings rate or through research and development activities. However, the endogenous growth approaches are not able to explain the convergence dynamics, that can be discovered empirically and constitute a special characterisation of neoclassical models.

In the following we will not attempt a discriminating analysis of the connection between financial development and economic growth within neoclassical and endogenous models.<sup>4</sup> The purpose of this section is rather to discuss the different *transmission channels*, identified in both neoclassical *and* endogenous growth models. These characteristics will also be implemented in a simple *integrated growth-model* in the next section. In both neoclassical and endogenous models the long-run economic development of per-capita income is basically driven by two factors: the *accumulation of input factors* and the change in the *macroeconomic efficiency* in allocating these input factors. The change in macroeconomic efficiency is often described as the growth of total factor productivity.

Figure 1: Economic growth, financial development and financial integration



<sup>4</sup> For an extensive summary of this discussion see LEVINE (1997).

The degree of financial development can be measured in terms of different components, namely the *size*, the *structure* and the *efficiency* of the financial sector.<sup>5</sup> This characterisation is shown in figure 1. Indicators that measure the size of the financial sector basically include information about the depth of financial intermediation. With the help of structural indicators we can obtain information about the allocation of resources and the relevance of an economy's different financial institutions, e.g. the impact of private and state-owned banks. Using efficiency indicators the level of transaction cost, the degree of information asymmetries and in particular the competition environment can be recorded. As figure 1 reveals, each of the different measures of the degree to which the financial sector is developed can be influenced by financial market integration.

Following figure 1, the financial sector affects both driving forces of growth, factor accumulation and efficiency of allocation. Literature has identified different channels making up the link between the financial sector and economic growth:

- *Supply of credits for investment*  
A developed, competitive financial sector ensures relatively small deviations between lending and deposit interest rates, which in turn enlarges that part of macroeconomic savings that can be transformed into credits for investment projects of the non-banking sector.<sup>6</sup> According to the analysis of McKINNON (1973) and SHAW (1973) a functioning financial sector ensures high private *saving rates* due to an attractive interest rate, high private savings facilitate investment activities of private firms, and it enables an economy to grow at a high speed. This saving rate effect is intensified when the growth dynamics are also driven by human capital accumulation. Hence, the financial sector can raise the formation of human capital through the provision of credit to private households which use such financial means for private education investments.<sup>7</sup>
- *Provision of information*  
In economic theory the task of the financial sector should be, among other things, to channel savings into the most profitable investment projects. A developed financial sector facilitates this if banks and insurance companies monitor investment projects and provide information about potentially innovative enterprises to their customers.<sup>8</sup>

---

<sup>5</sup> See KING/LEVINE (1992) for this classification.

<sup>6</sup> See PAGANO (1993); BERTHÉLEMY/VAROUDAKIS (1996 a, b); ATJE/JOVANOVIĆ (1993); KING/LEVINE (1993 b) and BENCIVENGA/SMITH (1991).

<sup>7</sup> See DE GREGORIO (1996) and JAPPELLI/PAGANO (1994).

<sup>8</sup> See GREENWOOD/JOVANOVIĆ (1990); HOLMSTRÖM/TIROLE (1997).

- *Insurance of risks*

Since more profitable investment projects are usually associated with higher risks, improving the possibilities to insure oneself against these risks can significantly increase investments financed by given savings.<sup>9</sup> This insurance function is the more important the more economic growth is driven by technological innovations that are linked to high sunk costs.<sup>10</sup> Through *spillover-effects* R&D drives the technological knowledge stock of an economy which in turn increases total factor productivity.

To summarise, following economic theory the growth rate of a country is basically driven by factor accumulation and improvements in macroeconomic efficiency, i.e. growth of total factor productivity. A functioning financial sector is in part responsible for the accumulation of input factors as well as for the efficiency with which the input factors can be used. The degree of the financial sector's development can be measured in terms of its size, structure and efficiency. Each of these different financial measures can be influenced by financial market integration. Therefore, an increase in the degree of financial market integration that results in a rise in the financial sector's development level enables a shift in the growth rate of per-capita income.

## 2.2. Endogenous growth and financial intermediation

Endogenous growth models opposed to traditional neoclassical approaches have the advantage that they enable us to give a convincing explanation of the *direct* influence the financial market has on an economy's long-run growth rate. A major disadvantage of endogenous growth models is that they frequently imply parameter dependencies. This results in an immediate "jump" of economies on their equilibrium growth path which is incompatible with the empirical regularity of income convergence that takes a long time. In the model briefly outlined below the transmission channels of a functioning financial services sector can be merged to a theoretically consistent approach. Furthermore, the model seems to be capable of analysing the impact of increasing financial market integration. The chosen approach is based on a production technology that allows to represent characteristics of both endogenous and neoclassical growth models. First, it includes the empirically observed phenomenon of convergence within specific groups of countries (conditional convergence), derivable from neoclassical models. Second, it implements main characteristics of endogenous growth models with a long-term positive growth rate that are independent of exogenous technological processes. Under the assumptions of the model it is shown that the convergence behaviour

---

<sup>9</sup> See OBSTFELD (1994).

<sup>10</sup> See SAINT-PAUL (1992).

as well as the equilibrium growth rate can be directly influenced by the development of the financial services sector market and its deeper integration respectively.

The underlying macroeconomic production function  $Y$  exhibits constant returns to scale and transitional declining marginal products of capital and labour in  $F(K,L)$ :

$$(2.1) \quad Y = AK + F(K, L).$$

$Y$  stands for macroeconomic output,  $K$  for capital stock and  $L$  for the labour force of the representative economy.  $A$  describes the level of technology or, in a more wider definition, macroeconomic efficiency.<sup>11</sup> In per capita terms we can write (2.1) as:

$$(2.2) \quad y = Ak + f(k),$$

with  $k$  standing for capital intensity  $K/L$ .

Although we assume decreasing marginal products for the neoclassical part of the macroeconomic production function -  $f(k)$  in (2.2) - the endogenous part  $Ak$  guarantees a long-run constancy of the marginal product of capital so that a permanently positive growth rate is generated.<sup>12</sup>

Capital intensity  $k$  evolves depending on investment activity  $I$ , population growth rate  $n$  and depreciation of the existing capital stock  $\delta K$  according to:

$$(2.3) \quad \frac{\dot{k}}{k} := \hat{k} = \frac{\dot{K}}{K} - n = \frac{I - \delta K}{K} - n = \frac{I}{K} - (\delta + n).$$

Following PAGANO (1993), the financial services sector determines which part of savings is channelled into investment, i.e. into accumulation of the economy's capital stock.<sup>13</sup> Only a fraction  $\lambda$  of overall savings is available for investment activity:

$$(2.4) \quad \lambda S = \lambda sY = I, \text{ with } 0 < \lambda < 1.$$

---

<sup>11</sup> This kind of production function is based on JONES/MANUELLI (1990). Time indices are suppressed.

<sup>12</sup> Formally this follows from the violation of one of the INADA-conditions because here in the long-run  $\lim_{k \rightarrow \infty} \partial y / \partial k = A > 0$ .

<sup>13</sup> PAGANO (1993).

The other fraction of savings  $(1 - \lambda)$  "vanishes" in the financial services sector. According to PAGANO (1993) the financial component in the growth model can be described, for example, by the spread between lending and deposit interest rate. Therefore, a reduction in the interest rate spread, e.g. due to an increase in competition pressure, leads to a rising fraction of macroeconomic savings being channelled into investment. For the evolution of capital intensity this means:

$$(2.5) \quad \hat{k} = \frac{\lambda s Y}{K} - (\delta + n) = \lambda s \left[ A + \frac{f(k)}{k} \right] - (\delta + n).$$

The Modification of (2.5) results in a fundamental equation of the evolution of the capital intensity:

$$(2.6) \quad \hat{k} = \underbrace{[\lambda s A - (n + \delta)]}_{\text{long-term component}} + \underbrace{\lambda s \frac{f(k)}{k}}_{\text{component of convergence}}.$$

By means of equation (2.6) a positive dependence of the growth rate on capital intensity can be identified when looking at both the long-term component and the convergence component. The influence of the convergence component decreases in time with increasing capital accumulation due to the decrease in the marginal product of capital. Countries that are already at an advanced stage of development show smaller growth rates than countries whose capital intensity falls relatively far below their equilibrium value.<sup>14</sup> In the long-run (i.e.  $k \rightarrow \infty$ )  $\hat{k}$  approaches a permanently positive and exogenous value which is determined by the difference between  $\lambda s A$  and  $(\delta + n)$ . Hence, as a condition for a positive growth rate in the long-run the validity of  $\lambda s A > (\delta + n)$  must be guaranteed.

In the steady state all considered variables grow at the same rate. Accordingly, the dependence on a convergence component  $\hat{y}^t(\lambda)$  and a long-run component  $\hat{y}^*(\lambda)$  is also valid for the growth rate of per-capita income:

---

<sup>14</sup> In the context of the convergence discussion it is clear that this means conditional convergence. As a consequence the considered countries that show income convergence exhibit similar characteristics of the other relevant growth determinants.

$$(2.7) \quad \hat{y} = \underbrace{[\lambda s A - (n + \delta)]}_{\text{long-run component } \hat{y}^*(\lambda)} + \underbrace{\lambda s \frac{f(k)}{k}}_{\text{component of convergence } \hat{y}^1(\lambda)} .$$

To summarise, in this section we identified long-term and transitional links between financial markets and economic growth from a macroeconomic perspective in a very simple approach. Using an integrated growth model that highlights both neoclassical and endogenous growth characteristics therefore constitutes an extension of the analysis of PAGANO (1993). This is an important aspect because, based on the convergence component, the entire macroeconomic effect that is generated by a shift in the degree of the financial services sector's development results in a greater total growth bonus.

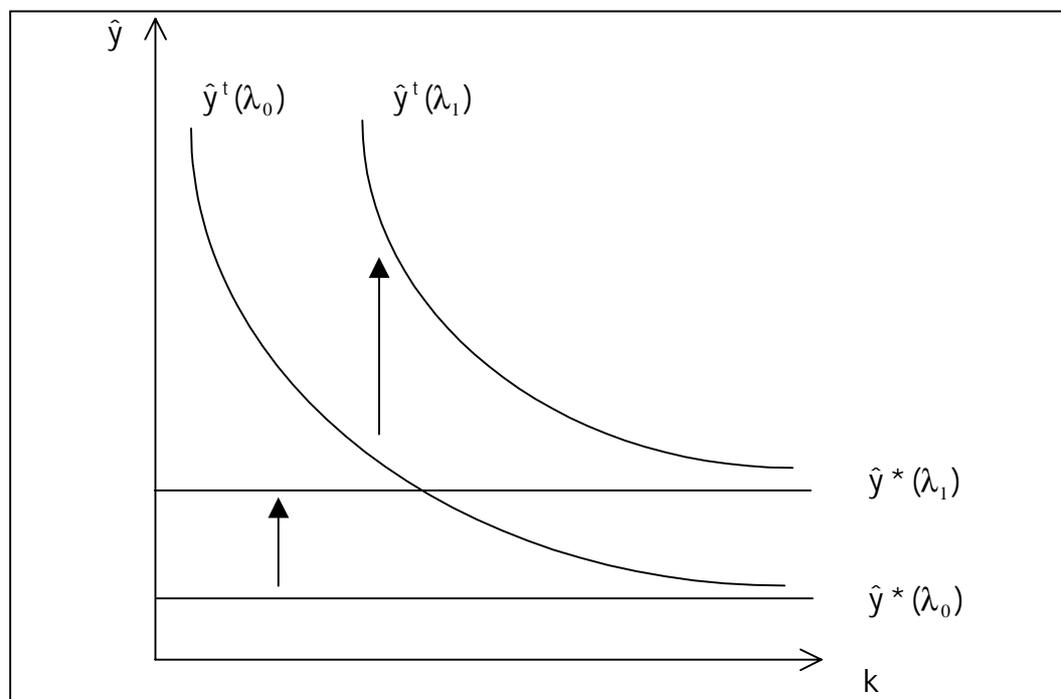
### 2.3. Growth bonus of financial market integration

The theoretical formula in section 2.2. demonstrates that financial markets influence both the long-term component of the evolution of per-capita income and the transitional component. The level of  $\lambda$  is determined crucially by the level of development of the financial services sector, which in turn can be influenced by a variation in its size, structure and efficiency. These different measures of the stage of development can be significantly altered by financial market integration. Despite the fundamental implications of the finance-growth nexus, the theoretical model is only of limited use for examinations concerning the impact of financial integration. A shift in parameter  $\lambda$  following enhanced financial market integration causes a rise in the equilibrium growth rate due to a higher growth rate of total factor productivity. This effect is similar to the efficiency function of the financial sector described above. Moreover, a catching-up process can be identified that results in a higher transitional growth rate on the way to a new steady state. This second effect is induced by the accumulation function of the financial sector which stimulates investment into the macroeconomic capital stock. However, the extent of this catching-up effect depends on the stage of economic development a country is experiencing at the respective moment. This means that only a conditional convergence effect can be generated.

Figure 2 represents this way of formulating the "financial integration growth nexus" graphically. Obviously, a shift in the degree of the financial sector's development resulting in an increase in the part of savings that are transformed into investment ( $\lambda_1 > \lambda_0$ ) leads to a higher growth rate. The shift in development can be measured in terms of an increase in the financial sector's size or efficiency or, a change in its structure. Here the shift in financial development and the higher growth rate can be attributed to financial market integration. Hence, financial market integration induces a short-run acceleration of the growth rate of per capita income. Furthermore,

the long-term growth rate can be raised as well. The first effect can be called the "short-run growth bonus", the second one the "long-run growth bonus" of financial market integration.

Figure 2: Long-run growth and convergence bonus of financial integration



To summarise, financial market integration enhances an economy's growth possibilities through the following channels:

- Foreign banks and insurance companies improve the quality and availability of financial services in the domestic financial market by increasing competition.
- An increase in foreign bank penetration leads to lower profitability and overhead expenses (personal and other non-interest expenses) for banks, and this enhances economic growth by promoting domestic banking efficiency.
- Enhanced competition in connection with external economies of scale forces domestic institutions to apply more modern human skills and technology.
- The presence of foreign financial companies stimulates the development of the underlying legal framework, for example, banking supervision.
- Financial integration enhances a country's access to international capital.

The macroeconomic (static and dynamic) welfare gains over-compensate the decrease in banking profitability.<sup>15</sup> By way of example we could assume that a shift in the number of foreign retail banks will result in an increased competition in the domestic market for retail banking products and for this reason in a reduction of the spread between lending and deposit rate, which would improve investment possibilities for private and non-private firms as well as for private households. Consequently, in the context of the simple growth model developed above a promotion of the growth rate can be expected.

### 3. Financial Market Integration in Europe

This section outlines the extent to which the European markets for financial service products are currently integrated. In particular we are interested in the foreign activities of banking and insurance companies. It is worth mentioning that our analysis is not aimed at drawing a complete picture of all the competing definitions, determinants and political implications of the different indicators that measure financial integration.<sup>16</sup> We therefore concentrate on *macroeconomic* variables available over a relatively long time span which we use in our econometric estimations in the following section.

Historical evidence shows that several political attempts were made in the past to enhance the extent of European financial integration. Substantial obstacles to cross-border activities remain, however, resulting in potential growth and employment losses. In general, we can make a distinction between natural obstacles and policy-induced obstacles impeding cross-border activities. Natural obstacles are, for example, consumer preferences and cultural or language differences. In particular they are not changeable in the short-run by policy makers. However, policy-induced obstacles, which include taxes, national regulations and standards can be removed by policy makers. Since we are interested in the macroeconomic effects of financial market integration we do not analyse different obstacles that result in a fragmentation of the European financial markets in detail.<sup>17</sup> Rather, we point to some aspects of policy-induced obstacles as well as attempts to their removal. The main obstacles identified by the LAMFALUSSY report consist of the legal framework for cross-border activities and the degree to which existing European laws are implemented in the EU member

---

<sup>15</sup> See CLAESSENS ET AL. (1998), DEMIRGÜÇ-KUNT ET AL. (1998) and Levine (1998). For an empirical assessment of the impact of foreign bank entry on the profitability in the banking sector and its welfare implications see CLAESSENS ET AL. (1997).

<sup>16</sup> For a comprehensive overview see e.g. BUCH (2000); LEMMEN (1998) and DANTHINE ET AL. (1999, 2000).

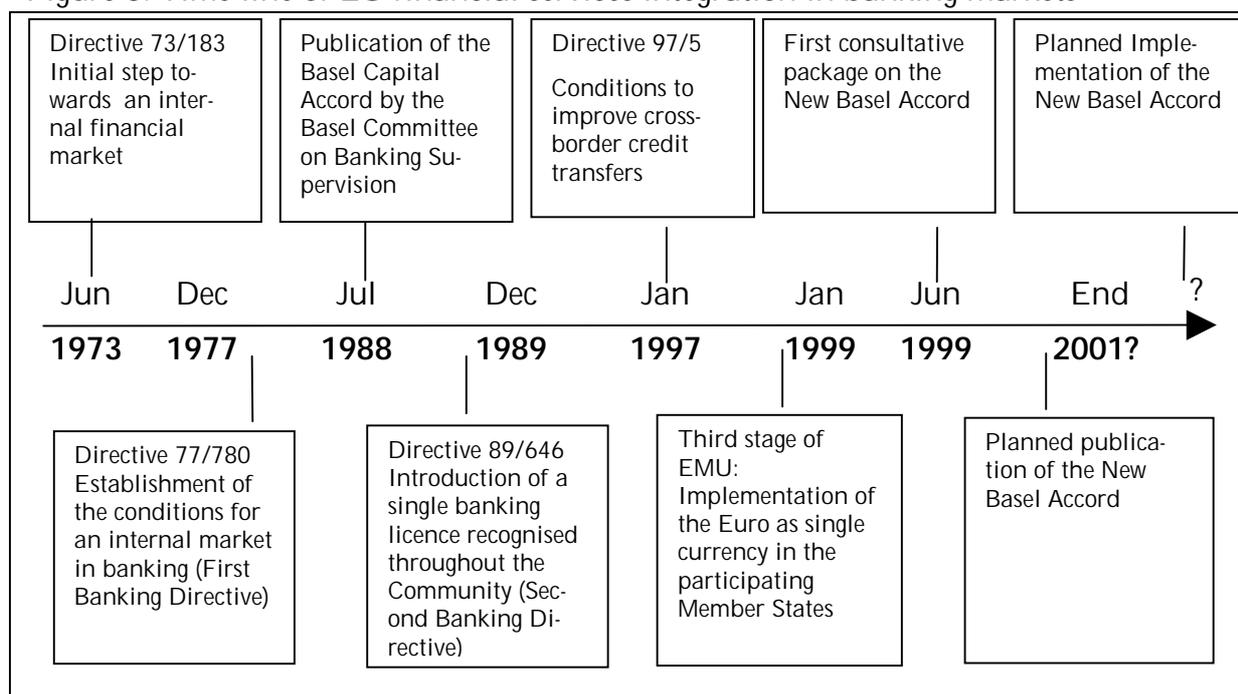
<sup>17</sup> For an extensive analysis see EPPENDORFER ET AL. (2002) for the banking sector and BECKMANN ET AL. (2002) for the insurance sector.

states.<sup>18</sup> Nevertheless, the Financial Services Action Plan, adopted by the European Commission, is an actual example that policy makers are aware of these problems and willing to tackle them.

### 3.1. The legal framework in a historical perspective

Figure 3 summarises the milestones of deregulation in the *banking products* sector.

Figure 3: Time line of EU financial services integration in banking markets



Source: EU (2001a,b)

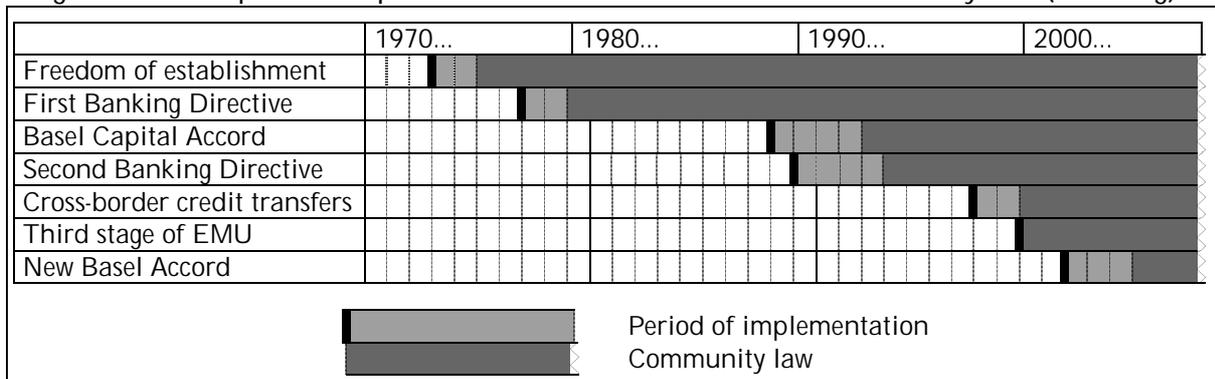
Policy-induced integration started in 1973 with directive 73/183 aiming at introducing the right of establishment and freedom to provide services for all financial professions. Other major steps towards an integrated market for banking products were incorporated in the banking directive of 1977 which included procedures for the coordination of national laws, administrative provisions relating to the taking-up and pursuit of the business of credit institutions. The main element of the second banking directive 1989 was the introduction of a single banking licence allowing a branch of an institution authorised in another member state to be opened without authorisation from the host member state and without the need for separate endowment capital. This directive introduced the principle of "home-country control" for the first time in cross-border banking business. Later directives included the adoption of common sol-

<sup>18</sup> See LAMFALUSSY Report (2001).

vency standards (1989) and the harmonisation of essential rules for supervising large exposures of credit institutions (1992). Minimum requirements needed to ensure an adequate level of customer information both before and after the execution of a cross-border credit transfer were implemented in 1997. One of the last major steps in spurring integration can be seen in the introduction of a technology-neutral legal framework in 2000 aiming at the implementation and the harmonisation of prudential supervision of electronic money institutions. It is expected that the New Basel Accord on banking supervision will be implemented in 2004.

Although deregulation steps were numerous they were often time-consuming. Figure 4 shows the time profile required for a directive to become community law with "period of implementation" standing for the period between the date of publication and the date of entry into force.

Figure 4: Time profile required for a directive to become community law (banking)

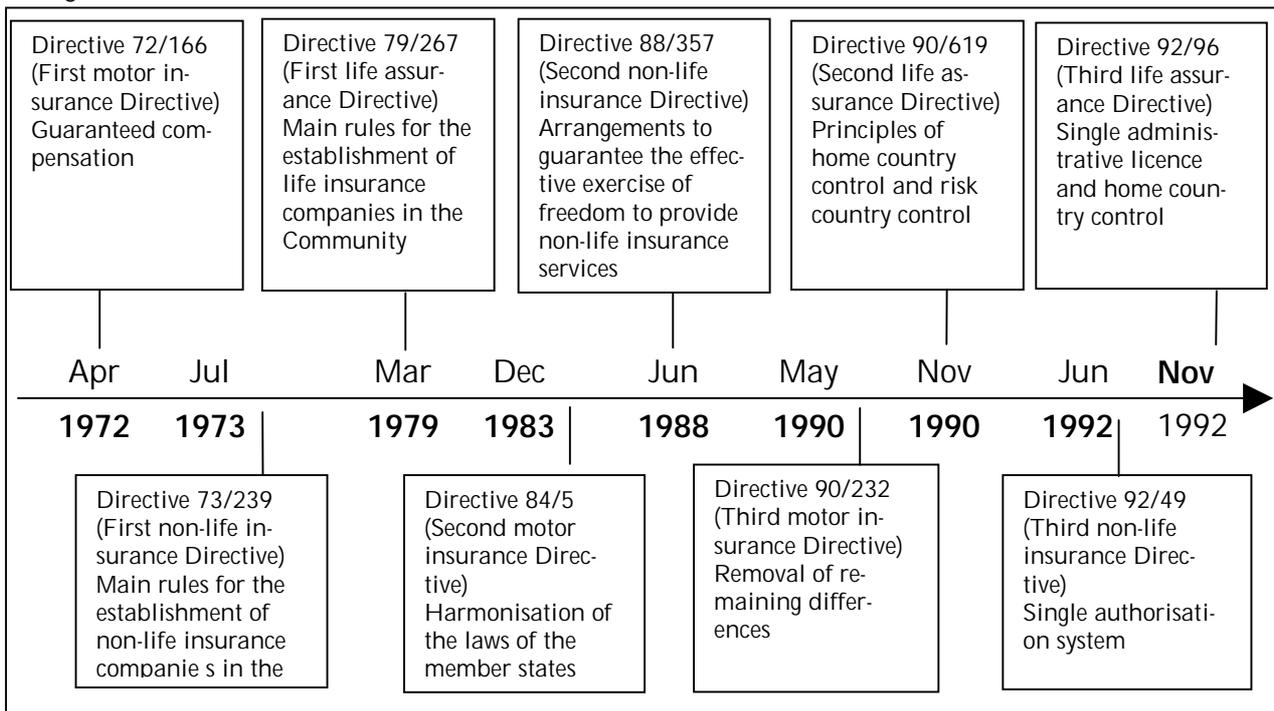


Source: EU (2001a,b)

In the insurance products sector integration started at the beginning of the 1970s as well. The time line of major integration steps is shown in figure 5. Directive (72/166) in 1972 was aimed at the abolition of frontier controls of compulsory insurance for motor vehicles. The first non-life insurance directive of 1973 established an appropriate legal framework for exercising freedom of establishment in the Community in respect of non-life insurance. With the third non-life insurance directive in 1992 a single authorisation system was introduced. This implies that any insurance undertaking, whose head office is in one of the Community member states can establish branches in another member state and carry on business by way of providing cross-border services under the supervision of the member state where its head office is located. Hence, the principle of "home country control" was also established in the market for non-life insurance products. In the market for life insurance products major integration steps were implemented through the second life insurance directive which laid down two sets of arrangements with regard to the freedom to provide services: application of the principle of home country control, which covers those policyholders not requiring specific protection due to the application of the rules of their

member states of residence; application of the rules of, and supervision by, the member state in which the service is supplied (risk country control), this covers other policyholders requiring such specific protection. The major objective of the third life-insurance directive was to complete the internal market in this form of insurance activity on the basis of the principles of a single administrative licence and supervision of the insurance undertaking's activities by the authorities in the member state in which that undertaking has its head office.

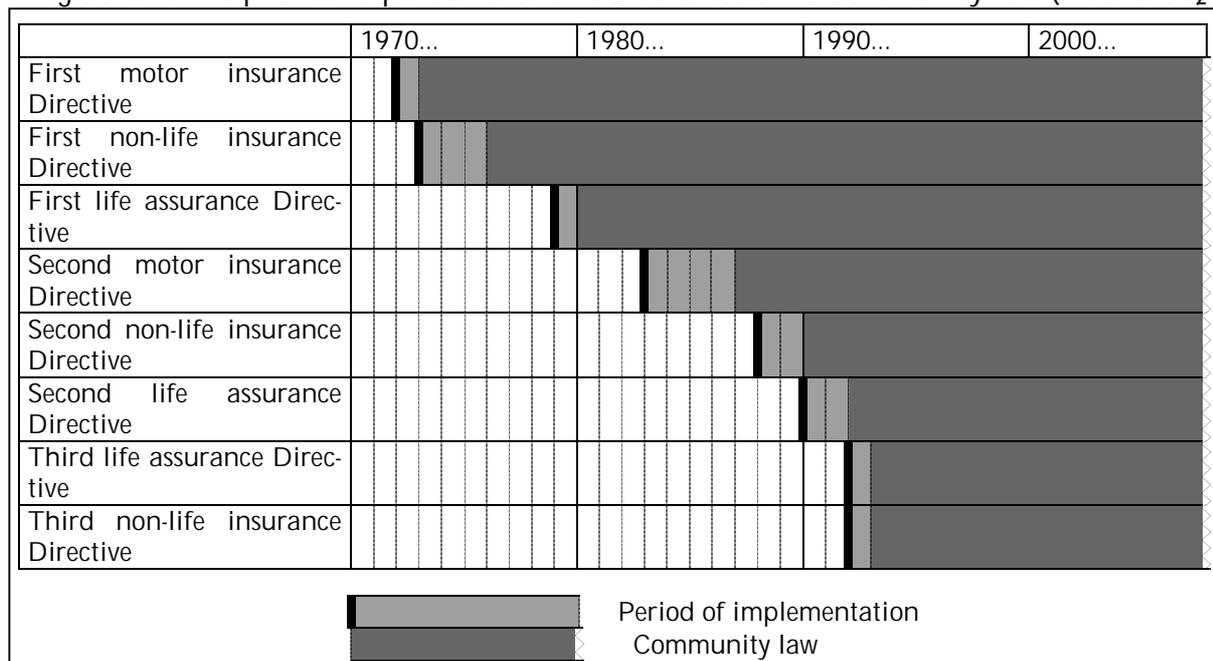
Figure 5: Time line of EU financial services directives in insurance markets



Source: EU (2001a,b)

Figure 6 shows the time profile required for a insurance directive to become Community law is shown. As figure 6 reveals, some directives took considerable time to become effective community law as can also be observed with the banking directives.

Figure 6: Time profile required for a directive to become community law (insurance)



Source: EU (2001a,b)

To summarise, the figures 3-6 show that in the past 30 years considerable attempts were made to enhance the degree of integration in the markets for financial service products. For instance, a significant degree of harmonisation has been achieved with the establishment of the banking and insurance directives. Furthermore, substantial obstacles impeding cross-border financial activities due to national regulations have been reduced. Nevertheless, this process moves forward very slowly as the figures for implementation periods reveal. Moreover, it can be suspected that substantial obstacles to financial services still remain, for instance in the field of international accounting standards, financial conglomerates, and cross-country mergers and acquisitions.

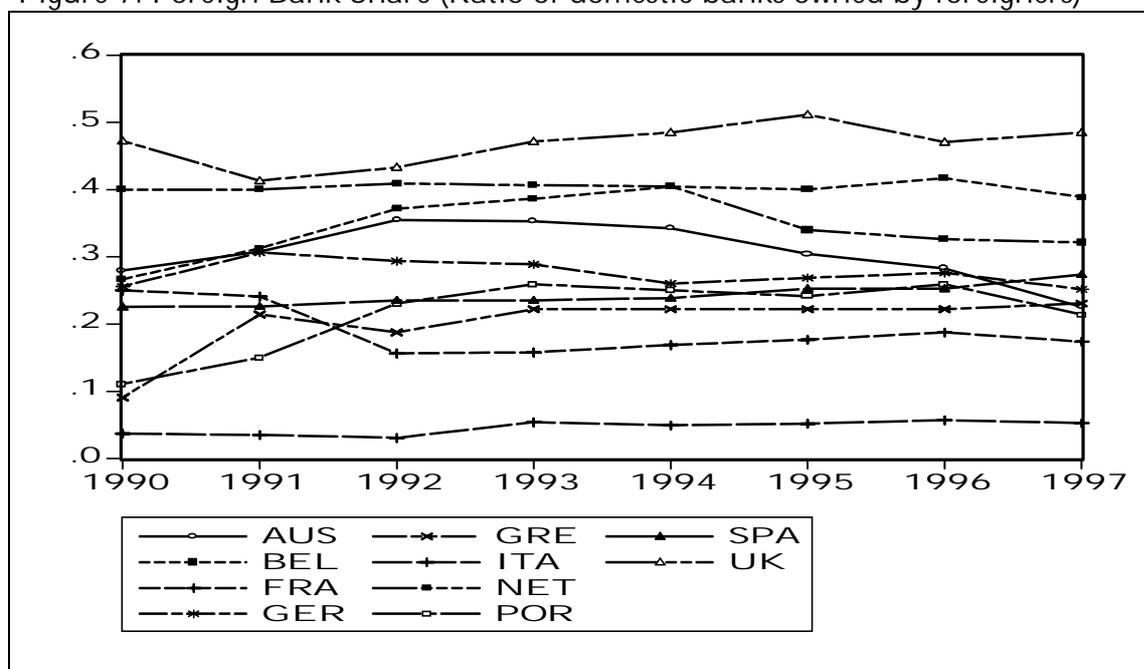
### 3.2. How integrated are European financial markets actually?

In the previous section we outlined selective advances in establishing a sufficient legal framework to promote cross-border activities in the European financial services sector. Nevertheless we suspected that significant obstacles remain. Consequently, the following analysis tries to give an assessment of the extent to which the European financial markets are actually integrated. It is worth mentioning that macroeconomic data on cross-border activities of banking and insurance institutions are difficult to obtain. As we tried to use data that are available for a significant number of EU member states while capturing a relatively long time span, the analysis had to focus on foreign direct investment. Unfortunately, we thus had to neglect possible variables associated with

"direct" cross-border business. However, as many banking and insurance institutions have become international since the implementation of the first directives in the relevant markets, this restriction does not change the results fundamentally. The following descriptive analysis shows to which degree banks and insurance companies have expanded abroad by establishing foreign subsidiaries and branches, or through mergers with and acquisitions of established foreign institutions, although we do not discriminate between these different strategies.

As a direct measure of integration in the European sector for *banking products* we display the *Foreign Bank Share* of selected European countries in terms of numbers (figure 7) and foreign bank assets in total banking sector assets (figure 8).<sup>19</sup> Both indicators of foreign banking penetration have been obtained from the database the WORLD BANK has been published in 2001 as part of their "finance for growth" project.<sup>20</sup>

Figure 7: Foreign Bank Share (Ratio of domestic banks owned by foreigners)



Source: Own calculations, data obtained from WORLD BANK (2001)

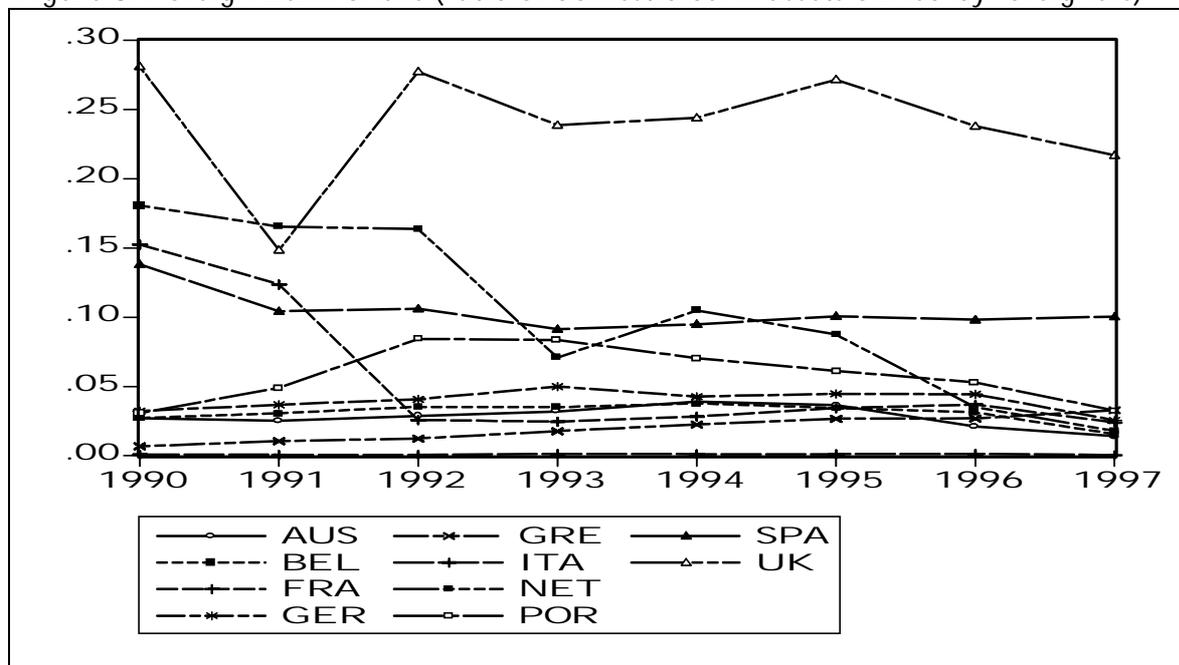
Figure 7 shows substantial differences in the number of the foreign bank penetration measure. The banking sector of the United Kingdom, for instance, is characterised by a large number of foreign owned banks, whereas this banking integration indi-

<sup>19</sup> Due to missing data points Denmark, Finland, Ireland and Sweden have been ignored. See EPPENDORFER ET AL. (2002) for a further analysis of foreign market penetration strategies in the banking industry.

<sup>20</sup> See BECK ET AL. (1999). According to the definition of the WORLD BANK (2001) and OECD (2000) a bank is called "foreign" if at least 50% of its equity is owned by foreigners.

cator is nearly zero percent in Italy's banking market.<sup>21</sup> This picture is confirmed in figure 8, with the volatility of this foreign penetration measure being even more pronounced.

Figure 8: Foreign Bank Share (ratio of domestic bank assets owned by foreigners)



Source: Own calculations, data obtained from WORLD BANK (2001)

A comparison of figure 7 with figure 8 reveals that on average the foreign banks penetration indicator in pure numbers exceeds the indicator in terms of assets for most countries. This might reflect the empirical regularity that foreign banks tend to be smaller than domestic banks. Both measures of foreign penetration have not changed very much since the beginning of the 1990s, although we can even observe a fall in the ratio of foreign bank assets in total assets for some countries, e.g. the Netherlands.

Complementary to the time profile of the foreign bank share, another banking integration indicator is shown in figure 9, which provides information about the attractiveness of a country for foreign investors in the banking sector. It is also calculated from WORLD BANK (2001) data and is based on a survey that was sent to national bank regulatory and supervisory authorities in 1998.<sup>22</sup>

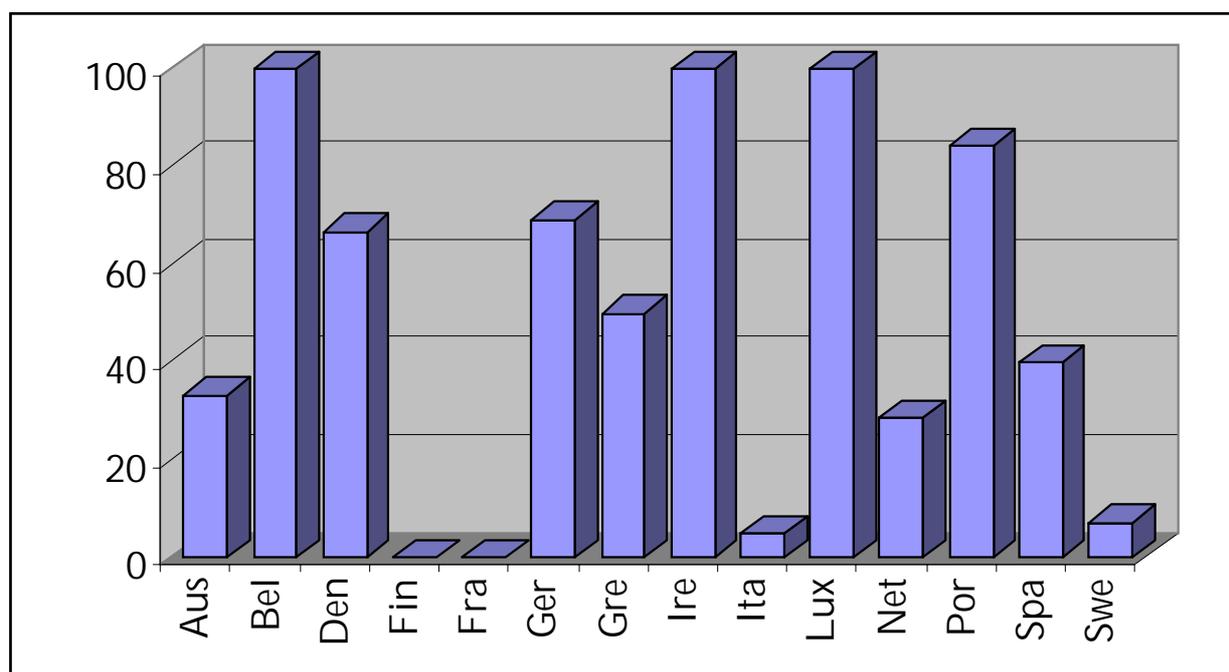
Figure 9 shows that there are substantial differences between the European countries concerning the ratio of foreign applications for banking licenses in percent

<sup>21</sup> The highest foreign bank share in numbers is ascertained for Ireland in 1997, with 65% of all banks belonging to foreign owners (not shown).

<sup>22</sup> See BARTH, J. R. ET AL. (2001a,b).

to all banking applications in the domestic country. Nevertheless, the conclusion that countries with a low value of this integration indicator experience a low degree of foreign competition is misleading. On the one hand, 12 applications of foreign banks have been registered, for instance, in the Netherlands in 1998. But in the same year domestic institutes filed 30 applications for banking licenses. On the other hand, countries with a ratio of 100% of foreign applications like Belgium registered 24 foreign, but no domestic applications.

Figure 9: Ratio of foreign applications for banking licenses 1998  
(in percent of total domestic applications)



Source: Own calculations, data source is WORLD BANK (2001)

The databases for a description of the integration progress in the insurance products sector are even more limited than for the banking sector. The WORLD BANK (2001) database on finance and growth does not include insurance indicators comparable to the banking measures above. The most suitable database for our purposes is the *Insurance Statistics Yearbook*, published by the OECD.<sup>23</sup> But even this database raises serious problems, because due to the third insurance directive the composition of some indicators was changed in 1994.<sup>24</sup> Figure 10 shows the *Foreign Insurance Share*

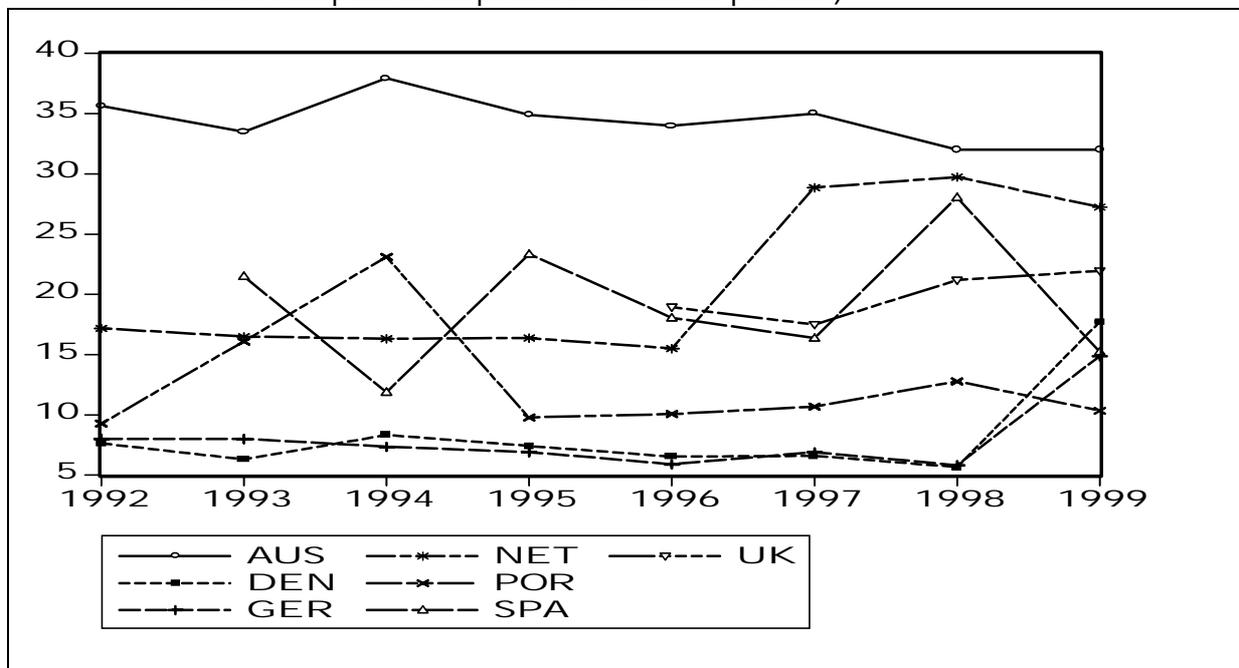
<sup>23</sup> See BECKMANN ET AL. (2002) for a further analysis.

<sup>24</sup> In consequence, we have to correct the formerly MK1 indicator, which includes foreign controlled companies as well as branches and agencies of foreign companies. Therefore, we simply calculate the difference between MK1 and MK2. The latter measures the market share of foreign branches and agencies, so that the resulting indicator includes solely the market share of foreign controlled companies. We do not control for the fact, that the OECD market share of

(Life) for the countries and the time span it is available for. This financial integration indicator represents a measure of foreign market penetration in the sector for life insurance products on a gross premium basis.

Figure 10 shows that, comparable to banking markets, substantial differences in the extent to which the European insurance markets are integrated can be observed in the sector for life insurance products. The picture of the time profile is also ambiguous. Austria, for instance, exhibits a relatively constant foreign life-insurance share, whereas this integration indicator is quite volatile in Spain. Hence, one cannot conclude from figure 10 that any substantial integration advances were made in the European insurance markets over the last years.

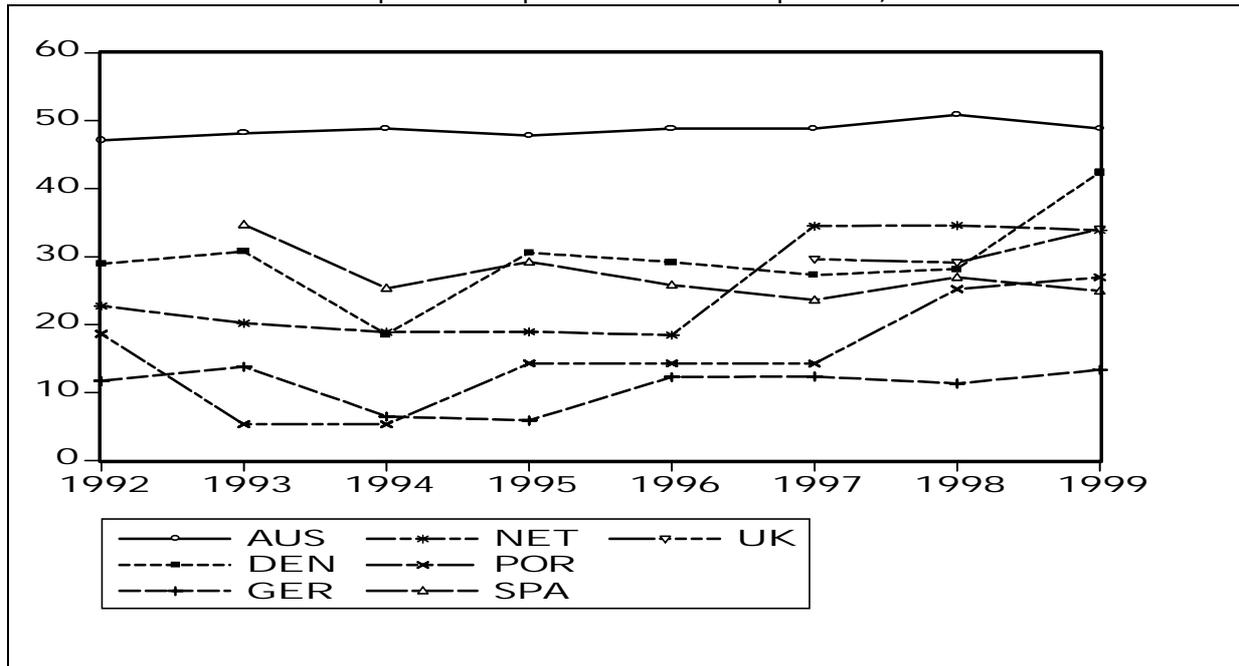
Figure 10: Foreign Insurance Share (Life) 1992 - 1999 (market share of foreign controlled companies on premium basis in percent)



Source: Own calculations, data obtained from OECD, *Insurance Statistics Yearbook*

In addition, figure 11 shows the *Foreign Insurance Share (Non-Life)* which represents a measure of foreign market penetration in the sector for non-life insurance products also on a gross premium basis.

Figure 11: Foreign Insurance Share (Non-Life) 1992 - 1999 (market share of foreign controlled companies on premium basis in percent)



Source: Own calculations, data source is OECD, *Insurance Statistics Yearbook*

Obviously, the foreign market share is higher in the sector for non-life insurance products than in the life-insurance markets. Perhaps this can be attributed to a lower degree of consumer sensitivity in this product category. Anyhow, the cross-country differences in the foreign market penetration in the sector for non-life insurance products are as distinctive as in life-insurance markets.

With regard to the varying foreign penetration shares we can summarise that the picture of integration in the European markets for financial services which can be drawn from indicators in the banking and insurance sectors is not very precise. Substantial differences can be observed for different countries and different integration indicators. Some countries like Austria show a substantially integrated insurance market, whereas the Austrian banking market can be considered as being almost closed. In contrast, Germany, which exhibits a relatively high ratio of foreign applications for banking licences in 1998, can be regarded as a relatively closed economy concerning its foreign insurance penetration ratio. Hence, despite substantial qualifications regarding the significance of the underlying data and the restriction to foreign penetration measures - which, for example, does not reflect the increasing relevance of e-banking or capture integration in the investment funds business - we can conclude that the extent to which financial markets in Europe are integrated is far away from reflecting a "Single Market for Financial Services".

### 3.3. The Financial Services Action Plan

The illustration of the development of the market share of foreign controlled companies has revealed substantial differences in the extent to which European economies are integrated. Furthermore, it was found that some countries may even be characterised as "closed economies" concerning their financial markets. Nevertheless, the potential loss of possible growth and employment benefits of a lagging European integration in the market for financial service products was widely recognised by the European authorities. The Final Report on the Regulation of European Securities Markets from the Committee of Wise Men chaired by Alexandre Lamfalussy is an essential contribution to necessary reforms of the regulatory framework for European financial markets. The LAMFALUSSY report (2001) identifies the legal framework for cross-border activities and the degree of implementation of existing European laws as main obstacles.<sup>25</sup> A series of policy objectives and specific measures to improve the framework for a functioning single market for financial services was outlined in the Financial Services Action Plan ratified by the European Council of Ministers in 1999 and adopted by the European Commission. In the following, selective elements of this important instrument to remove remaining policy induced obstacles to cross-border financial activities are briefly discussed.

In particular the Financial Services Action Plan suggests priorities and time-scales for legislative and other measures. Its primary aims lie in five imperatives: endowment of the EU with a legislative apparatus capable of responding to new regulatory challenges; elimination of any remaining capital market fragmentation; improvement of the possibilities for users and suppliers of financial services to exploit the opportunities offered by a single market, while simultaneously ensuring consumer protection; encouragement of a closer co-ordination of supervisory institutions; development of a European infrastructure to reduce the costs of retail and wholesale financial transactions.<sup>26</sup>

The Financial Services Action Plan consists mainly of three strategic objectives: ensuring a single market for wholesale financial services, open and secure retail markets and state-of-the-art prudential rules and supervision. The contents of these strategies are summarised in the table 1.

---

<sup>25</sup> The Committee was set up in a joint initiative of the French Presidency and the European Commission. For the full text see LAMFALUSSY Report (2001).

<sup>26</sup> See EUROPEAN COMMISSION (1999)

Table 1: Strategic objectives of the Financial Services Action Plan

<b>Single EU wholesale market</b>	<ul style="list-style-type: none"> <li>- Single passport for recognised stock markets</li> <li>- Modernisation of admission to listing</li> <li>- Single prospectus for issuers</li> <li>- Adoption of international accounting standards</li> <li>- Adopting a Directive on Cross-border Use of Collaterals</li> <li>- Home country control for all wholesale markets</li> <li>- Definition of professional investors</li> <li>- Issuing a Commission Communication on Upgrading the Investment Services Directive</li> <li>- Issuing a Commission Communication on the Application of Conduct of Business Rules Under Art. 11 of the ISD</li> <li>- Modernisation of investment rules for supplementary pension funds</li> <li>- Adopting the Directive on the Prudential Supervision of Supplementary Pension Funds</li> <li>- Adopting the two Directives on UCITS</li> <li>- Adopting the proposed Directive on Take Over Bids</li> <li>- Adopting the European Company Statute</li> </ul>
<b>Open, secure retail markets</b>	<ul style="list-style-type: none"> <li>- Issuing a Commission Communication on E-commerce Policy for Financial Services</li> <li>- Adopting the Directive on Distance Marketing of Financial Services</li> </ul>
<b>Sound prudential rules</b>	<ul style="list-style-type: none"> <li>- Creation of a Securities Committee</li> <li>- Adopting a Directive on Prudential Rules for Financial Conglomerates</li> <li>- Adopting a Directive Governing the Capital Framework for Banks and Investment Firms</li> <li>- Adopting a Directive on Market Manipulation</li> <li>- Adopting the Directive on the Reorganisation and Winding-up of Insurance Undertakings</li> <li>- Adopting the Directive on the Winding-up and Liquidation of Banks</li> <li>- Adopting the Amendments to the Money Laundering Directive</li> </ul>

Source: EUROPEAN COMMISSION (2000, 2001), own presentation

By establishing the Financial Services Action Plan the European Commission and the Council of Ministers have created a valuable instrument to demonstrate a further removal of cross-border barriers to European banking and insurance institutions by identifying main obstacles to the integration of financial markets and making serious suggestions as to how to overcome them. Hence, the Financial Services Action Plan can be seen as a significant step towards faster and deeper European financial integration. Nevertheless, financial companies should be aware of time lags when implementing the strategic objectives into Community law. The analysis of previous banking and insurance directives in the last section has shown that these time lags might be considerable. Furthermore, some major policy induced obstacles to cross-border financial activities are not included in the Financial Services Action Plan to a sufficient extent. For instance, the rising relevance of private pension funds in Europe requires a functioning legal framework that goes beyond the attempts shown in table 1. There might be other serious problems such as differing principles of national supervisory authorities, accounting standards, European company law, consumer protection and personal bankruptcy law. We will not analyse these remaining obstacles and their determinants in detail. However, in the next section we will attempt to assess from a

macroeconomic perspective to which extent the removal of cross-border barriers resulting in an increased foreign market penetration in banking and insurance markets affects growth paths and labour markets of the European economies.

## 4. Empirical Evaluation

In section 2 we have shown in a simple endogenous growth model that financial development and financial integration undoubtedly enhances economic growth. Advances in deregulating the European financial services sectors were outlined in a historical perspective, supplemented with empirical evidence for the degree of effective integration in the banking and insurance markets in the last section. We then argued that the reduction of the remaining substantial obstacles to a functioning single market for financial services was extensively addressed in the Financial Services Action Plan of the European Commission. In this chapter the theoretical perceptions will be combined with the empirical evidence. We will attempt to give an assessment of the potential welfare gains in terms of a rise in growth rates and a reduction of unemployment rates the European economies will potentially experience when they implement an improved climate for cross-border activities in the financial sector.

### 4.1. Definition of variables and estimation approach

The analysis of the EU member states is based on a three-step approach to quantify growth and employment benefits of financial integration. In a first step we try to control for the growth effects of financial development. To this end, we estimate a growth equation with typical "growth determinants" and different indicators of financial market development on the right hand side.<sup>27</sup> We employ a panel-data approach for the time series/cross-country data of the EU member states, with the exception of Luxembourg, for the years 1960 to 1999. A fixed and random effect technique is utilised to permit differences in the country-specific regression constants. Under the neoclassical growth theory these constants represent the rate of total factor productivity growth and include institutional characteristics. In the context of this paper we argue that these country characteristics capture the extent to which financial markets are integrated as well as obstacles to financial integration due to national regulations.<sup>28</sup>

---

<sup>27</sup> In the first step we regress the growth rate on different indicators of financial market development for two reasons. First, it is necessary to control for monetary variables other than financial market integration. Second, in our approach we need to "produce" country-specific constants, which will be applied in the second estimation step. See OLSON ET AL. (2000) for an equivalent approach.

<sup>28</sup> It is important to mention that we do not try to examine the growth model of chapter 2 literally. Although the main elements are implemented, we do not estimate the structural equation resulting from the theoretical analysis.

We refer to the growth of real per capita GDP and the unemployment rate respectively as welfare indicators. The indicators we use are primarily obtained from WORLD BANK databases, namely from the *World Development Indicators* and from a new database, forming the basis of the WORLD BANK project *Finance for Growth*, which comprises a considerable amount of valuable financial indicators. In the data pool all economies of the European Union except Luxembourg are included.

In the first step we follow a conventional econometric approach in which we define the yearly growth rate of real GDP per capita (GRWTH) as the dependent variable and test the explanatory power of some indicators of financial development. GDP per capita is based on purchasing power parities. The share of gross domestic investment in GDP (INVEST) is used as (traditional) control variable. Furthermore, the rate of population growth (POP) is included as an additional control variable.

In the first step the variable of interest is financial market development in terms of growth effects.<sup>29</sup> To control for the different transmission channels, the extent to which the financial market is developed is divided into the three sub-categories size, structure and efficiency. As defined above, size indicators include mainly information about the depth of financial intermediation. By applying structural indicators it is possible to obtain information about the allocation of resources and the relevance of different financial institutions of a country, e.g. the impact of private and state-owned banks. Efficiency indicators are used to record the level of transaction cost, the degree of information asymmetries and especially the competition environment. Every category of financial development is measured separately for the banking and insurance sector by applying one of the suitable indicators listed in table 2.

Table 2: Indicators of Financial Development

Indicator	Banking Sector	Insurance Sector
Size	BANKS	LIP
Structure	CREDIT	LIS
Efficiency	CONCEN	PREMIUM

The size of the banking sector is typically measured with the indicator *Deposit Money Bank Assets to GDP* (BANKS). The assets of deposit money banks include claims on the entire non-financial real sector relative to GDP. The size of the insurance sector

---

<sup>29</sup> In the literature on finance and growth there is an extensive discussion whether the financial market development influences the real sector, i.e. the growth rate, or the other way around (see LEVINE, 1997). Even for the analysis here the direction of causality is not clear. The evidence of various tests for *Granger causality* with different indicators of financial development is not very clear-cut.

can be measured with the indicator *Life Insurance Penetration* (LIP) which includes the volume of direct premiums of commercially active insurers written in the domestic life insurance sector relative to GDP. There is no distinction between the companies in state or private ownership and between management by domestic or foreign insurers. LIP represents the relative importance of the insurance industry in the domestic economy.<sup>30</sup>

The structure of the banking sector is measured with *Private Credit by Deposit Money Banks to all Domestic Credit* (CREDIT) and, for the insurance sector, with the *Life Insurance Share* (LIS) indicator. CREDIT includes the ratio of claims on the private sector by deposit money banks opposed to all domestic credits which include also credits issued to governments and public enterprises.<sup>31</sup> LIS is defined as the ratio of gross life insurance premiums to total gross premiums of an economy. Hence, LIS reveals information about the relative importance of life insurance as compared to non-life insurance.<sup>32</sup>

Finally, efficiency in the financial sector is measured with the indicators *Concentration in the Banking Sector* (CONCEN) and *Direct Total Gross Premiums per Employees in the Insurance Sector* (PREMIUM).<sup>33</sup> The banking indicator reveals information about the competition environment in the banking market as it is defined as the ratio of the three largest banks' assets to total banking sector assets. The insurance indicator PREMIUM measures the relative efficiency of a national insurance industry. It is calculated by dividing the direct gross premiums by the number of employees in insurance companies. PREMIUM can be interpreted as a measure of efficiency as well as an indicator of competition in the insurance products sector.

After the estimation of the growth impact of financial market development, we can extract the country-specific regression constants to use them, in the second step, as dependent variable. To estimate the extent to which European financial integration has influenced total factor productivity growth we utilise a simple cross-country regression approach in this second step. Here we estimate, analogously to the first step, a number of equations with different financial integration indicators and control variables on the right-hand side. The integration of the banking products market is measured with *Foreign Bank Share* on the pure number and in terms of assets illustrated in chapter 3. The integration of the insurance products market is measured with *Foreign Insurance Share* for life and non-life business, both on the premium basis. Based on

---

<sup>30</sup> Both indicators are taken from WORLD BANK (2001).

<sup>31</sup> CREDIT is obtained from IMF (2000), *International Financial Statistics*, series 32d/(series 32a,...,f).

<sup>32</sup> LIS is obtained from various issues of the OECD *Insurance Statistics Yearbook*.

<sup>33</sup> CONCEN is taken from WORLD BANK (2001). PREMIUM is obtained from various issues of the OECD *Insurance Statistics Yearbook*.

the regression results of the second step we are able to calculate the growth bonus that deeper European financial integration will generate analogously to the CECCHINI Report.

In a third step the analysis of the macroeconomic growth effects is supplemented with an analysis of the link between financial integration and employment. To assess the potential benefits of fostered financial integration we estimate country-specific OKUN coefficients, which provide information about the growth rate a country needs to reduce unemployment.

## 4.2. Estimation results

### 4.2.1. Growth bonus of financial market integration

The results of ADF-Tests reveal that all financial development time series exhibit the property of one unit root, we thus use the growth rate of BANKS, CREDIT and CONCEN, and the growth rate of LIP, LIS and PREMIUM, respectively. Table 3 shows the estimation results for the different financial indicators and the two control variables.<sup>34</sup>

With regard to the traditional variables, only the share of investment in GDP is identified as a significant "determinant of economic growth". In all six regressions the coefficient of INVEST shows the expected sign at a high level of significance. The sign of the coefficient for population growth differs from the theoretical prediction in regression 1 and 2, albeit only insignificantly. In all the other regressions POP is significant and shows the expected negative sign.

There is no clear-cut empirical evidence for the financial indicators. In particular, the coefficient for the BANKS indicator and the penetration variable for insurance products (LIP) show an unexpected significant negative sign. CONCEN shows the expected negative sign but this is insignificant even at the 10% level. All the other financial variables are highly significant and show the expected sign. Therefore, a high growth of credits granted to the private sector relative to the growth of all domestic credit (CREDIT) generates a high growth rate of real GDP per capita. This result is also true for the growth of the ratio of life insurance premiums (LIS) and the growth of premiums per employee in the insurance sector (PREMIUM).

---

<sup>34</sup> POP and INVEST are considered as usual in natural logarithms. We compute WHITE heteroskedasticity-consistent standard errors and covariance and use cross section weights, i.e. cross section heteroskedasticity is also controlled for by using a GLS estimation technique.

Table 3: Estimation results financial development and growth

	<i>Reg1</i>	<i>Reg2</i>	<i>Reg3</i>	<i>Reg4</i>	<i>Reg5</i>	<i>Reg6</i>
INVEST	0.06604*** (9.70)	0.05677*** (7.97)	0.05691*** (2.96)	0.05950*** (4.49)	0.11713*** (4.88)	0.09845** (2.33)
POP	0.00029 (0.24)	0.00096 (0.79)	-0.00922*** (-5.82)	-0.00455** (-2.50)	-0.01290*** (-6.21)	-0.01298*** (-6.04)
<b>Banking</b>						
BANKS	-0.03948*** (-2.92)					
CREDIT		0.08631*** (3.99)				
CONCEN			-0.00032 (-0.05)			
<b>Insurance</b>						
LIP				-0.01753* (-1.86)		
LIS					0.03020** (2.51)	
PREMIUM						0.02374** (2.21)
F-statistic	89.17***	87.69***	26.44***	23.30***	35.69***	25.20***
$\bar{R}^2$	0.26	0.26	0.28	0.21	0.40	0.38
Sample	1961 - 1997	1961 - 1997	1991 - 1997	1988 - 1996	1992 - 1997	1992 - 1997
Obs.	463	455	94	118	83	62
Note: Growth of real GDP per capita (GRWTH) is the dependent variable in all regressions . t-statistics are displayed below the coefficients in parenthesis. Statistical significance at the 10%, 5% and 1% confidence level is indicated with *, **, and ***.						

The estimation results of table 3 reveal a weak verification for theoretical approaches, which confirms that the structure of the financial sector is meaningful for the development in the real sector. The pure size of the financial sector can not be called a "determinant of economic growth", here the indicators BANKS and LIP are even negative. For the efficiency of the financial sector a positive connection between both the insurance and banking indicator and the overall growth rate can be identified. In the banking sector an increase in competition (a reduction of CONCEN) corresponds to an increase in the growth rate of GDP per capita, albeit only insignificantly. An increase in PREMIUM corresponds to an increase in the GDP growth rate, a result that is counterintuitive when a rise in the premiums per employee in the insurance sector is interpreted as an indication of reduced competition in the insurance sector.<sup>35</sup> In contrast, the growth of the ratio of domestic credit to the private sector proportional to all domestic credits (CREDIT), which measures the structure of the financial sector, is connected with a positive growth rate. This positive influence of the financial structure, also holds true for the growth of the life insurance share (LIS).

35

Due to data limitations UK is dropped from *Reg6*.

However, the estimation results in table 3 should not be read without considerable reservations. First, in *Reg1* the coefficient of *BANKS* does not show the correct sign. Second, the regressions for the insurance indicators (*Reg4*, *Reg5* and *Reg6*) cover only a very short time period due to data limitations. This restriction is also valid for *Reg3* using the concentration indicator in the banking sector as explanatory variable. Ultimately, only the second regression (*Reg2*) provides enough observations over a relatively long time span, a correct and significant sign of the financial indicator as well as an acceptable explanatory power to mirror the connection between financial development and economic growth.<sup>36</sup> Hence, we will use the result of this growth equation for the further analysis of the impact of financial integration.

But before we start with the empirical evaluation of the potential growth effects of a deeper European financial integration, we re-estimate *Reg2* with an alternative assumption for the country-specific effects to ensure our panel data results. The assumption that the country-specific effects are fixed has some intuitive appeal because it implies that these effects are correlated with the other explanatory variables. However, the use of fixed effects become inappropriate when this assumption actually does not hold true. Particularly under these conditions the fixed-effect estimator is no longer efficient and a random coefficient model should be applied. We use the DURBIN-WU-HAUSMAN-test to decide which alternative should be used.<sup>37</sup> The test is based on the null hypothesis that there is no difference between the random effects and the fixed effects estimator. Here the value of the test-statistic is -4.23. Compared with the critical value of the relevant chi-squared table with three degrees of freedom (7.81), it is clear that the null hypothesis that there is no difference between the two estimators can not be revised at a significance level of 5%. Therefore, we use the specification of *Reg2* with country-specific random effects, which we define as dependent variable in the following analysis. According to neoclassical growth theory these country-specific effects measure the different growth rates of total factor productivity, which drives the income path of a country in the long-run. The country-specific effects are influenced by institutional infrastructure and other country characteristics, one of them being the degree of financial integration.

Since the country specific effects of the first regression are defined as the dependent variable in the second step, a simple cross-section OLS-approach for the period 1990-97 is applied, which is the longest time span for which the relevant financial data is available. The indicators that measure the extent to which financial markets are integrated correspond to the descriptive view of section 3. Table 4 shows the esti-

---

<sup>36</sup> It is worth mentioning that the magnitude of *CREDIT* seems quite high: an increase in the growth rate of *CREDIT* of one percentage point would increase the growth rate of real per capita GDP by 8.6 percentage points. Nevertheless, this seems reasonable because the annual growth rate of the ratio of domestic credit to the private sector proportional to all domestic credit amounts on average to 0.04% for the European economies .

<sup>37</sup> See GREENE (2000), pp 576.

mation results for different financial integration indicators, namely the Foreign Bank Share in terms of numbers (FBS\_NUMBER) and in terms of assets (FBS\_ASSETS). Furthermore, the Foreign Insurance Share for life insurance business (FIS\_LIFE) and for non-life business (FIS\_NONLIFE), both on a premium basis, are considered. Based on DE GREGORIO (1999) the average inflation rate (INFL) and the average annual sum of exports and imports of goods and services as percentage of GDP (TRADE), both for the period 1990 – 1997, are included as control variables.<sup>38</sup>

Table 4: Estimation results of financial integration and total factor productivity growth

	<i>Reg7</i>	<i>Reg8</i>	<i>Reg9</i>	<i>Reg10</i>
Const.	-0.00446 (-1.73)	-0.00417* (-1.93)	0.00188 (1.056)	0.00124 (0.65)
INFL	0.03234 (1.24)	0.03669 (1.66)	0.01192 (0.45)	0.01578 (.556)
TRADE	0.00141 (0.45)	0.00209 (0.92)	-0.00685** (-2.84)	-0.00669** (-2.63)
<b>Banking</b>				
FBS_NUMBER	0.00856 (1.35)			
FBS_ASSETS		0.01689** (2.48)		
<b>Insurance</b>				
FIS_LIFE			0.00675 (1.71)	
FIS_NONLIFE				0.00543 (1.61)
F-statistic	1.50	3.30*	3.14	2.75
$\bar{R}^2$	0.11	0.37	0.42	0.40
Obs.	13	13	10	9
Note: The country-specific effect of the re-estimated <i>Reg2</i> is the dependent variable in all regressions. t-statistics are displayed below the coefficients in parenthesis. Statistical significance at the 10%, 5% and 1% confidence level is indicated with *, **, and *** respectively.				

As the estimation results in table 4 reveal, there is no clear evidence in favour of a link between insurance sector integration and growth. The indicator of the foreign market share in life insurance markets (FIS\_LIFE) is insignificant as is the indicator of the foreign market share in non-life insurance markets (FIS\_NONLIFE). Deeper integration in the banking sector has no significant influence on the country-specific effect when it is measured solely with the pure number of foreign banks (FBS\_NUMBER). In contrast, a high foreign bank share is correlated with a high country-specific productivity effect, when these foreign banks have a significant weight in the domestic banking

<sup>38</sup> INFL is based on the average annual changes in consumer prices with the base year 1995 and is taken from IMF (2000), *International Financial Statistics*, series 64X. TRADE measures total trade in percent of GDP and is obtained from the WORLD BANK (2000).

market. This weight of foreign market penetration can be measured in terms of the share of assets they own relative to the overall size of the domestic banking market (FBS\_ASSETS).

Since the dependent variable reflects the country-specific growth rate of total factor productivity, which drives (additionally to investment in the capital stock and population growth) the growth rate of GDP per capita, it becomes clear that an increase in the foreign market penetration rises the overall growth rate. In particular, a one percent rise of the ratio of bank assets owned by foreign companies adds a "growth bonus" of 1.7 percentage points to the overall growth rate of the European economies. This growth bonus corresponds almost to the growth bonus the CECCHINI Report attributed to financial market integration. It is worth mentioning that the magnitude of the growth bonus seems quite high. For some countries, however, a one percent increase of its foreign bank share already represents a fundamental alteration in the market structure. Italy, for example, exhibited between 1990 and 1997 an average foreign bank share of only 0.09% in terms of assets.<sup>39</sup> After all, the growth bonus should not be taken too literally, because due to a significant correlation between different integration indicators one can think of the growth bonus as a reaction more to a comprehensive rise in the presence of foreign financial companies than solely to an increase in the share of foreign bank assets.

Indeed, this is not the whole story, because country-specific growth rates of total factor productivity have been determined above. As a consequence, the growth bonus is conditional on differences in other institutional characteristics captured by the country-specific effects. Since all the considered countries show different long-run growth rates of total factor productivity, a positive effect of fostered financial integration alters the long-run growth rates for all economies in the same magnitude of 1.7%, but it can not alter the long-run differences *between* the European economies. Every economy profits of a deeper European integration regarding GDP growth, but some will profit more than others due to a good institutional infrastructure and other country characteristics that are also included in the country-specific effects.<sup>40</sup> One reason for these differences can be seen in differences in the ability to transform enhanced financial efficiency into broad macroeconomic efficiency due to variances in the degree of market regulations.

---

<sup>39</sup> Obviously, the overall average of the foreign bank share 7.8% is dominated by high foreign bank shares in Ireland and the United Kingdom. The overall (unweighted) average growth rate of the foreign bank share in Europe between 1990 and 1997 amounts to 1.7%, which corresponds exactly to the growth bonus.

<sup>40</sup> The country-specific productivity growth rates *after* integration are specified in table 6 together with the estimation results for the unemployment bonus.

#### 4.2.2. Employment bonus of financial market integration

Complementary to the welfare effects in terms of a shift in the real GDP growth rate we attempt to identify labour market effects of European financial integration. Hence, we will give an assessment of country-specific relationships between the output growth rate and changes in the unemployment rate in the following. The analysis is based on a modified version of the famous OKUN´s law. This law can be interpreted in a way that an increase in the output growth rate that lies above an unemployment threshold ("normal" rate of production growth) reduces the unemployment rate.<sup>41</sup> We estimate country-specific equations of the yearly change in the unemployment rate ( $\Delta\text{UNEMPL}_{it}$ ) with the GDP growth rate (GRWTH) of the former analysis as explanatory variable and  $c$  as the regression constant.<sup>42</sup> Formally the estimation approach can be written as:

$$(4.1) \quad \Delta\text{UNEMPL}_{it} = \text{UNEMPL}_{it} - \text{UNEMPL}_{i,t-1} = c + \beta_i \text{GRWTH}_{it} + \varepsilon_{it}.$$

The *country specific* coefficients of the growth rate  $\beta_i$  in (4.1) are assumed to be constant in time and expected to have a negative sign. The regression constants  $c_i$  are used to calculate the unemployment threshold under the assumption of no change in the unemployment rate as  $(-c_i / \beta_i)$ . Obviously, an economy must attain a GDP growth rate that lies above its normal rate to reduce the actual unemployment rate.<sup>43</sup> For the US the short-run "OKUN coefficient"  $\beta$  has a magnitude of approximately -0.3, which means that a GDP growth rate that lies one percentage point above the normal rate reduces the unemployment rate in an order of 0.3 percentage points.

To control for positive autocorrelation in time (persistence of unemployment) we include the lagged endogenous variable as a further variable on the right-hand side

---

<sup>41</sup> The original work is based on OKUN (1962). Here we do not undertake a serious analysis of the employment growth nexus, but understand it as a macroeconomic rule of thumb. For a recent survey and new econometric results see DÖPKE (2001). Further discussion and estimations for different country samples can be found in LEE (2000) and PADALINO/VIVARELLE (1997).

<sup>42</sup> The unemployment rate UNEMPL measures the share of the labour force of a country that is without work, but available for and seeking employment. Definitions of labour force and unemployment differ by country. The data is taken from OECD (2000) *Statistical Compendium*, General Economic Problems, OECD Economic Outlook, country-specific series. GRWTH measures per capita GDP growth, defined as before. We use the growth rate of real GDP *per capita* as proxy for output growth, which implies a variation from approaches using the pure *output* growth rate. Since the growth rate of per capita GDP results from the difference between GDP growth and the growth rate of the population this will not be a serious problem.

<sup>43</sup> For the normal rate it is assumed that it includes the sum of productivity growth and growth of the labour force.

of equation (4.1).<sup>44</sup> This method has the additional advantage that it provides long-run Okun coefficients. The equation to be estimated can thus be written as:

$$(4.2) \quad \Delta \text{UNEMPL}_{it} = c + \beta_i \text{GRWTH}_{it} + \gamma_i (\Delta \text{UNEMPL}_{i,t-1}) + \varepsilon_{it}.$$

The coefficient of the lagged endogenous variable can be used to calculate the long-run Okun-coefficients according to  $\beta_i / (1 - \gamma_i)$ .<sup>45</sup>

Table 5: Estimation results for Okun's law in the EU member states

	C	GRWTH	$\Delta(\text{UNEMPL}(-1))$
Austria	0.29*** (3.99)	-0.07*** (-3.47)	0.14 (1.12)
Belgium	0.47*** (4.24)	-0.14*** (-4.78)	0.52*** (6.71)
Denmark	0.80*** (6.56)	-0.31*** (-9.29)	0.39*** (5.42)
Finland	0.98*** (8.07)	-0.29*** (-11.56)	0.41*** (7.58)
France	0.56*** (4.63)	-0.14*** (-3.68)	0.17 (1.49)
Germany	0.69*** (6.72)	-0.21*** (-7.32)	0.28*** (3.44)
Greece	0.20 (1.60)	-0.04* (-1.73)	0.57*** (5.00)
Ireland	0.94*** (3.89)	-0.22*** (-4.78)	0.13 (1.20)
Italy	0.37*** (3.32)	-0.10*** (-3.32)	0.58*** (4.96)
Netherlands	0.67*** (4.30)	-0.32*** (-5.38)	0.57*** (6.42)
Portugal	0.39** (2.38)	-0.09*** (-3.24)	0.52*** (4.75)
Spain	0.67*** (3.12)	-0.17*** (-3.86)	0.62*** (7.75)
Sweden	0.51*** (4.93)	-0.21*** (-6.68)	0.27*** (3.22)
United Kingdom	0.81*** (7.69)	-0.37*** (-10.24)	0.51*** (7.85)
Method: Seemingly Unrelated Regressions			
Sample: 1962 1999; total panel (unbalanced) observations: 512			
Adjusted R-squared: 0.59.			
Note: $\Delta \text{UNEMPL}_{it}$ is the dependent variable. t-statistics are displayed below the coefficients in parenthesis. Statistical significance at the 10%, 5% and 1% confidence level is indicated with *, **, and ***.			

<sup>44</sup> See GORDON (1984) for this approach.

<sup>45</sup> See SCHALK/UNTIEDT (2000).

The results of a SUR estimation of equation (4.2) are shown in table 5.<sup>46</sup> With regard to the summary statistics the adjusted  $R^2$  implies a satisfying explanatory power of the model. Except for Greece all short-run OKUN-coefficients of the GDP growth rate (GRWTH) are highly significant and show the expected negative sign. Therefore, an increase in the GDP growth rate *above* the normal rate results in a reduction of the actual unemployment rate in comparison to the previous period.<sup>47</sup> The country-specific regression constants, which determine the unemployment threshold imply differences in the ability to transform GDP growth into a reduction of unemployment. All constants are statistically significant (except Greece), the normal rates of GDP growth can thus be calculated with the assumption  $\Delta\text{UNEMPL}_{it} = 0$ . The lagged endogenous variables also show the expected positive sign and are all statistically significant with the exception of Austria, France and Ireland. Hence, this allows us to calculate the long-run OKUN-coefficients for the EU member states .<sup>48</sup>

In Denmark, for instance, an increase in the growth rate above the normal rate of 2.6% of one percentage point leads to a decline of the unemployment rate in an order of 0.3 percentage points in the short-run and in an order of 0.5 percentage points in the long-run. The average dimension of the short-run "Okun coefficient" (0.19) is smaller than the coefficient for the US (0.3) which might be explained with relatively extensive labour market regulations in some EU member states.

Indeed, the estimation of the country-specific short-run and long-run OKUN-coefficients serves only as a preliminary finding for the analysis of the employment impact of financial integration. With the Okun coefficients we have a useful indicator at hand to quantify the welfare gains of a further reduction of European cross-border financial barriers in terms of a reduction in the unemployment rate. With the use of the country-specific GDP growth effects that we have determined above, we can calculate the country-specific unemployment effects of further integration and quantify the *employment intensity* of the growth bonus.

In table 6 we bring our main results together. First, the country-specific constants obtained from the most suitable growth regression (*Reg2*) are displayed. They denote the country-specific growth in total factor productivity and exhibit an identical shift due to a change in the degree of financial market integration. In particular, all growth rates of total factor productivity include the overall growth bonus of 1.7 per-

---

<sup>46</sup> We use the method of Seemingly Unrelated Regressions (SUR) to take both cross-section heteroskedasticity and contemporaneous correlation into account. We can thus control for macroeconomic shocks that influence the unemployment rates of the European economies in a same manner.

<sup>47</sup> We do not control for possible structural breaks due to oil price shocks, the unification shock in Germany etc. Furthermore, we do not include lagged values of the GDP growth rate as additional regressors. See LÜSCHOW/SCHALK/UNTIEDT (1997) for an alternative approach that includes these special features.

<sup>48</sup> See table 6 for the computation of the normal rates and the long-run OKUN coefficients.

centage points. As a consequence, the first column displays the differences in transforming the overall growth bonus into national shifts of the growth path. Second, the table includes the country-specific normal rates of growth as well as the short and long-run OKUN-coefficients, which are all calculated on the basis of the estimation results obtained from table 5. Third, we compute the country-specific short- and long-run unemployment bonus due to fostered financial market integration.

Table 6: Growth and unemployment bonus of financial market integration

	Productivity Growth	Normal rate	Short-run OKUN-coefficient	Long-run OKUN-coefficient	Short-run Unemployment Bonus	Long-run Unemployment Bonus
Austria	1.54	4.20	-0.07	-0.08	-0.12	-0.14
Belgium	1.85	3.44	-0.14	-0.28	-0.23	-0.47
Denmark	1.42	2.58	-0.31	-0.51	-0.52	-0.86
Finland	1.46	3.34	-0.29	-0.50	-0.50	-0.84
France	1.62	4.10	-0.14	-0.17	-0.23	-0.28
Germany	1.57	3.32	-0.21	-0.29	-0.35	-0.49
Greece	1.96	4.69	-0.04	-0.10	-0.07	-0.17
Ireland	2.35	4.27	-0.22	-0.25	-0.37	-0.43
Italy	1.71	3.64	-0.10	-0.24	-0.17	-0.40
Netherlands	1.45	2.08	-0.32	-0.76	-0.54	-1.28
Portugal	1.44	4.22	-0.09	-0.19	-0.16	-0.33
Spain	1.90	3.98	-0.17	-0.44	-0.28	-0.74
Sweden	1.61	2.40	-0.21	-0.30	-0.36	-0.50
UK	1.75	2.20	-0.37	-0.75	-0.62	-1.26

Notes: Productivity growth includes the sum of the random effects of the re-estimated *Reg2* and the growth bonus. The normal rates are calculated dividing the constants by the GRWTH-coefficients obtained from table 5. The short-run OKUN-coefficients are equivalent to the GRWTH-coefficients in table 5. The long-run OKUN-coefficients are calculated according to  $\beta_i / (1 - \gamma_i)$ . The country-specific short and long-run unemployment bonus is calculated by multiplying the relevant, country-specific OKUN-coefficient with the growth bonus, which is 1.689 percentage points for every economy.

The results of table 6 reveal a very differentiated picture of the changes in the EU economies due to deeper integration of financial markets. Although the overall growth bonus of an increased foreign bank share is of the same magnitude everywhere in Europe, some economies like Greece or Ireland are in a better position to transform it into a high national total factor productivity growth, because they would experience a positive long-run growth even without deeper financial integration. Other economies like Denmark or Portugal "need" the growth bonus to compensate for a negative growth rate of total factor productivity they would experience without further financial integration.

Concerning the benefits of financial integration in terms of a reduction in unemployment, we can observe substantial differences as well. There are considerable variances in the possibilities to reduce the unemployment rate. On the one hand, some economies like Austria will be able to benefit only to a small extent. In Austria a rise

in the foreign bank share of one percentage point causes a short-run unemployment bonus of -0.12 percentage points. Even in the long-run there will be an unemployment bonus of only -0.14 percentage points. On the other hand, the United Kingdom exhibits an unemployment bonus of -0.62 percentage points in the short-run and of -1.26 percentage points in the long-run. These are substantial differences. Hence, differences in total factor productivity growth alone are not the only explanation. Rather, extensive variances in labour market conditions have to be considered as well.

Obviously, a one percent rise in the foreign bank share is not sufficient for any European country to reduce unemployment in the short- as well as in the long-run, unless it exhibits a growth rate *without integration* corresponding to its individual natural rates. This means, for instance, that Sweden will experience a reduction in the unemployment rate due to financial integration only if Sweden's growth bonus exceeds its natural rate, which is 2.4%.

To summarise, in this section we tried to assess to which extent the European economies would gain from a deeper integration in the markets for financial services products. We were particularly interested in the growth and employment benefits resulting from an increase in the foreign market shares in the banking and the insurance sector. In a first step we identified a significant influence of the domestic financial structure to be responsible for the growth of GDP per capita. Since in the long-run economic growth is driven by the growth of total factor productivity, we analysed in a second step to which extent differences in this growth rate can be contributed to financial market integration. Indeed, we observed a growth bonus of fostered foreign market penetration in the banking sector. Furthermore, we showed that a growth bonus can be transformed into an employment bonus, but not without considering substantial country-specific differences due to varying productivity growth rates and labour market conditions. Although we were not able to verify an important contribution of foreign insurance companies, this does not mean that they play a minor role in the further European integration process. We attribute this expectation primarily to measurement problems of foreign insurance companies.

Of course, the estimation results should not be read - as always - without reservations. In the first step only one of the six financial indicators was able to show a convincing correlation between the monetary and the real economic sector. In the second step, due to data limitations, financial market integration was only considered in a way that was strongly connected with foreign direct investment in the banking and insurance sector. Other strategies of financial integration were not analysed. For instance, we did not account for the increasing importance of e-banking, i.e. offering services on the Internet in different European economies, or for integration in the investment funds business. Furthermore, in the second step substantial econometric restrictions are required, because we only had a maximum of thirteen observations at hand in all four regressions.

## 5. Conclusions

The aim of this paper was to highlight some aspects of the growth and employment benefits the European economies will experience when integration in the markets for financial service products is spurred. We followed a theoretical as well as an empirical approach to make predictions about a growth and employment bonus.

In the growth model presented in section 2 we demonstrated that enhanced cross-border activities of banking and insurance companies increase the overall growth rate unambiguously when the amount of savings channelled into investment increases. Hence, it should be clear that without a functioning domestic market for financial service products, deeper integration will not result in higher growth rates for per capita income.

In section 3 major steps towards an integrated financial market in Europe were summarised and contrasted with the empirical evidence. On the one hand, it was shown that in the last 30 years substantial steps have been made to integrate the European financial markets. On the other hand, the descriptive analysis of foreign market penetration in banking and insurance markets already revealed the existence of remaining obstacles to cross-border businesses. The picture of integration in the European markets for financial services drawn from indicators of the banking and insurance sector was not very precise. Nevertheless, we concluded that the degree of integration in financial markets in Europe is far away from reflecting a "Single Market for Financial Services". Some attempts to abolish these obstacles are implemented in the Financial Services Action Plan adopted by the European Commission. This Action Plan outlines a series of policy objectives and specific measures to improve the framework for a functioning single market for financial services. In the Action Plan the European Commission formulates policy priorities and time-scales for legislative and other measures to push financial integration priorities. Therefore, the Financial Services Action Plan can be seen as a significant step towards faster and deeper European financial integration. Nevertheless, financial companies should be aware of time lags concerning the implementation of the strategic objectives into community law. Furthermore, some major obstacles to cross-border financial activities are not sufficiently included in the Financial Services Action Plan.

In our empirical evaluation we estimated in a first step typical growth equations with different indicators of financial market development on the right hand side. The results from these regressions reveal a significant positive correlation between the overall growth rate and the extent to which the financial market is developed measured by its structure. The evidence provided by the regression results of a correlation between financial market integration and total factor productivity growth in the second step is ambiguous. However, we identified a weak influence of foreign market

penetration in the sector for banking products. Hence, deeper financial integration generates a growth bonus. In the context of the theoretical examinations this growth bonus does not only mean a more rapid convergence speed to the steady-state ("neo-classical growth effect") but also a higher equilibrium growth rate in the long run ("endogenous growth effect").

In contrast to the results of the influential CECCHINI-Report we are able to distinguish between an "overall" growth bonus and country-specific differences to transform this growth bonus into a shift of total factor productivity growth. Hence, the long-run growth effect is conditional on differences in institutional characteristics captured by country-specific effects. As a possible explanation for these differences one might see remaining variances in the degree of national market regulations in the banking and insurance business. As a consequence, political activities should promote both the deregulation of national financial markets and the deregulation of cross-border financial activities to generate a positive growth bonus. The first recommendation aims at a deeper implementation of existing community laws into national legal frameworks. In addition, new European laws should be established on a supra-national level that abolish remaining obstacles to pan-European financial strategies and are better suited for enhanced world-wide competition in financial markets.

In a third step we supplemented the analysis of the macroeconomic growth effects with an analysis of the link between financial integration and unemployment. To assess the potential benefits of a fostered financial integration we estimate country-specific OKUN-coefficients, which provide information about the growth rate a country needs to attain to reduce unemployment. We showed that the growth bonus can be transformed into an employment bonus, but not without considering significant country-specific differences. These differences are substantial. Hence, differences in total factor productivity growth alone are not the only explanation, rather extensive variances in labour market conditions have to be considered as well. We showed that there must be a convincing increase in financial market integration to generate a growth bonus that can substantially reduce unemployment in the EU member states.

## References

- ATJE, R./B. JOVANOVIĆ (1993), *Stock Markets and Development*, European Economic Review 37, 632-640.
- BALESTRA, P. (1996), *Introduction to Linear Models For Panel Data*, in : MÁTYÁS, L./P. SEVESTRE: *The Econometrics of Panel Data*, Dordrecht, 25-33.
- BARRO, R. J./X SALA-I-MARTIN (1992a), *Convergence*, Journal of Political Economy 100 (2) 223-251.
- BARRO, R. J. (1998), *Determinants of Economic Growth – A Cross Country Empirical Study*, Cambridge (Mass.).
- BARTH, J. R./G. CAPRIO JR./R. LEVINE (2001a), *Bank Regulation and Supervision: What Works Best?*, World Bank Working Paper, Washington D.C., forthcoming.
- BARTH, J. R./G. CAPRIO JR./R. LEVINE (2001b), *The Regulation and Supervision of Banks Around the World*, World Bank Working Paper No. 2588, Washington D.C.
- BECK, T./A. DEMIRGÜÇ-KUNT/R. LEVINE (1999), *A New Database on Financial Development and Structure*, World Bank Working Paper No. 2146, Washington D.C.
- BECKMANN, R./EPPENDORFER, C./NEIMKE, M. (2002), *Financial Integration Within the European Union: Towards a Single Market for Insurance*, Ruhr-University Bochum.
- BENCIVENGA, V. R./B. D. SMITH (1991), *Financial Intermediation and Endogenous Growth*, Review of Economic Studies 58, 195-209.
- BERTHÉLEMY, J. C./A. VAROUDAKIS (1996a), *Economic Growth, Convergence Clubs, and the Role of Financial Development*, Oxford Economic Papers 48, 300-328.
- BERTHÉLEMY, J. C./A. VAROUDAKIS (1996b), *Models of Financial Development and Growth. A Survey of Recent Literature*, in: HERMES, N./R. LENSINK (ed.): *Financial Development and Economic Growth*, London, 7-43.
- BUCH, C. M. (2000), *Financial Market Integration in the US: Lessons for Europe?*, Kiel Working Paper No. 1004, Kiel.
- CLAESSENS, S./A. DEMIRGÜÇ-KUNT/H. HUIZINGA (1998), *How Does Foreign Entry Affect the Domestic Banking Market?*, World Bank Working Paper No. 1918, Washington D.C.
- DANTHINE, J.-P./F. GIAVAZZI/X. VIVES/E.-L. VON THADDEN (1999), *The Future of European Banking*, Centre for Economic Policy Research, London.
- DANTHINE, J.-P./F. GIAVAZZI/E.-L. VON THADDEN (2000), *European financial markets after EMU: A first assessment*, paper presented at the Bundesbank/BIS conference on "Recent Developments in Financial Systems and their Challenges for Economic Policy: a European Perspective", Frankfurt 28/29 September 2000.
- DE GREGORIO, J. (1996), *Borrowing Constraints, Human Capital Accumulation, and Growth*, Journal of Monetary Economics 37, 49-71.
- DE GREGORIO, J. (1999), *Financial Integration, Financial Development and Economic Growth*, Estudios de Economía 26 (2), 137-161.

- DEMIRGÜÇ-KUNT, A./R. LEVINE/H. G. MIN (1998), *Opening to Foreign Banks: Issues of Stability, Efficiency, and Growth*, World Bank, mimeo.
- DÖPKE, J. (2001), *The "Employment Intensity" of Growth in Europe*, Kiel Working Paper No. 1021, Kiel.
- EPPENDORFER, C./BECKMANN, R./NEIMKE, M. (2002): *Market Access Strategies in the EU Banking Sector - Obstacles and Benefits Towards an Integrated European Retail Market*, Ruhr-University Bochum.
- EU (2001a): <http://www.europa.eu.int/scadplus/leg/de/s08000.htm>, August 2001.
- EU (2001b): [http://www.europa.eu.int/eur-lex/de/lif/ind/de\\_analytical\\_index\\_06.htm](http://www.europa.eu.int/eur-lex/de/lif/ind/de_analytical_index_06.htm), August 2001.
- EUROPEAN COMMISSION (1999), *Financial Services: Implementing the Framework for Financial Markets: Action Plan*, Brussels, download: [http://europa.eu.int/comm/internal\\_market/en/finances/general/actionen.pdf](http://europa.eu.int/comm/internal_market/en/finances/general/actionen.pdf).
- EUROPEAN COMMISSION (2000), *Financial Services Priorities and Progress - Third Report*, Brussels, download: [http://europa.eu.int/comm/internal\\_market/en/finances/actionplan/progress3en.pdf](http://europa.eu.int/comm/internal_market/en/finances/actionplan/progress3en.pdf).
- EUROPEAN COMMISSION (2001), *Financial Services Political Challenges - Forth Report*, Brussels, download: [http://europa.eu.int/comm/internal\\_market/en/finances/actionplan/progress4en.pdf](http://europa.eu.int/comm/internal_market/en/finances/actionplan/progress4en.pdf).
- GOLDSMITH, R. W. (1969), *Financial Structure and Development*, New Haven.
- GORDON, R. J. (1984), *Unemployment and Potential Output in the 1980s*, Brookings Papers of Economic Activity, 537-564.
- GREENE, W. H. (2000), *Econometric Analysis*, Upper Saddle River, New Jersey.
- GREENWOOD, J./B. JOVANOVIC (1990), *Financial Development, Growth, and the Distribution of Income*, Journal of Political Economy 98, 1076-1107.
- GROSSMAN, G.M./E. HELPMAN (1991), *Innovation and Growth in the Global Economy*, Cambridge.
- HOLMSTRÖM, B./J. TIROLE (1997), *Financial Intermediation, Loanable Funds, and the Real Sector*, Quarterly Journal of Economics 112, 663-691.
- IMF (2000), *International Financial Statistics*, Washington D.C.
- JAPPELLI, T./M. PAGANO (1994), *Saving, Growth, and Liquidity Constraints*, Quarterly Journal of Economics 109, 83-109.
- JONES, L. E./R. E. MANUELLI (1990), *A Convex Model of Equilibrium Growth: Theory and Policy Implications*, Journal of Political Economy 98 (5), 1008-1038.
- KING, R.G./R. LEVINE (1992), *Financial Indicators and Growth in a Cross Section of Countries*, World Bank Working Paper No. 819, Washington D.C.
- KING, R.G./R. LEVINE (1993a), *Finance and Growth. Schumpeter Might Be Right*, Quarterly Journal of Economics 108, 717-738.

- KING, R.G./R. LEVINE (1993b), *Finance, Entrepreneurship and Growth. Theory and Evidence*, Journal of Monetary Economics 32, 513-542.
- LAMFALUSSY Report (2001), *Final Report of the Committee of Wise Men on the Regulation of European Securities Markets*, Brussels, download: [http://europa.eu.int/comm/internal\\_market/en/finances/general/lamfalussyen.pdf](http://europa.eu.int/comm/internal_market/en/finances/general/lamfalussyen.pdf).
- LEE, J. (2000), *The Robustness of Okun's Law: Evidence from OECD Countries*, Journal of Macroeconomics 22, 331-356.
- LEMMEN, J. (1998), *Integrating Financial Markets in the European Union*, Cheltenham.
- LEVINE, R. (1996), *Foreign Banks, Financial Development, and Economic Growth*, in: C. E. BARFIELD (ed.): *International Financial Markets*, Washington D.C.
- LEVINE, R. (1997), *Financial Development and Economic Growth: Views and Agenda*, Journal of Economic Literature 35, 688-726.
- LEVINE, R. (1998), *The Legal Environment, Banks, and Long-Run Economic Growth*, Journal of Money, Credit, and Banking 30, 597-620.
- LUCAS, R. E. (1988), *On the Mechanics of Economic Development*, Journal of Monetary Economics 22 (1), 3-42.
- LÜSCHOW, J./H. J. SCHALK/G. UNTIEDT (1997), *Langfristige regionale Arbeitsmarktentwicklung*, Arbeitspapiere Bundesforschungsanstalt für Landeskunde und Raumordnung No. 4/97, Bonn.
- MANKIW, N.G./P.M. ROMER/D. WEIL (1992), *A Contribution to the Empirics of Economic Growth*, Quarterly Journal of Economics 107 (2), 407-437.
- MCKINNON, R.I. (1973), *Money and Capital in Economic Development*, Washington D.C.
- MOORE, C./J.M. HILL (1982), *Interregional Arbitrage and the Supply of Loanable Funds*, Journal of Regional Science 22, 499-512.
- OBSTFELD, M. (1994), *Risk Taking, Global Diversification and Growth*, American Economic Review 84(5), 1310-1329.
- OECD (2000), *Statistical Compendium*.
- OECD, *Insurance Statistics Yearbook*, various issues.
- OLSON, M./N. SARNA/A. SWAMY (2000), *Governance and Growth: A Simple Hypothesis Explaining Cross-Country Differences in Productivity Growth*, Public Choice 102, 34-364.
- OKUN, A. (1962), *Potential GDP: Its Measurement and Significance*, American Statistical Association, *Proceedings of the Business and Economic Statistics Section*, 98 -103.
- PAGANO, M. (1993), *Financial Markets and Growth. An Overview*, European Economic Review 37, 613-622.
- PADALINO, S./M. VIVARELLI (1997), *The Employment Intensity of Growth in the G-7 Countries*, International Labor Review 136, 199-213.
- RAJAN, R. G./ L. ZINGALES (1998), *Financial Dependence and Growth*, American Economic Review 88, 559-586.

- ROMER, P.M. (1986), *Increasing Returns and Long-Run Growth*, Journal of Political Economy 94 (5), 1002-1037.
- ROMER, P.M. (1990), *Endogenous Technological Change*, Journal of Political Economy, 98 (5), 71-102.
- SAINT-PAUL, G. (1992), *Technological Choice, Financial Markets and Economic Development*, European Economic Review 36, 763-781.
- SCHALK, H.J./G. UNTIEDT (2000), *Wachstum und Arbeitslosigkeit*, Gutachten für die Friederich Ebert Stiftung, Bonn, download: <http://www.gefra-muenster.de>.
- SHAW, E. S. (1973), *Financial Deepening in Economic Development*, New York.
- WORLD BANK (2000), *World Development Indicators*, Washington D.C.
- WORLD BANK (2001), *Finance for Growth: Policy Choices in a Volatile World*, Washington D.C.