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Ozkok, Zeynep

St. Francis Xavier University

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Zeynep Ozkok*

St. Francis Xavier University

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Abstract

This paper analyzes the growth effects of the Financial Services Action Plan (FSAP) of the European Commission, a set of measures and directives that aim to harmonize European financial markets. Using a panel of 25 countries and 30 industries, we find that the standard specification predicts harmonization to lower growth, though the negative effect is mitigated for industries that depend more on external finance. We then show that this seemingly surprising result is due to omitted variable bias. We would expect early adopters to bear more of the costs and experience less of the benefits of harmonization. Once we control for the relative timing of adoption, harmonization is shown to have a positive effect on growth. This finding is robust to including further controls, splitting up the sample into different groups of countries, and extending the model to a dynamic setting.

JEL Classification: F15; F36; F55; G15; G28; K4; O4
Keywords: Financial integration; Legal, regulatory harmonization; External finance dependence; European Union; FSAP

* *Corresponding author address: Department of Economics PO Box 5000, Antigonish, NS B2G 2W5, Canada. Telephone: +1 902 867 5855. Email: zozkok@stfx.ca*

1. Introduction

The European Union, with the hopes of integrating countries and creating a unified European financial market has taken two important measures over the last two decades. The first, well known, measure is of course the introduction of the Euro. Since its establishment in 1999, the Euro has not only grown to be a leading currency in the world's financial markets, but has also greatly contributed to unifying European financial markets. The second, less well known, measure is the so-called Financial Services Action Plan (FSAP), aimed at harmonizing European financial markets through the imposition and adoption of regulatory and legislative frameworks.

With the strategic objectives of ensuring "a single EU market for wholesale financial services", creating "open and secure retail markets, and state-of-the-art prudential rules and supervision" and establishing "wider conditions for an optimal single financial market", the FSAP intends to harmonize and reduce the costs of cross-border financial intermediation and transactions. (Hartmann et al., 2003, 34; Kalemli – Ozcan et al., 2013). The European Commission has argued that financial harmonization, by reducing the cost of cross-border financial business, should increase economic growth (FSA, 2003; London Economics, 2002). However, no in-depth study of the outcomes of the FSAP has been undertaken. Therefore, an important question remains to be examined: how effective have these FSAP measures been on growth across countries and industries? This paper aims to answer this question. When analyzing the effect of FSAP on growth, we will take an industry perspective. Given that different industries depend on external finance in varying degrees, it is likely that the impact of FSAP on growth will be industry-dependent. We therefore examine the effects of financial harmonization policies of the FSAP on industrial growth in a panel of twenty five EU member states and thirty industries for the period of 1971 – 2007.

Based on the view of the European Commission, we would expect harmonization to have a positive impact on growth rates across industries and countries. In contrast, when regressing growth on financial harmonization, we find a negative impact. However, we do find the negative effect to be mitigated in industries that depend more on external finance. In principle, the negative effect of harmonization on growth may be due to different reasons. First, while harmonization may refer to integration, thus lowering the cost of cross-country financial activity, it may also refer to uniformity, often implying adoption costs without clear benefits. For example, Boyfield et al. (2006) have reported that the additional costs faced by the British economy after the implementation of the FSAP measures amounted to more than 14 billion pounds. We therefore classify the different directives of the FSAP into those that mainly are aimed towards uniformity, those that are mainly aimed towards integration, and those that do not fall under either category. Consistent with our prior, the directives that focus on uniformity continue to have a significant negative effect, while those that focus on integration cease to have a significant effect.

Second, the timing in the adoption of the FSAP directives may be crucial in determining their effects on growth. In particular, being an early adopter may not be advantageous, because the country would bear the costs of adoption, without reaping the benefits of harmonization, since the other countries would be lagging behind. Controlling for the relative timing of adoption in our estimations, we find that harmonization now has a beneficial effect on growth. In addition, we find evidence of early adoption having a negative impact on growth. We then carry out a number of robustness checks to examine whether our main result --- harmonization having a positive effect on growth and the relative timing of adoption having a negative effect --- holds up. The results are mostly robust to splitting up our sample into EU-15, Euro and non-EU 15 countries, and to introducing additional control variables, such as legal and governmental measures, and financial and stock market development indicators. We lastly analyze the consistency of our benchmark model through the use of a dynamic panel GMM model. The dynamic Arellano – Bond model derives similar conclusions reporting that harmonization is positively significant on industrial growth when the harmonization difference measure is included in the estimations.

Our paper is related to different strands of the literature. First is the literature that has examined the effect of deregulation on growth and volatility. For example, Jayaratne and Strahan (1996, 1997) and Strahan (2002) study the impact of branching deregulation and interstate banking on growth. The results reveal that following state-level branching deregulation, real per-capita economic growth across the U.S. states increased significantly. Policy changes that allow for higher integration, better bank monitoring and screening across states are found to be a possible explanation. In a more recent study, De Avila (2003), examining the effects of financial deregulation in Europe, shows that the process of capital control lifting and the harmonization of banking laws have enhanced the growth rates of European economies. Harmonization is found to be beneficial for growth through the increase in the level and efficiency of financial intermediation, whereas the liberalization of capital controls increased growth through improvements in financial intermediation. Different from our study, De Avila (2003) is limited to a cross-country analysis, therefore not taking into account cross-industrial variation. In addition, his focus is on the European Commission directives on banking integration that were established prior to the FSAP.

Second is the literature that has analyzed the link between external finance dependence and growth. An important paper is Rajan and Zingales (1998) which studies the role of external finance on industrial growth. The authors find financial development to be an influential factor on the rate of growth of industries by reducing the cost of external finance. This effect is especially stronger in those firms with greater financial dependence. Rajan and Zingales (1998) show that industries which require higher levels of external finance develop faster in countries with more established financial markets. Similarly, Gupta and Yuan (2003), using the Rajan and Zingales external finance dependence measure, demonstrate that stock market liberalizations lead to higher growth rates in industries that depend more heavily on external finance. Given this evidence, we are interested in seeing whether the benefits of financial harmonization are greater in those industries with greater external finance dependence. Our analysis thereby brings together the literatures on financial deregulation and external finance dependence.

Third, there are some papers that have studied the FSAP measures. Kalemli – Ozcan et al. (2013) analyze the link between financial integration and business cycle synchronization. The authors' analysis, using bilateral panel instrumental variables to link legislative harmonization policies to output synchronization, depicts a negative relationship for the country-pairs selected in the sample. In an attempt to examine the Euro's effect on financial integration Kalemli – Ozcan et al. (2010) reveal the legislative-regulatory harmonization policies in financial markets established under the FSAP to be a contributing factor for cross-border lending, despite these policies' inability to explain the Euro's impact on financial integration. Neither of these papers assesses the impact on growth, and neither uses industrial data.

Compared to the existing literature, one important finding is that controlling for the relative timing of adoption is essential. Clearly, adopting harmonization measures when others do not, does not amount to true harmonization. We would expect early adopters to face more of the costs and less of the benefits in comparison to late adopters. Our results indicate that not controlling for the relative timing of adoption leads to a serious omitted variable bias. Indeed, failing to control for this important variable changes the impact of harmonization on growth from positive to negative.

The rest of the paper is structured as follows. In the next section we explain in detail our data. Section 3 provides a discussion of the empirical model. Section 4 depicts our results and some robustness checks. Section 5 concludes.

2. Data

The data used in this paper come from a variety of sources. Our panel consists of annual industry-level data from twenty-five European economies over the period 1970 – 2007. The countries used in our analysis are Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden and the United Kingdom.[1] Below we discuss the indicators employed in the analysis in further detail.

2.1. Measure of Industrial Growth

The industrial data for growth come from the EU KLEMS Growth and Productivity Accounts dataset. This dataset provides industrial data for 25 EU member countries for 107 different industries (sectors). Having industry-level data is essential for exploiting cross-industrial variation in external finance dependence, while having cross-country variation is important in identifying the effects of harmonization on growth. The time period covered in the EU KLEMS dataset is 1970 – 2007 for EU 15 countries and 1995 – 2007 for 10 new EU member states. From the EU KLEMS dataset we use gross value added in constant Euros.[2] Gross value added growth in country *i*, industry *s*, and time *t*, is defined as:

$$GVAGRO_{i,s,t} = \log\left(GVA_{i,s,t}\right) - \log(GVA_{i,s,t-1})$$

where $GVA_{i,s,t}$ is gross value added in country *i*, industry *s*, and time *t*.[3]

2.2. Measure of Financial Harmonization

Harmonization measures used in our analysis are based on the information from the Financial Services Action Plan. The Financial Services Action Plan (FSAP) was launched by the European Union and the European Commission at the end of 1998 as a major 5-year program with the goals of establishing "a single EU wholesale market for financial services, open and secure retail markets, and state-of-the-art prudential and supervisory regulations." (Kalemli – Ozcan et al., 2010, 79). A single wholesale market should in principle allow for higher levels of finance to be raised across the EU, while open and secure retail financial services markets should provide customers with a safer and cheaper integrated financial market that reduces charges on cross-border payments, removes barriers to retail financial services, and allows a larger scale of electronic commerce to take place across the EU (HM Treasury, The Financial Services Authority, and the Bank of England, 2004). State-of-the-art prudential rules and supervision, on the other hand, should offer faster changes in the regulatory environment that benefit customers in financial services.

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[1] Our panel has three dimensions; countries (i), industries (sectors) (s), and time (t). We, therefore, have i*s*t, i.e. 25*107*37 = 98975 observations. Due to missing observations for the external finance measure of Rajan and Zingales (1998) we drop some sectors from our analysis. Thus, most of our regressions are estimated with a sample of 17380 observations.

[2] For the time period before the introduction of the Euro, the EU KLEMS uses the 1999 official fixed Euro exchange rates of the Euro countries to convert local currencies into Euros. Consistent with this, for the non-Euro countries for the time period before the introduction of the Euro, we take the 1999 official fixed Euro exchange rates with the local currencies to convert them into Euros. For further information please refer to Table 1 in the Supplementary Appendix which can be found at:
http://dl.dropboxusercontent.com/u/51429799/supplementary%20appendix%20december%202012.pdf

[3] While most of the growth literature focuses on log differences to approximate growth rates, the deregulation literature often uses the direct ratio of $GVA_{i,s,t}/GVA_{i,s,t-1}$. We have experimented with this alternative measure, and the results do not qualitatively change.

Broadly speaking, the FSAP is aimed at removing barriers to entry into the financial sector, increasing competition, and harmonizing information (Malcolm et al., 2009). However, just like any other legislative measure taken at the country level, the FSAP comes with costs and benefits. Boyfield et al. (2006) state that the benefits involve increasing investment opportunities in securities markets across borders, easing the framework for investment firms, augmenting internalization, stimulating competition between banks and thereby reducing the cost of trading and the cost of capital, increasing investor confidence, market liquidity, and free flow of capital, allowing for more transparency, and greater competition. The costs on the other hand entail compliance costs due to complexity, possibility of creating barriers to entry for smaller firms, further costs that involve execution of the directives, and costs of implementation of these directives across countries. The goal of the European Commission through the FSAP is to form a unified financial market that can act as an essential element for growth, employment and improved competition in the overall European system (European Commission, 2005). If so, the Financial Services Action Plan (FSAP) should have had a positive impact on growth, and one of the aims of this study is to explore whether this is indeed the case.

The FSAP consists of 29 legislative acts, 27 directives and 2 regulations in corporate law, banking, payment systems and corporate governance (Kalemli – Ozcan et al., 2013). The most important of these are the 27 directives, which will be the focus of the remainder of our analysis. The directives amend previous laws, replace out-of-date proposals or offer new legislative measures for the EU member countries. Since the establishment of the FSAP in 1998, the European Commission has passed 21 out of the 27 directives by the end of 2003, with the remaining 6 directives being passed into legislation during the period of 2004 – 2006 (Kalemli – Ozcan et al., 2013).

Unlike the EU regulations that are enforceable across countries immediately after their announcement, the FSAP directives are enforceable only after the member states pass legislations that adopt the EU law domestically (Kalemli – Ozcan et al., 2013). The implementation stage of the FSAP directives involves the European Commission's proposal on legislative directives and regulations, which then will have to be adopted by "co-decision" of the Council of Ministers of the Member States and the European Parliament (HM Treasury, The Financial Services Authority, and the Bank of England, 2003). The FSAP directives are incorporated into the national law of each EU member state either through introduction or through amendment of national laws within a time frame of 18 to 24 months of their date of original publication. The implementation process of the FSAP directives works through three stages; transposition of the EU legislation into national law, adjustment for necessary arrangements and ensuring that the newly adopted regulations are working effectively and efficiently. Due to differences across countries in modifying their existing internal institutional structures and frameworks to adopt the EU law (and due to the discretion in when to adopt these directives), the transposition of the FSAP directives may take several years, creating variation in terms of the dates of implementation of these directives in different countries.[4] For example, the 1998 Settlement Finality Directive (1998/26/EC) of the FSAP under the securities category was implemented into domestic law in Austria, Belgium, Finland, Germany, Ireland, the Netherlands, Spain and the U.K. within a year of its circulation. However, France, Italy and Luxembourg did not adopt this directive until 2001, while Cyprus, Czech Republic, Hungary, Latvia, Lithuania and Poland had not transposed the

[4] The member states are given a time frame to transpose the directives into national law. However, some countries do not follow the timing of the FSAP directives that is set by the European Commission. This could occur due to parliamentary delays, oppositions from firms and businesses within the countries, difficulty in removal or alteration of existing laws, and possible technical obstacles. There are sanctions, however, to ensure compliance of the member states with the adoption of the directives. By the former Article 171 (now Article 228) of the European Treaty and Article 143 of the Euratom Treaty the European Commission can impose tailored sanctions depending on the severity of non-compliance of the Member States with the rules and regulations. For more information please refer to the European Commission's Application of EU Law website, http://ec.europa.eu/eu_law/infringements/infringements_260_en.htm

directive till the end of our sample period (Kalemli – Ozcan et al., 2010 & 2013).[5] It is this cross-country variation in the timing of the adoption of different directives which will allow us to identify their effect on growth.

We assemble harmonization indices for EU countries using adoption dates of different directives in different countries from the European Commission's Financial Services Action Plan. Following the methodology by Kalemli – Ozcan et al. (2010), we construct country and time-variant and industry-invariant indices of harmonization that summarize the information provided by the 27 FSAP directives. In particular, for each of the 27 directives listed under the FSAP we define a dummy variable that takes on a value of one on and after the date that the country under examination has transposed the directive into national law and a value of zero otherwise. We sum all 27 directives to create our next variable, $lex_{i,t}$ (Kalemli – Ozcan et al., 2010 & 2013):

$$lex_{i,t} = \sum_{k=1}^{27} Directives_{i,t}^{k}$$

We construct our financial harmonization index by:

$$Harmonization_{i,t} = \ln(1 + lex_{i,t})$$

where k represents all 27 directive dummies, i represents the countries, and t represents the years in the sample. Following Kalemli – Ozcan et al. (2010), we use the logarithmic transformation of the sum of the directives for countries. For robustness we construct two different indices that include the initial twenty-one directives that were put into force by the European Commission before the official completion of the FSAP, and the six directives that correspond to the banking initiatives of the FSAP (Kalemli – Ozcan et al., 2010).[6] Table 2 in the Supplementary Appendix provides a time-line of adoption of the 27 directives for all countries in our sample, while Table 3 presents the descriptions and categories for these directives.

2.3. Measure of External Finance Dependence

One of the aims of our model is to examine how the effect of harmonization on growth is mediated by an industry's dependence on external finance. Following Rajan and Zingales (1998), we take a measure of an industry's dependence on external funds in the U.S. and apply it to our European sample. The external finance dependence measure is calculated by computing the external financing needs of U.S. companies during 1970s using data from Compustat. It exclusively concentrates on the amount of desired investment that cannot be financed through internal cash flows within the same company. The external finance dependence measure for a firm is constructed as:

$$exffirm_{s,t} = \frac{capexp_{s,t} - cfo_{s,t}}{capexp_{s,t}}$$

[5] Please refer to Tables 3 and 6 in the Supplementary Appendix for further explanation of the directives in the Financial Services Action Plan. The Supplementary Appendix can be found at: https://docs.google.com/viewer?a=v&pid=sites&srcid=ZGVmYXVsdGRvbWFpbnx6ZXluZXBvemtva3xneDpiYjM5OTVjNTFlNWQ3Njg

[6] The first alternative harmonization index which includes twenty one directives excludes the directives implemented prior to 2004. It is constructed as: $lexro_{i,t} = \sum_{k=1}^{21} Directives_{i,t}^{k}$ and $Harmonization_{i,t}^{*} = \ln(1 + lexro_{i,t})$. The second alternative to the harmonization index highlights the importance of the 7 banking directives of the FSAP. The banking harmonization index is then formed as: $banklex_{i,t} = \sum_{k=1}^{7} Directives_{i,t}^{k}$ and $Harmonization_{i,t}^{**} = \ln(1 + banklex_{i,t})$.

where $exffirm_{s,t}$ is the external finance dependence measure, $capexp_{s,t}$ is capital expenditures, and $cfo_{s,t}$ is cash flow from operations of a firm in industry *s*. In order to obtain the firm's overall dependence on external finance in 1970s Rajan and Zingales sum the external finance measure over 10 years (from 1970 to 1980) and divide it by the sum of capital expenditures over the same period. To obtain a measure of finance dependence at the sectoral level, exf_s Rajan and Zingales (1998) use the industry median. By doing so, they reduce the effects of outliers and temporal fluctuations.

Applying the U.S. industry measures of external finance dependence to the corresponding European industries is reasonable if, as argued by Rajan and Zingales (1998), there is a technological reason for why some industries depend more on external finance than others. That is, if the machinery industry requires a larger initial scale and a longer period of gestation before the admittance of cash flows into the sector, in comparison to the textile industry in the U.S., this would also be true for the two industries in France (Rajan and Zingales, 1998). With the assumption that these technological differences are similar across countries, the Rajan and Zingales measure of external finance dependence can be used for different countries.

We use the external finance measure of Rajan and Zingales (1998) for two additional reasons.[7] Firstly, we rely our analysis on a well cited paper by Rajan and Zingales. Secondly, if we were to use country-specific measures of finance dependence for Europe, there would be an issue of endogeneity, because growth may affect external dependence. By using the U.S. measure, external finance dependence becomes exogenous to the growth process of different European countries.

There is, nonetheless, a drawback of using this measure. Our sample includes a larger group of industries than what the Rajan and Zingales measure captures.[8] Although this leads to the exclusion of some industries from our estimations, we have no reason to believe that it substantially alters our results.

2.4. Interaction term of the harmonization index and external finance dependence

Given our harmonization index and the external finance dependence measure of Rajan and Zingales (1998), we construct our interaction term which will help us to identify the simultaneous effect of harmonization and external finance dependence on growth as follows:

$$(Harmonization_{i,t} \times exf_s)_{i,s,t}$$

where *i* represents the countries, *s* represents the industries, *t* represents the years in the sample,[9] $Harmonization_{i,t}$ is the harmonization index constructed using the directives of the FSAP and exf_s is the industry-variant external finance dependence measure of Rajan and Zingales.

With the interaction term that has country, industry and time variability, we account for the effects of harmonization on industries that require external financing on growth rates.

[7] A number of studies in the literature employ the Rajan and Zingales measure of external finance due to its exogeneity. Gupta and Yuan (2003), (2009), Claessens and Laeven (2005), Guiso et al. (2004), Cetorelli (2001) and Cetorelli and Gambera (2001) are some examples.

[8] The Rajan and Zingales measure of external finance dependence is based on the information obtained using mostly manufacturing sectors. Table 5 in the Supplementary Appendix presents correspondences of industries in our analysis to the ones in Rajan and Zingales (1998).

[9] Similarly for robustness checks we construct two additional interaction terms that depend on the different harmonization indices, i.e. $\left(Harmonization^{*}_{i,t} \times exf_s\right)_{i,s,t}$ and $\left(Harmonization^{**}_{i,t} \times exf_s\right)_{i,s,t}$

2.5. Other control variables

In order to thoroughly examine the relationship between financial harmonization and industrial growth, there may be a need to control for a number of legal and institutional variables, as well as financial and stock market development indicators. Control variables described in detail below are country and time-variant and cover the period of 1996 – 2007.

We employ a series of legal and institutional variables from the World Bank's Worldwide Governance Indicators dataset. We use three different measures to control for institutional, legal, political and economic factors that may affect the overall level of growth. The three indicators --- *government effectiveness*, *regulatory quality,* and *rule of law* --- are constructed using subjective and perceptions-based data that reflect views of a range of respondents, agencies and organizations. They are measured in a range from -2.5 to 2.5, where higher values correspond to better governance outcomes.[10]

To measure financial development we employ *the ratio of deposit money bank assets to the sum of deposit money bank assets and central bank assets* from Beck et al. (2000) Financial Development and Structure Database. This variable demonstrates the weight of deposit money bank assets among total assets and indicates the importance of private lending. For stock market development we make use of *stock market turnover ratio* also from the Financial Development and Structure Database. This variable is measured as the ratio of the value of total shares traded to stock market capitalization and depicts the efficiency of stock markets in transaction.

Control variables help in further explaining the effect of harmonization on industrial growth. The timing of implementation of harmonization policies could be driven by the state of financial and stock market developments across countries. The ease in adopting FSAP directives into national law can be induced by the quality of regulatory and legislative institutions. In order to control for these potential influences, to verify the robustness of our benchmark model, to analyze the possibility of extending our model to a dynamic one, and to account for factors that may not be fully encountered in a fixed effects setting, we include the variables discussed above.

3. Empirical Specification

Our analysis is based on a model that measures the effects of financial harmonization and external finance dependence on industrial growth. We follow the literature (Jayaratne and Strahan (1996), (1997), Strahan (2002), Morgan et al. (2004), and Kalemli – Ozcan et al. (2010 & 2013)) and use a model which assumes that the effects of harmonization and external finance dependence will impact growth not only through the harmonization index but also through the interaction term.[11] Our benchmark model will control for average differences across countries and time in harmonization policies and across industries in external finance dependence. It will allow us to analyze the influence of harmonization policies through the index measure and through the interaction term separately.

[10] Please refer to the Worldwide Governance Indicators (WGI) dataset. 1996 – 2011. World Bank. http://info.worldbank.org/governance/wgi/index.aspx#home. The institutional quality variables used in our analysis do not fluctuate widely across time. Due to the relatively small fluctuation structure of these indicators, we take the averages of two consecutive years to replace the missing years' data for these three legal/institutional variables.

[11] We extend our benchmark model into an Arellano-Bond type dynamic panel data model to control for issues regarding endogeneity and autocorrelation.

We present a benchmark model to measure the effect of external finance dependence and financial harmonization on industrial growth across countries and over time.

$$GVAGRO_{i,s,t} = \lambda_i + \mu_s + \theta_t + \varphi GVA_{i,s,t-1} + \beta_1 Harmonization_{i,t} + \beta_2 (Harmonization_{i,t} \times exf_s)_{i,s,t} + v_{i,s,t}$$

where the dependent variable in the above equation is gross value added growth, λ_i represents country fixed effects, μ_s represents industry fixed effects, θ_t represents time fixed effects, $GVA_{i,s,t-1}$ is the lagged logarithm of gross value added in levels, $Harmonization_{i,t}$ is the index measure created using the FSAP directives, and the interaction term is the product of the financial harmonization index and the external finance dependence measure of Rajan and Zingales.[12]

In the above equation our main focus is on the coefficients of the harmonization index and the interaction term. We would expect to find positive and significant coefficients for both terms which would imply a positive effect of financial harmonization and financial deepening (measured by external finance dependence) on gross value added growth. Our analysis is based on the examination of how much industries benefit in terms of growth from harmonization of financial markets within the EU given that these industries require external finance. Similar to the work presented in Rajan and Zingales (1998), we can make predictions about within country differences between industries and across time using an interaction term that reveals time, country and industry specifics. This method allows correcting for country, industry, and time characteristics and avoids any potential omitted variable bias and model specification (Rajan and Zingales, 1998).

Although the literature (Jayaratne and Strahan (1996), (1997), Strahan (2002), and Kalemli – Ozcan et al., 2010) does not suggest the use of a dynamic model, there are studies that examine whether the results of the benchmark model correspond to those using instruments in estimations. In our benchmark setting, there may also be concerns regarding the effect of anticipation of financial harmonization policies. That is, countries may initiate adopting harmonization measures with hopes of enhancing growth. In order to account for this possibility, we extend our analysis to include a dynamic specification. Using a dynamic setting, we can calculate the speed of adjustment of the harmonization policies as well as accounting for long-run effects of the variables in our model. The dynamic panel data model used in our analysis is specified as follows[13]:

$$\Delta GVAGRO_{i,s,t} = \gamma \Delta GVAGRO_{i,s,t-1} + \Delta\tau_t + \alpha_1 \Delta Harmonization_{i,t} + \alpha_2 (\Delta Harmonization_{i,t} \times \Delta exf_s)_{i,s,t} + \sum_{k=1}^{6} \rho_k \Delta Controls_{i,t,k} + \Delta u_{i,s,t}$$

where $GVAGRO_{i,s,t}$ is the country, industry and time-variant gross value added growth, τ_t represents the time fixed effects, $Harmonization_{i,t}$ is the harmonization index of the FSAP measures, the interaction term is the product of the harmonization index and external finance dependence measure of Rajan and Zingales, and $Controls_{i,t,k}$ are control variables for harmonization differences, financial and stock market

[12] The above model in levels with fixed effects is consistent when $cov(GVA_{i,s,t-1}, v_{i,s,t-1}) = 0$. This implies lag of gross value added to have no correlation with the lag of the error term. This does not however suggest lagged growth rate to be uncorrelated with the lagged error term. That is, $cov(\Delta GVA_{i,s,t-1}, v_{i,s,t-1}) \neq 0$. This assumption is sufficient to guarantee the efficiency of our benchmark model.

[13] We include time dummies in our dynamic panel data model to account for possible trends. Time dummies are also used as IV type instruments in the dynamic panel data model estimations.

development, and legal and institutional measures that are country and time-variant. As before, we would expect to find positive values for both α_1 and α_2.

The above model no longer has country or industry specific effects, the dynamic panel data model accounts for these individual effects. The Arellano-Bond dynamic panel data model takes the first differences of all terms in order to elude the Nickell bias that occurs when the lagged dependent variable is correlated with the error term. The moment conditions that stem from the above model require that:

$$E\left[GVAGRO_{i,s,t-k}\Delta u_{i,s,t}\right] = 0 \text{ for } \forall k \geq 2$$

With this condition the lagged dependent variable of gross value added growth is guaranteed to be uncorrelated with the first difference of the error term even though the first difference of the dependent variable could indeed be correlated with the first difference of the error term.

By using one lag of the dependent variable as a regressor, we allow gross value added growth rates across European countries to partially adjust to their long-run equilibrium value within one year. First differences in the dynamic data model wipe out country and industry-variant and time-invariant specific effects. The dynamic panel data model thereby avoids any potential correlation of possible fixed effects with the right hand side regressors. We convey our main findings for both the benchmark and dynamic panel data models in detail in the next section.

4. Results

We report our results using 25 EU member countries for 1971 – 2007. In our regressions with the benchmark model we use fixed effects estimations with country, industry, and time specific effects, whereas for the dynamic panel data model we use the Arellano-Bond dynamic panel specification.

4.1. Benchmark model

The results from Table 1 illustrate the effects of the harmonization index and the interaction term on gross value added growth in a fixed effects estimation with country, industry, and time effects. We would expect to find a positive effect of financial harmonization and the interaction term on growth. Previous discussions had conveyed that through the Financial Services Action Plan, European economies would achieve an increase in the real GDP by 1.1% over a decade (FSA, 2003; London Economics, 2002). However, columns (1) – (3) of Table 1[14], each using a different harmonization index depending on the number of directives included, report negative coefficients for harmonization on gross value added growth.[15] This implies that as countries adopt the directives of the FSAP, industrial growth becomes negatively impacted directly by the process of financial harmonization. Although the negative impact is only statistically significant for banking integration directives in column (3), this finding clearly runs counter to our initial expectations. The aim of the FSAP is to create policies that will be implemented by member countries to achieve an optimal single financial market. Nevertheless, interaction terms constructed using different financial

[14] In this benchmark specification we do not control for other covariates; the inclusion of country, industry and time fixed effects accounts for most of the usual control variables used in standard growth regressions. We introduce further controls to our model in later specifications.

[15] The t-statistics reported in the tables are based on country and industry-specific (clustered) heteroskedasticity and autocorrelation. Country and industry clustering allows to control for errors that can be correlated across countries within an industry, and across industries within a country, as well as providing standard errors that are robust to heteroskedasticity. Using clustering in a fixed effects model thereby gives a consistent estimation of a panel with cluster-variance while controlling for endogeneity.

harmonization indices, are found to be positive and significant. They convey that the additional need for external finance dependence along with the adoption of harmonization policies bring an enhancement to growth. The lagged values of gross value added are shown to be negatively significant in all columns complying with our initial expectations that European countries experience slower growth perspectives in upcoming years.

Given that harmonization has a negative direct effect and a positive indirect effect (through the interaction term), we move on to calculating the total effects of harmonization. This can be done by using the following partial derivative:

$$\frac{\partial GVAGRO_{i,s,t}}{\partial Harmonization_{i,t}} = \beta_1 + \beta_2 exf_s$$

Since our primary concern is on the impact of harmonization policies implemented through the FSAP, we observe total effects using the above equation. Examining the summary statistics reported in Table 4 in the Supplementary Appendix and the coefficients from the first column of Table 1, we calculate that at the mean level of external finance dependence, the partial derivative of gross value added growth across industries with respect to the harmonization index is equal to -0.0094. At the minimum level of external finance dependence, the partial derivative takes on a value of -0.0148, whereas at the maximum level of external finance dependence, the partial derivative is -0.0027. The results show that the total effect of harmonization policies is negative for growth. The positive interaction terms simply convey that the negative effect of harmonization policies is somewhat mitigated in industries with higher external finance dependence. The coefficient of harmonization from column (3) of banking directives implies that growth across countries and industries has decreased by 2 % after the implementation of the FSAP directives (exp (-0.025) =0.9753).

Taken together, our results are puzzling. The negative effect of harmonization, particularly that of the banking directives, on industrial growth is difficult to explain given the initial objectives of the FSAP. Our findings demonstrate that the effect of the FSAP directives on growth is not as beneficial as the policy makers had initially expected. These findings could be due to different factors.

Integration versus uniformity

A first possibility is that not all these directives served to reduce costs through market integration. Harmonization is a broad term that could capture different realities. On the one hand, harmonization could refer to integration, thus lowering the cost of cross-border financial activity. On the other hand, harmonization could simply mean uniformity, without necessarily implying the lowering of costs. We therefore take the directives and classify them into three groups: those that imply integration, those that imply uniformity, and those that fall under the others category. The first category of directives, those that promote integration, is made up of directives which aim to improve the efficiency of payments, eliminate tax distortions, simplify regulation, create a single passport for securities, increase competition, remove barriers and restrictions, expand investment options and reduce the cost of capital. The main goal of this category of directives is to *lower* the costs of cross-border financial activity. The second category of directives, those that promote uniformity, seeks to improve risk management, harmonize cross-border supervision, encourage innovation, improve prudential regulation and rules, and increase consumer confidence and protection. Although these directives may also contribute to removing some restrictions, they are more aimed towards making rules and regulation more uniform, and often involve *increasing* the

costs of cross-border financial activity.[16] The third category consists of all other directives which are not easily classifiable under the two former categories.[17]

Columns (1) – (3) of Table 2 report the same specification as Table 1, but employ a different harmonization index for each of the three categories of directives. Using the same indexing strategy as discussed earlier, the findings demonstrate that the uniformity index has a negative impact on industrial growth. Both integration and others indices are not found to be significant. This result shows that not all harmonization is the same: harmonization that effectively improves market integration ceases to have a significant negative impact, whereas harmonization which is mainly aimed at making countries "similar" continues to have a negative effect on growth. Including the effect of the interaction term reinforces this dichotomy, as it is found to be positively significant for those directives that promote integration, whereas it is insignificant for those directives that promote uniformity for the industries with higher dependence on external funds. Taken together, this suggests that harmonization thought of as integration has an overall positive effect[18], whereas harmonization thought of as uniformity has an overall negative effect on industrial growth. More broadly speaking, some directives may lower the cost of cross-border financial activity, whereas others may increase it. Grouping all directives together under the common wording of "harmonization" may thus be misleading.

EU-15 versus the rest

A second possibility for the negative effect of harmonization in our benchmark specification is that the new member states of the EU exhibit different behavior from the original EU-15 members, and that this difference is not adequately picked up by the country-fixed effects. One of the biggest criticisms for the FSAP measures is that they have been implemented without further consideration of the structural basis of integration in securities, retail and financial markets across the EU.[19] This suggests that the FSAP measures may not be as effective in markets that are not completely integrated. Truly integrated markets should in fact benefit from financial harmonization through the reduction in costs of investment, enhancements in consumer protection, improvements in allocation of investment resources, and innovation. However, without a well-integrated financial market, financial harmonization policies could only provide small benefits to EU member countries.

We thereby believe that EU-15 countries which have been a part of the union for a longer period of time may have a different response to the implementation of the FSAP policies in comparison to newer members of the EU. Similarly being a part of a monetary union might have an additional influence on growth. Another issue is that the FSAP was largely negotiated when the new member states were not yet a part of the EU, raising the possibility that their specific needs were not sufficiently taken into account. If so, we would expect the effect of financial harmonization to have a positive impact on the growth rate of EU-15 countries, unlike the negative effect that is depicted for the entire sample.

In order to further analyze this issue, we divide our sample set into subgroups. In column (4) of Table 2 we report the results for the EU-15 countries. Column (4) shows that the harmonization index is in fact positively significant. This implies that for EU-15 countries financial harmonization has a positive impact

[16] Increasing costs refer to mostly cost of compliance and capital costs that are born on investors and issuers across countries.

[17] Note that the classification of the directives under each category can be regarded as being subjective. However, the main goal through this analysis is to examine whether the effect of financial harmonization on industrial growth is amplified when directives that aim to implement similar objectives are grouped together under an index.

[18] The positive effect of integration directives holds for industries that have a higher dependence (at the maximum level) on external finance, in other words, at the maximum level of external finance dependence, harmonization that implies integration has a positive impact on industrial growth.

[19] Please refer to Alexander (2002).

on industrial growth. In column (5) we examine the case with Euro countries. In the Euro countries the effects of financial harmonization should be enhanced due to the existence of a monetary union. Consistent with this view, in column (5), we find that the harmonization index is not only positive but also very significant. Lastly column (6) shows that for the case of non-EU 15 countries the effect of financial harmonization is negative. The interaction terms are positive but not significant in any of the regressions reported in columns (4) to (6). Overall, this suggests that the Euro and the EU-15 countries benefitted the most, whereas the new member states seem to have suffered a negative effect from the FSAP.[20]

Relative timing (speed) of adoption

A third possibility for our initial finding of a negative effect of harmonization on growth might be related to the relative timing of adoption. For example, if Czech Republic adopts a directive, and no other country adopts the same directive, then we cannot talk about harmonization. In that case Czech Republic would simply bear the cost of adopting the directive, without attaining any benefits from it. Not controlling for this would introduce a bias. Given that there exist significant differences across EU member countries in the timing of adoption, this is a potential issue. Recall that the FSAP directives need to be transposed into national law before they become effective. This has to be done within a specified period of time, but some countries do so faster than others.
With this in mind, we consider whether there is a disadvantage from adopting these directives earlier. In order to check for this possibility, we construct a new variable which we call the harmonization difference:

$$Harmonizationdif_{i,t} = Harmonization_{i,t} - Harmonizationave_t$$

where $Harmonization_{i,t}$ is the harmonization index of country i in year t, and $Harmonizationave_t$ is the average index of harmonization across countries in year t. The harmonization difference is a measure that depicts how many FSAP directives are adopted by each country relative to the average rate of adoption for all countries per year. Using this variable we can analyze the impact of being an early versus a late adopter on industrial growth. Column (7) of Table 2 reports the results when this new variable is included in our full sample. As expected, our findings show that there is a negative effect of being an early adopter. The interpretation of this result is as follows: the FSAP directives aim to unify financial markets across the EU. However, this could only be mutually beneficial for countries when they all implement these directives.

More importantly, once we control for the harmonization the difference, the harmonization index is now positive and significant. The positive effect of harmonization is carried through both the harmonization index and the interaction term which imply that the growing need of external finance, together with the ongoing process of transposition of the directives brings an enhancement to industrial growth. With the inclusion of the harmonization difference measure, the harmonization index acts like an average harmonization indicator that generates the impact of harmonization across countries at the average level.

Figure 1 shows details of the harmonization process for 25 countries in our sample. The harmonization process in EU-15 countries proceeded gradually, whereas for new EU member countries it happened more suddenly in big jumps. As a result, the difference between the harmonization index and the average harmonization per year is largest for the non-EU 15 countries. In order to further investigate this, we split our sample into EU-15 countries, Euro countries and non-EU 15 countries.

Table 3 presents our findings for three different samples. Column (1) reports the results for EU-15 countries. The harmonization index is found to be positively significant implying that the adoption of the FSAP

[20] We have also checked for the influence of the Euro's effect on industrial growth rates by including a euro dummy in our estimations. The results reported in the Supplementary Appendix show that the euro dummy is not significant in our analysis.

directives by EU-15 countries augments growth. The coefficient on the harmonization difference measure is negative but not significant indicating that being an early adopter does not have a clear negative effect on industrial growth. Similarly the harmonization index is found to be positive and significant and the harmonization difference measure negative but insignificant for Euro countries in column (2). Interaction terms in both columns demonstrate that for EU-15 and Euro countries the effects of harmonization do not appear stronger for industries that the depend more on external finance, the coefficients being statistically insignificant.[21] Column (3) depicts the results for non-EU 15 countries. Harmonization index is no longer significant whereas the harmonization difference is negatively significant suggesting that among the non-EU 15 countries it is clearly more beneficial to be a late adopter than an early one.

Taken together, our results imply that, once we control for the relative timing of adoption, harmonization has a positive effect on growth, though that effect is not always statistically significant. The sign of the harmonization index changes conditional on the inclusion of the harmonization difference measure that accounts for the relative timing of adoption. As for being an early adopter, our results show that this is true for all cases, but only statistically significant for the non-EU 15 countries, and for the entire sample.

Exclusion of some countries

A fourth possibility for our initial finding might be the result of the bias introduced by the inclusion of some countries in our sample. Figure 1 demonstrates that there are two countries which require closer analysis. Latvia and Poland seem to have adopted some FSAP directives much earlier than other non-EU 15 countries. In fact, the data from the European Commission suggest that they adopted some of these measures much before becoming part of the EU. This could potentially be the result of the amendment of some existing directives that had already been transposed into domestic law prior to the implementation of the Financial Services Action Plan. In order to verify whether these two countries create any biases for the effects of harmonization on industrial growth, we exclude them from our sample and reanalyze our benchmark model. The results in columns (4) and (5) of Table 3 are similar to those reported in Tables 1 and 2. Harmonization index is still found to be negatively influential on growth rates when we exclude Latvia and Poland from our sample. Once again, the inclusion of the harmonization difference measure causes the harmonization index to become positively significant, indicating that harmonization is beneficial for growth, but that being an early adopter is not.

We also examine the sensitivity of our results when we exclude four countries that might bring potential biases due to their large share of foreign banks and liabilities. In order to observe whether the effects of external finance dependence of industries and the enhancement of harmonization policies on industrial growth are triggered by the inclusion of countries with greater banking shares, we exclude Cyprus, Malta, Luxembourg and the U.K. from our estimations. Column (6) depicts insignificant effects for the harmonization index and the interaction term. In column (7) the harmonization index is found to be positively significant and the harmonization difference measure negatively significant which correspond to the results found in column (7) of Table 2, implying that the exclusion of countries with a larger share of foreign banks and liabilities does not alter our main findings.

Competing explanations

So far we have conveyed four reasons for why we observe a negative relationship between financial harmonization following the FSAP policies and industrial growth rates across European countries. A negative relationship could occur as a result of harmonization capturing different realities such as integration and uniformity, as a result of the FSAP policies aiming to create benefits for those that have

[21] At the mean level of external finance dependence across industries, the total effect of harmonization for EU-15 and Euro countries is found to be positive. The total effect for the non-EU 15 countries at the mean level of external finance is negative, implying that the total impact of harmonization on industrial growth is not beneficial.

been a part of the EU for a longer period of time and the likely impact of some countries with larger banking shares which may potentially bias the results, or due to the fact that there is a difference in terms of timing of adoption of the FSAP directives which has to be considered in estimations regarding this link. We have shown that EU-15 and Euro countries have a positive coefficient for financial harmonization. Similarly the exclusion of countries that have larger banking shares does not alter our initial findings for the negative result. The two remaining reasons for the initial negative effect of harmonization on growth thereby are the nature of harmonization and its timing. In order to study which one of these competing explanations is dominant, we test our results using indices for integration, uniformity and other directives taking into account the relative timing of adoption of the FSAP directives in our regressions. The results reported in Table 4 show that with the inclusion of the relative timing of adoption, financial harmonization becomes positively significant. The results reveal that the negative effect occurs as a result of not accounting for the speed of adoption.[22]

The findings from Table 2, 3 and 4 with the inclusion of the harmonization difference depict that being an early adopter could lead to lower growth perspectives for all 25 countries, and for different subgroups of countries. In order to correctly examine the impact of early versus late adoption we need to include further controls into the model.

Adding controls

Adding further controls may be important to avoid omitted variable bias. Given that we already have country, industry and time fixed effects, we focus on controls that are country and time variant. Firstly, in order to account for the structural features of the banking systems in European countries, we follow the methodology proposed by Kalemli – Ozcan et al. (2010) and use control variables for bank's overhead costs, bank's profitability and banking concentration from Beck et al.'s Financial Development and Structure Database (2000). Given that there exist concerns regarding the implementation of the FSAP and its dependence on local conditions of the banking systems, we believe that the inclusion of these variables can provide a better picture for the link between harmonization policies and industrial growth. The results, not reported here[23], do not have any systematic effects on our model. Secondly, in order to account for differences in legal, institutional and governmental structures, as well as stock market and overall financial development, we include country and time-variant measures in our model.

Table 5 reports the results for the entire sample, EU-15 countries, and non-EU 15 countries when control variables for financial and stock market development and legal and institutional quality are used. The short period availability of financial development indicators and legal variables reduces our sample size to the 1996 – 2007 period. Columns (1), (3) and (5) show that, when not controlling for the harmonization difference measure, the harmonization index is found to be negatively significant for all countries and for non-EU 15 countries and positive but insignificant for EU-15 countries. The inclusion of the harmonization difference measure in columns (2), (4) and (6) leads to a change in the sign of harmonization indices.[24] The coefficients of the interaction terms imply that the simultaneous effect of harmonization and external finance dependence has a negative impact on industrial growth. Overall the results depict that harmonization is beneficial for all countries conditional on the relative timing of adoption, and with the inclusion of further controls that account for outside effects. However, being an early adopter of the FSAP directives proves to have a disadvantageous effect on growth. This is now true for all groups of countries, though the effect is statistically insignificant for the EU-15 subgroup.

[22] Further robustness checks using integration, uniformity and other directives with control variables strengthen the argument that the relative timing of adoption is the dominant factor behind the initial negative effect of financial harmonization on industrial growth.
[23] Please see Supplementary Appendix Table 7 for the results.
[24] The change in the sign occurs for all countries, and for non-EU 15 countries.

Legal origins

Lastly, we consider whether the results of our benchmark model alter with the inclusion of legal origins of countries. Legal origins refer to the differences across countries in terms of their legal systems which are structured according to families of law. Depending on the historical background and development of legal families, on the characteristics of the functioning of legal matters, and on distinctive institutions each country has a differing legal tradition. As La Porta et al. present in their series of articles (1997, 1998, and 2008) the most popular legal traditions are the common law and the civil law from which several sub-traditions such as the French, German, socialist and Scandinavian legal origins arise.[25] Although for our particular study, there is not much difference between the French, German and British laws that implement the EU legislation proposed under the FSAP, the way these provisions will be carried out into the domestic law, the manner that the directives will be monitored and enforced may show vast differences across member countries. This remains to be a factor too strong to forgo. This implies that together with governmental and institutional factors, differences in legal origins across countries may highly influence the link between financial harmonization and growth. Our analysis with the addition of legal origins, although not reported here, finds the effect of financial harmonization index to be negative but insignificant on industrial growth for all countries.[26] Once again, the signs of harmonization indices across all countries, EU-15 countries, and non-EU 15 countries change when the harmonization difference measure is included in the model. Although the legal origin dummies for the U.K., France, Germany, Socialist regimes, and Scandinavian countries appear to be significant in some regressions, the results obtained are similar to the ones found in the benchmark case, and to those found in Table 3.

4.2. Dynamic panel data model

We include a dynamic panel data model in order to examine the partial adjustment property of harmonization policies, to analyze possible long-run effects of harmonization and to determine whether a dynamic setting would add to the relationship between harmonization and growth. The results of the dynamic panel data model should not be thought to overcast the findings of our benchmark model. Firstly, even if governments of countries in the EU anticipate higher growth rates following harmonization, it is unlikely that the officials in each industry could determine the timing of adoption in their own country as well as in other countries.[27] Secondly, and more importantly, if countries harmonize because of expected growth, early harmonization should be beneficial. In fact, we find the opposite which we report in the following section.

Table 6 depicts the results of 4 different dynamic Arellano-Bond GMM type panel models. Due to the use of control variables, the estimation period is reduced to 1996 – 2007. The lagged dependent variable in column (1) has a negative and significant coefficient. The harmonization index in the dynamic panel data model is found to have a positively significant effect when the harmonization difference measure and other control variables are included in the model. Harmonization difference measure is found to be negative and significant. Columns (2) and (3) report the results for EU-15 countries and columns (4) and (5) report the results for non-EU 15 countries. In column (2), the lagged dependent variable is negative and significant, implying that previous growth perspectives lead to a slowdown in current growth. The variables of interest

[25] Please refer to La Porta et al. (2008). Legal origins dummies are obtained from the original La Porta et al. (1998) study and they are created by assigning a value of 1 for countries that have a specified legal tradition such as civil or common law, and 0 otherwise.

[26] Please see the Supplementary Appendix, Table 8 for the results using controls and legal origins.

[27] Both Rajan and Zingales (1998) and Klenow (1998) argue that there is low correlation across industrial growth rates. This low correlation in industrial growth stands as an additional reason for why causality (or the endogeneity of harmonization) is not a problem in our analysis.

on the other hand are found to have insignificant coefficients.[28] Column (4) shows that for non-EU 15 countries none of the variables of interest is significant. In order to correct for this problem in column (5) we report results for non-EU 15 countries with controls using additional instruments.[29] Harmonization index is then found to be positive and significant. The harmonization difference is also negatively significant implying that being an early adopter for non-EU 15 countries is not beneficial. In all estimations the Arellano-Bond tests of serial correlation show that we do not have any problems with the error terms in our regressions, whereas the Sargan tests do not report over identification problems regarding the instruments to be used in the estimation of the model in all columns.[30]

We have experimented with different control variables that are common to growth regressions. The inclusion of secondary school enrollment rate to account for differences in human capital across countries, government expenditures, or health expenditures does not alter the results reported by the dynamic panel data model.

To analyze the long-run effects of harmonization policies and the interaction term we divide each coefficient by $1 - \gamma$, where γ represents the coefficient of the lagged dependent variable in our model. The results show that the harmonization index has a positive coefficient for growth when we consider its long-run impact.[31] This suggests that, given the shorter sample, and the control variables selected, the effect of harmonization will be positive in the long-run. The interaction term has a negative effect on growth, suggesting that in the long-run, the benefits of harmonizing in a full sample of European economies may not work through the simultaneous effect of external finance dependence of industries. Overall, the results of interest confirm our findings from the benchmark model in that harmonization has a positive effect on growth once we take into account the harmonization difference measure and other controls.

5. Concluding Remarks

Starting with the adoption of the Euro in 1999, the European Union has taken initiatives in building a more integrated and harmonized financial market among its member states. With the establishment of the

[28] Column (3) uses government effectiveness and deposit money bank assets to central bank assets ratio as additional instruments. The inclusion of these variables as instruments does not bring significant changes to our estimations.
[29] The instruments used in the dynamic panel data model estimations fall under two categories; GMM and IV type instruments. GMM type instruments consist of endogenous variables such as the lagged dependent or explanatory variables. IV type instruments on the other hand are explanatory variables that are exogenous as well as additional set of instruments which are not part of the original equation. All columns use the 4th lag of the logarithm of gross value added in levels as GMM type instruments; whereas columns (1), (2) and (3) use political stability measure from the Worldwide Governance Indicators dataset, lag of the harmonization index, lag of the interaction term, and time dummies as IV type instruments. Column (4) in addition to these IV type instruments uses the ratio of deposit money bank assets to the sum of deposit money bank and central bank assets, stock market turnover ratio, and government effectiveness as instruments. For a further explanation of the variables please refer to the Supplementary Appendix. We make use of political stability as an instrument due to its exogeneity with industrial growth. Our estimations including this variable as a control does not depict significant results, which then strengthens our argument for using it as an instrument.
[30] The lags of instruments used for the dynamic panel data model specification are of vital importance. Due to the static nature of the problem, using a dynamic panel data model with an incorrect specification can bias our findings. In order to account for this we experiment with various lag structures and instruments.
[31] The EU-15 countries have a negative coefficient for harmonization that is insignificant in column (3) and a positive but insignificant coefficient in column (4). We believe that this alteration can be a result of the instruments selected in the analysis. Given that the coefficients are insignificant in either case we restrain from concluding that the long-run impact of harmonization in EU-15 countries is negative or positive.

Financial Services Action Plan, the European Commission has taken a further step to integrate the European countries through legislative and regulatory terms in banking, insurance and securities markets.

Since the goal of the FSAP is to enhance growth in Europe, this paper has assessed whether this has been the case or not. When using a standard specification --- regressing growth on harmonization controlling for country, industry and time fixed effects --- we find that harmonization did not have the expected effect. Instead, growth seems to have been negatively impacted by the introduction of the FSAP. However, this standard specification, used in other papers on financial deregulation and harmonization, fails to control for an important factor: the relative timing of adoption. Indeed, we would only expect harmonization to be beneficial if all countries adopt the directives. That is, adopting when others do not, would not imply true harmonization, putting early adopters at a disadvantage. Once we control for the relative timing of adoption, we find that harmonization has the expected positive effect on growth, whereas being an early adopter (mostly) has a negative effect. These results are shown to be robust to including different controls, splitting up the sample into different subgroups of countries, and extending the model to a dynamic specification.

This paper suggests several promising areas of future research. First, as time passes, and more data become available for a longer time period, a more in-depth dynamic analysis of the impact of the FSAP could be carried out. Of particular interest would be to see whether the different behavior of the non-EU 15 countries[32] that we uncovered gets mitigated over time. Second, our paper has gone beyond the simple cross-country analysis common to many studies by including industrial data. A next natural step would be to use firm-level data. Doing so would allow us to better measure the interaction between the impact of the FSAP and the dependence on external finance at the firm-level. Third, our paper shows that the relative timing of adoption is key to understand the impact of harmonization policies on growth. This suggests that controlling for this relative timing should be useful for other studies that have analyzed the impact of deregulation or harmonization.

[32] Another topic of interest is to uncover the channels that affect the EU-15 countries and explain their different behavior in some of our estimations.

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Appendix

Table 1: Financial harmonization and industrial growth

	Dependent Variables		
VARIABLES	**(1) GVAGRO**	**(2) GVAGRO**	**(3) GVAGRO**
Log of Gross Value Added (Lagged)	-0.0129***	-0.0129***	-0.0128***
	(-5.029)	(-5.027)	(-4.976)
	[0.00256]	[0.00256]	[0.00258]
Harmonization	-0.0105		
	(-1.323)		
	[0.00795]		
Harmonization interaction	0.0144*		
$(Harmonization \times exf)$	(1.804)		
	[0.00799]		
Harmonization*		-0.0110	
(21 directives)		(-1.371)	
		[0.00805]	
Harmonization* interaction		0.0145*	
$(Harmonization^{*} \times exf)$		(1.784)	
		[0.00812]	
Harmonization**			-0.0250***
(7 directives)			(-2.628)
			[0.00950]
Harmonization** interaction			0.0225*
$(Harmonization^{**} \times exf)$			(1.677)
			[0.0134]
Observations	17,380	17,380	17,380

R-squared	0.098	0.098	0.098
Country fixed effects	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes

Note: t-statistics are in parentheses (*** p<0.01, ** p<0.05, * p<0.1) and standard errors are in brackets. GVAGRO = Gross value added growth is equal to the gross value added which is adjusted by the gross value added price indices, 1995 = 100 from the EU KLEMS database. GVAGRO is calculated as GVAGRO = $log(gva_{i,s,t}) - log(gva_{i,s,t-1})$. $Harmonization_{i,t}$ = ln (1 + $lex_{i,t}$) where $lex_{i,t}$ represents the sum of all 27 directives which take on a value of 1 on and after the date that the directive under consideration goes into effect in that particular country, and a value of 0 otherwise. $Harmonization_{i,t^*}$ = ln (1 + $lexro_{i,t}$) where $lexro_{i,t}$ represents the sum of all 21 directives excluding the 6 directives implemented after 2003. $Harmonization_{i,t^{**}}$ = ln (1 + $banklex_{i,t}$) where $banklex_{i,t}$ represents the sum of all 7 banking directives. *exf* is the external finance dependence of U.S. firms in 1970s calculated by Rajan and Zingales (1998). The above estimations include the lagged logarithm of gross value added in levels. The regressions are estimated over 25 countries, 30 industries and 37 years. The 25 European Union countries included are: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Portugal, Poland, Slovakia, Slovenia, Spain, Sweden and the UK. The estimation period in our regressions is 1971 – 2007. The above estimations include country, industry, and time effects that are not reported here. t – statistics reported in the tables are based on country and industry-specific (clustered) heteroskedasticity and autocorrelation.

Table 2: Financial harmonization and industrial growth; new specifications with indices

	Dependent Variables						
		All countries		**EU-15**	**Euro**	**Non-EU 15**	**All countries**
VARIABLES	**(1) GVAGRO**	**(2) GVAGRO**	**(3) GVAGRO**	**(4) GVAGRO**	**(5) GVAGRO**	**(6) GVAGRO**	**(7) GVAGRO**
Log of Gross Value Added (Lagged)	-0.0128***	-0.0128***	-0.0128***	-0.00894***	-0.0103***	-0.0274***	-0.0129***
	(-5.004)	(-4.996)	(-4.990)	(-3.355)	(-3.763)	(-3.736)	(-5.029)
	[0.00257]	[0.00257]	[0.00256]	[0.00266]	[0.00274]	[0.00733]	[0.00256]
Harmonization				0.0176**	0.0234***	-0.0233*	0.0280***
				(2.375)	(2.971)	(-1.748)	(6.133)
				[0.00739]	[0.00788]	[0.0133]	[0.00456]
Harmonization interaction $(Harmonization \times exf)$				0.00421	0.00648	0.0134	0.0144*
				(0.596)	(0.811)	(0.591)	(1.804)
				[0.00707]	[0.00798]	[0.0227]	[0.00799]
Harmonizationdif							-0.0385***
							(-4.168)
							[0.00923]
Harmonization (Integration directives)	-0.00457						
	(-0.511)						
	[0.00893]						
Harmonization interaction $(Harmonization \times exf)$ (Integration directives)	0.0221*						
	(1.834)						
	[0.0121]						
Harmonization (Uniformity directives)		-0.0153*					
		(-1.848)					
		[0.00826]					
Harmonization interaction		0.0175					

$(Harmonization \times exf)$		(1.615)					
(Uniformity directives)		[0.0108]					
Harmonization			-0.00119				
(Other directives)			(-0.151)				
			[0.00783]				
Harmonization interaction			0.0207				
$(Harmonization \times exf)$			(1.472)				
(Other directives)			[0.0141]				
Observations	17,380	17,380	17,380	14,048	11,049	3,332	17,380
R-squared	0.098	0.098	0.098	0.111	0.123	0.116	0.098
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: t – statistics are in parentheses (*** p<0.01, ** p<0.05, * p<0.1) and standard errors are in brackets. GVAGRO = Gross value added growth is equal to the gross value added which is adjusted by the gross value added price indices, 1995 = 100 from the EU KLEMS database. GVAGRO is calculated as GVAGRO = $\log(gva_{i,s,t}) - \log(gva_{i,s,t-1})$. $\text{Harmonization}_{i,t} = \ln(1 + \text{lex}_{i,t})$ where $lex_{i,t}$ represents the sum of all 27 directives which take on a value of 1 on and after the date that the directive under consideration goes into effect in that particular country, and a value of 0 otherwise. *exf* is the external finance dependence of U.S. firms in 1970s calculated by Rajan and Zingales (1998). $Harmonizationdif_{i,t} = Harmonization_{i,t} - Harmonizationave_t$ where $Harmonizationave_t$ is the average harmonization across countries per year. The first three columns report the results for an industrial composition of financial harmonization directives. The FSAP directives are grouped under three categories; integration, uniformity and others. The construction of the indices follows the original calculations discussed in Section 2. The above estimations include the lagged logarithm of gross value added in levels. The regressions in the first three columns are estimated over 25 countries, 30 industries, and 37 years. The 25 European Union countries included are: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Portugal, Poland, Slovakia, Slovenia, Spain, Sweden and the U.K. Column (4) is estimated over 15 countries, 30 industries and 37 years. The EU-15 countries are: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden and the U.K. Column (5) is estimated over 12 euro countries and 37 years. The 12 euro countries are: Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, and Spain. Column (6) is estimated over 10 countries, 30 industries and 37 years. The 10 non-EU 15 countries included are: Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, and Slovenia. Column (7) includes all countries in the sample and is estimated over 25 countries, 30 industries and 37 years. The estimation period in our regressions is 1971 – 2007. The above estimations include country, industry, and time effects that are not reported here. t – statistics reported in the tables are based on country and industry-specific (clustered) heteroskedasticity and autocorrelation.

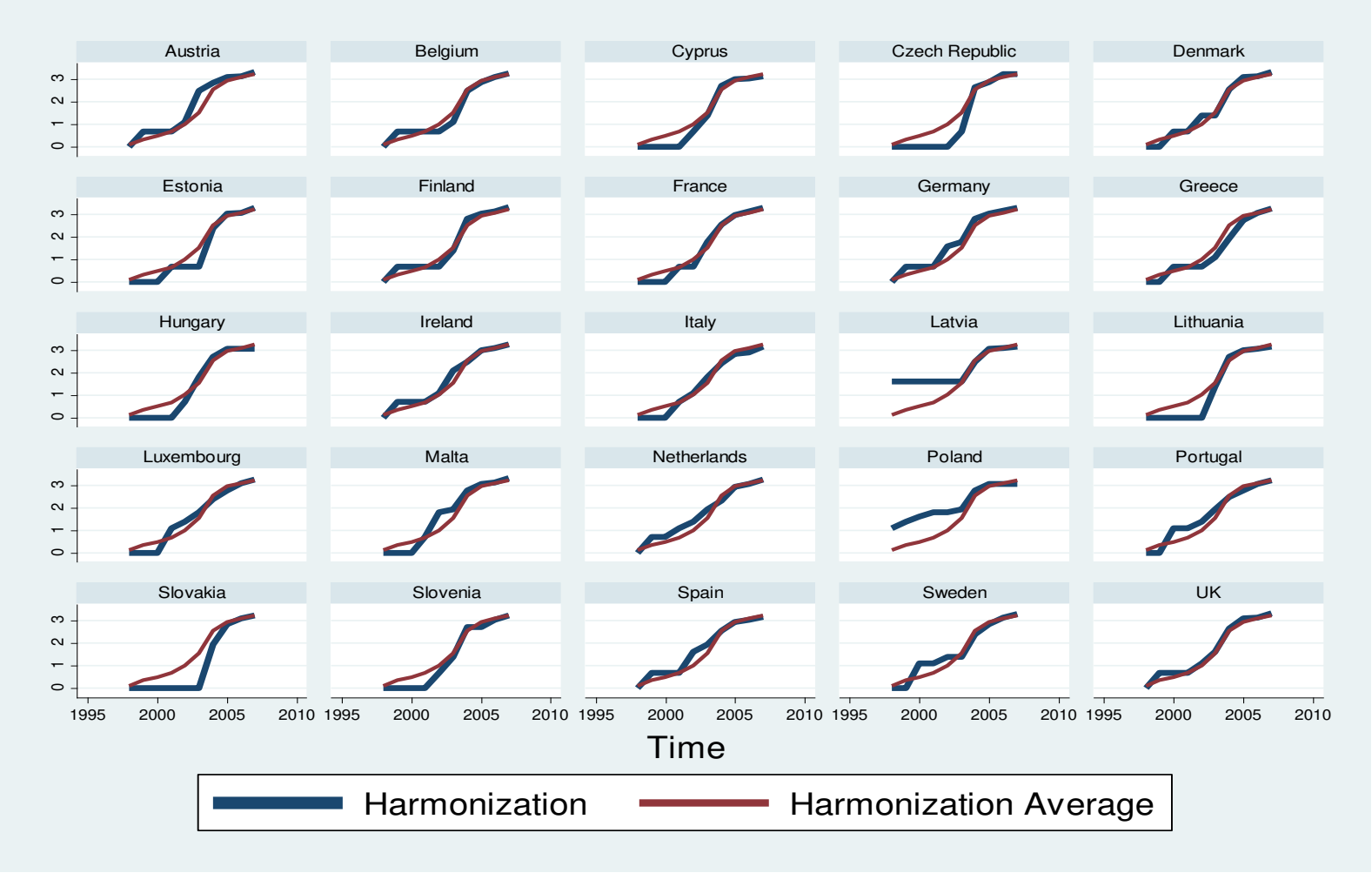

Figure 1: Evolution of financial harmonization policies across European countries

The figure above is generated in Stata and depicts the graphs for the harmonization index that is constructed using 27 directives of the Financial Services Action Plan and the harmonization average indicator which is the mean value of the harmonization index of 25 European countries per each year in our sample size.

Table 3: Financial harmonization and industrial growth; additional robustness checks

	Dependent Variables						
	EU-15	**Euro**	**Non-EU 15**	**No Latvia or Poland**		**No Cyprus, Luxembourg, Malta, or U.K.**	
VARIABLES	**(1) GVAGRO**	**(2) GVAGRO**	**(3) GVAGRO**	**(4) GVAGRO**	**(5) GVAGRO**	**(6) GVAGRO**	**(7) GVAGRO**
Log of Gross Value Added (Lagged)	-0.00894***	-0.0103***	-0.0274***	-0.0124***	-0.0124***	-0.0110***	-0.0110***
	(-3.355)	(-3.763)	(-3.736)	(-4.748)	(-4.748)	(-3.990)	(-3.990)
	[0.00266]	[0.00274]	[0.00733]	[0.00260]	[0.00260]	[0.00276]	[0.00276]
Harmonization	0.0217***	0.0245***	0.00979	-0.0143*	0.0285***	-0.00856	0.0255***
	(5.093)	(5.192)	(1.101)	(-1.671)	(6.159)	(-1.020)	(5.383)
	[0.00427]	[0.00473]	[0.00889]	[0.00854]	[0.00463]	[0.00840]	[0.00473]
Harmonization interaction $(Harmonization \times exf)$	0.00421	0.00648	0.0134	0.0125	0.0125	0.0140	0.0140
	(0.596)	(0.811)	(0.591)	(1.541)	(1.541)	(1.618)	(1.618)
	[0.00707]	[0.00798]	[0.0227]	[0.00811]	[0.00811]	[0.00865]	[0.00865]
Harmonizationdif	-0.00420	-0.00115	-0.0330**		-0.0428***		-0.0340***
	(-0.484)	(-0.123)	(-2.298)		(-4.391)		(-3.584)
	[0.00868]	[0.00931]	[0.0144]		[0.00974]		[0.00950]
Observations	14,048	11,049	3,332	16,745	16,745	15,182	15,182
R-squared	0.111	0.123	0.116	0.098	0.098	0.101	0.101
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: t – statistics are in parentheses (*** p<0.01, ** p<0.05, * p<0.1) and standard errors are in brackets. GVAGRO = Gross value added growth is equal to the gross value added which is adjusted by the gross value added price indices, 1995 = 100 from the EU KLEMS database. GVAGRO is calculated as GVAGRO = $log(gva_{i,s,t}) - log(gva_{i,s,t-1})$. $\text{Harmonization}_{i,t} = \ln(1 + \text{lex}_{i,t})$ where $lex_{i,t}$ represents the sum of all 27 directives which take on a value of 1 on and after the date that the directive under consideration goes into effect in that particular country, and a value of 0 otherwise. *exf* is the external finance dependence of U.S. firms in 1970s calculated by Rajan and Zingales (1998). $Harmonizationdif_{i,t} = Harmonization_{i,t} - Harmonizationave_t$

where $Harmonizationave_t$ is the average harmonization across countries per year. The above estimations include the lagged logarithm of gross value added in levels. Column (1) is estimated over 15 countries, 30 industries and 37 years. The EU-15 countries are: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden and the U.K. Column (2) is estimated over 12 euro countries, 30 industries and 37 years. The 12 euro countries are: Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, and Spain. Column (3) is estimated over 10 countries, 30 industries and 37 years. The 10 non-EU 15 countries included are: Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, and Slovenia. Columns (4) and (5) are estimated over 23 countries, 30 industries and 37 years, excluding Latvia and Poland. Finally columns (6) and (7) are estimated over 21 countries, 30 industries and 37 years excluding Cyprus, Luxembourg, Malta and the U.K. The estimation period in our regressions is 1971 – 2007. The above estimations include country, industry, and time effects that are not reported here. t – statistics reported in the tables are based on country and industry-specific (clustered) heteroskedasticity and autocorrelation.

Table 4: Financial harmonization and industrial growth; competing explanations

	Dependent Variables		
	(1)	**(2)**	**(3)**
VARIABLES	**GVAGRO**	**GVAGRO**	**GVAGRO**
Log of Gross value added (Lagged)	-0.0128***	-0.0128***	-0.0128***
	(-5.004)	(-4.996)	(-4.990)
	[0.00257	[0.00257]	[0.00256]
Harmonization	0.0368***		
(Integration directives)	(6.029)		
	[0.00611]		
Harmonization interaction	0.0221*		
$(Harmonization \times exf)$	(1.834)		
(Integration directives)	[0.0121]		
Harmonizationdif	-0.0414***		
(Integration directives)	(-3.804)		
	[0.0109]		
Harmonization		0.0409***	
(Uniformity Directives)		(6.196)	
		[0.00660]	
Harmonization interaction		0.0175	
$(Harmonization \times exf)$		(1.615)	
(Uniformity directives)		[0.0108]	
Harmonizationdif		-0.0562***	
(Uniformity directives)		(-5.148)	
		[0.0109]	
Harmonization			0.0488***
(Other directives)			(6.569)

			[0.00743]
Harmonization interaction			0.0207
$(Harmonization \times exf)$			(1.472)
(Other directives)			[0.0141]
Harmonizationdif			-0.0500***
(Other directives)			(-4.399)
			[0.0114]
Observations	17,380	17,380	17,380
R-squared	0.098	0.098	0.098

Note: t – statistics are in parentheses (*** p<0.01, ** p<0.05, * p<0.1) and standard errors are in brackets. GVAGRO = Gross value added growth is equal to the gross value added which is adjusted by the gross value added price indices, 1995 = 100 from the EU KLEMS database. GVAGRO is calculated as GVAGRO = $\log(gva_{i,s,t}) - \log(gva_{i,s,t-1})$. Harmonization$_{i,t}$ = ln (1 + lex$_{i,t}$) where *lex$_{i,t}$* represents the sum of all 27 directives which take on a value of 1 on and after the date that the directive under consideration goes into effect in that particular country, and a value of 0 otherwise. *exf* is the external finance dependence of U.S. firms in 1970s calculated by Rajan and Zingales (1998). $Harmonizationdif_{i,t} = Harmonization_{i,t} - Harmonizationave_t$ where $Harmonizationave_t$ is the average harmonization across countries per year. The first three columns report the results for an industrial composition of financial harmonization directives. The FSAP directives are grouped under three categories; integration, uniformity and others. The construction of the indices follows the original calculations discussed in Section 2. The above estimations include the lagged logarithm of gross value added in levels. The regressions in the first three columns are estimated over 25 countries, 30 industries, and 37 years. The 25 European Union countries included are: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Portugal, Poland, Slovakia, Slovenia, Spain, Sweden and the U.K. The estimation period in our regressions is 1971 – 2007. The above estimations include country, industry, and time effects that are not reported here. t – statistics reported in the tables are based on country and industry-specific (clustered) heteroskedasticity and autocorrelation.

Table 5: Financial harmonization and industrial growth; adding further controls

	Dependent Variables					
	All countries		**EU-15 countries**		**Non-EU 15 countries**	
VARIABLES	**(1) GVAGRO**	**(2) GVAGRO**	**(3) GVAGRO**	**(4) GVAGRO**	**(5) GVAGRO**	**(6) GVAGRO**
Log of Gross Value Added (Lagged)	-0.0103***	-0.0103***	0.000459	0.000459	-0.0262***	-0.0262***
	(-2.623)	(-2.623)	(0.113)	(0.113)	(-3.120)	(-3.120)
	[0.00393]	[0.00393]	[0.00407]	[0.00407]	[0.00838]	[0.00838]
Harmonization	-0.0160*	0.0832***	0.0106	0.0512	-0.0310**	0.0606
	(-1.780)	(2.804)	(1.236)	(0.933)	(-2.290)	(1.475)
	[0.00897]	[0.0297]	[0.00855]	[0.0548]	[0.0136]	[0.0411]
Harmonization interaction $(Harmonization \times exf)$	-0.00591	-0.00591	-0.0164*	-0.0164*	0.0168	0.0168
	(-0.576)	(-0.576)	(-1.654)	(-1.654)	(0.779)	(0.779)
	[0.0103]	[0.0103]	[0.00991]	[0.00991]	[0.0216]	[0.0216]
Harmonizationdif		-0.0992***		-0.0406		-0.0916**
		(-3.268)		(-0.734)		(-2.212)
		[0.0304]		[0.0553]		[0.0414]
Bank assets ratio	-0.205**	-0.205**	-0.0678	-0.0678	-0.249**	-0.249**
	(-2.482)	(-2.482)	(-0.427)	(-0.427)	(-2.551)	(-2.551)
	[0.0826]	[0.0826]	[0.159]	[0.159]	[0.0975]	[0.0975]
Turnover ratio	-0.0116*	-0.0116*	0.00751	0.00751	-0.0147	-0.0147
	(-1.670)	(-1.670)	(1.178)	(1.178)	(-1.227)	(-1.227)
	[0.00696]	[0.00696]	[0.00638]	[0.00638]	[0.0120]	[0.0120]
Government effectiveness	0.0376***	0.0376***	0.0219*	0.0219*	0.0458	0.0458
	(3.151)	(3.151)	(1.841)	(1.841)	(1.204)	(1.204)
	[0.0119]	[0.0119]	[0.0119]	[0.0119]	[0.0380]	[0.0380]
Regulatory quality	0.0855***	0.0855***	0.0504*	0.0504*	0.106*	0.106*
	(3.147)	(3.147)	(1.961)	(1.961)	(1.837)	(1.837)
	[0.0272]	[0.0272]	[0.0257]	[0.0257]	[0.0575]	[0.0575]

Rule of law	-0.0682***	-0.0682***	-0.0795***	-0.0795***	-0.0775*	-0.0775*
	(-2.929)	(-2.929)	(-2.849)	(-2.849)	(-1.935)	(-1.935)
	[0.0233]	[0.0233]	[0.0279]	[0.0279]	[0.0401]	[0.0401]
Observations	7,012	7,012	4,134	4,134	2,878	2,878
R-squared	0.097	0.097	0.098	0.098	0.119	0.119

Note: t – statistics are in parentheses (*** p<0.01, ** p<0.05, * p<0.1) and standard errors are in brackets. GVAGRO = Gross value added growth is equal to the gross value added which is adjusted by the gross value added price indices, 1995 = 100 from the EU KLEMS database. GVAGRO is calculated as GVAGRO = $\log(gva_{i,s,t}) - \log(gva_{i,s,t-1})$. Harmonization$_{i,t}$ = ln (1 + lex$_{i,t}$) where *lex$_{i,t}$* represents the sum of all 27 directives which take on a value of 1 on and after the date that the directive under consideration goes into effect in that particular country, and a value of 0 otherwise. *exf* is the external finance dependence of U.S. firms in the 1970s calculated by Rajan and Zingales (1998). $Harmonizationdif_{i,t} = Harmonization_{i,t} - Harmonizationave_t$ where $Harmonizationave_t$ is the average harmonization across countries per year. *Bank assets ratio* is the ratio of deposit money bank assets to the sum of deposit money bank assets and central bank assets, *Turnover ratio* is stock market turnover ratio, *Government effectiveness*, *Regulatory quality* and *Rule of law* are legal and institutional variables taken from the Worldwide Governance Indicators. The above estimations include the lagged logarithm of gross value added in levels. The regressions in columns (1) – (2) are estimated over 25 countries, 30 industries and 12 years. The 25 European Union countries included are: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Portugal, Poland, Slovakia, Slovenia, Spain, Sweden and the U.K. Columns (3) – (4) are estimated over 15 countries, 30 industries and 12 years. The EU-15 countries are: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden and the U.K. Columns (5) – (6) are estimated over 10 countries, 30 industries and 12 years. The 10 non-EU 15 countries included are: Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, and Slovenia. The estimation period in our regressions is 1996 – 2007. The above estimations include country, industry, and time effects that are not reported here. t – statistics reported in the tables are based on country and industry-specific (clustered) heteroskedasticity and autocorrelation.

Table 6: Financial harmonization and industrial growth; Arellano – Bond dynamic panel estimation with further controls

	Dependent Variables				
	All countries	**EU-15 countries**		**Non-EU 15 countries**	
VARIABLES	**(1) GVAGRO**	**(2) GVAGRO**	**(3) GVAGRO**	**(4) GVAGRO**	**(5) GVAGRO**
Gross Value Added Growth (Lagged)	-0.936***	-0.765*	-0.785*	-0.457	-0.329
	(-3.299)	(-1.648)	(-1.676)	(-1.379)	(-1.007)
	[0.284]	[0.464]	[0.469]	[0.332]	[0.327]
Harmonization	0.207**	-0.0144	0.000137	0.0205	0.0448*
	(2.101)	(-0.245)	(0.00799)	(0.345)	(1.714)
	[0.0987]	[0.0588]	[0.0172]	[0.0596]	[0.0262]
Harmonization interaction $(Harmonization \times exf)$	-0.131	-0.0671	-0.0509	-0.214	-0.245
	(-1.174)	(-0.687)	(-0.646)	(-1.338)	(-1.571)
	[0.112]	[0.0976]	[0.0787]	[0.160]	[0.156]
Harmonizationdif	-0.350**	-0.00893	-0.0189	0.0339	-0.296***
	(-2.382)	(-0.114)	(-0.281)	(0.129)	(-2.830)
	[0.147]	[0.0781]	[0.0673]	[0.262]	[0.105]
Bank assets	-11.99**	-0.990	-1.354	0.189	-0.956
	(-2.221)	(-0.245)	(-1.225)	(0.0913)	(-1.414)
	[5.399]	[4.046]	[1.105]	[2.065]	[0.677]
Turnover ratio	0.00177	-0.0134	-0.0275	0.0599	-0.0637
	(0.0318)	(-0.238)	(-0.426)	(0.376)	(-0.591)
	[0.0557]	[0.0565]	[0.0645]	[0.159]	[0.108]
Government Effectiveness	0.236***	-0.0115	-0.00219	0.924	0.169
	(2.719)	(-0.157)	(-0.0671)	(1.559)	(1.444)
	[0.0866]	[0.0733]	[0.0326]	[0.593]	[0.117]
Regulatory quality	-0.290	0.592	0.535**	-0.0382	-0.226
	(-0.681)	(1.578)	(2.497)	(-0.0545)	(-0.444)

	[0.426]	[0.375]	[0.214]	[0.701]	[0.508]
Rule of law	0.890	-0.205	-0.179	-0.636	-0.329
	(1.577)	(-0.428)	(-0.640)	(-1.289)	(-0.704)
	[0.564]	[0.480]	[0.280]	[0.494]	[0.468]
Observations	6,134	3,544	3,380	2,590	2,561
Number of groups	708	424	403	284	284
AB test for AR(1) (p value)	0.73	-0.21	-0.14	-1.04	-0.91
	(0.464)	(0.837)	(0.885)	(0.300)	(0.365)
AB test for AR(2) (p value)	-0.72	-1.66	-1.60	-1.15	-1.13
	(0.470)	(0.097)	(0.109)	(0.251)	(0.259)
Sargan test	0.203	0.177	0.505	0.060	0.027
Hansen test	0.367	0.401	0.622	0.115	0.192

Note: Robust t – statistics are in parentheses (*** p<0.01, ** p<0.05, * p<0.1) and standard errors are in brackets. GVAGRO = Gross value added growth is equal to the Gross value added which is adjusted by the gross value added price indices, 1995 = 100 from the EU KLEMS database. GVAGRO is calculated as GVAGRO = $\log(gva_{i,s,t}) - \log(gva_{i,s,t-1})$. Harmonization$_{i,t}$ = ln (1 + lex$_{i,t}$) where *lex$_{i,t}$* represents the sum of all 27 directives which take on a value of 1 on and after the date that the directive under consideration goes into effect in that particular country, and a value of 0 otherwise. *exf* is the external finance dependence of U.S. firms in 1970s calculated by Rajan and Zingales (1998). $Harmonizationdif_{i,t} = Harmonization_{i,t} - Harmonizationave_t$ where $Harmonizationave_t$ is the average harmonization across countries per year. *Bank assets ratio* is the ratio of deposit money bank assets to the sum of deposit money bank assets and central bank assets, *Turnover ratio* is stock market turnover ratio, *Government effectiveness*, *Regulatory quality* and *Rule of law* are legal and institutional variables taken from the Worldwide Governance Indicators. Regression in column (1) is estimated over 25 countries, 30 industries and 12 years. The 25 European Union countries included are: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Portugal, Poland, Slovakia, Slovenia, Spain, Sweden and the U.K. Column (2) is estimated over 15 countries, 30 industries and 12 years. The EU-15 countries are: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden and the U.K. Columns (3) and (4) are estimated over 10 countries, 30 industries and 12 years. The 10 non-EU 15 countries included are: Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, and Slovenia. The estimation period in our regressions is 1996 – 2007. All regressions are estimated using the Arellano – Bond dynamic panel GMM estimation with one lag of the dependent variable to be included in the model. All columns use the 4th lag of the logarithm of gross value added as GMM type instruments. Columns (1), (2) and (4) use political stability measure from World Governance Indicators dataset, first lag of the harmonization index, first lag of the interaction term and the time dummies as IV type instruments. Column (3) in addition to these IV type instruments employs the ratio of deposit money bank assets to the sum of deposit money bank and central bank assets, and government effectiveness as instruments, and column (5) introduces the ratio of deposit money bank assets to the sum of deposit money bank and central bank assets, and government effectiveness and stock market turnover ratio as instruments. The results reported here use the one-step estimator. (The estimations use the Stata xtabond2 command).