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No. 604

Lizethe Méndez and Steven Ongena

“Finance And Growth” Re-Loaded

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"FINANCE AND GROWTH" RE-LOADED

LIZETHE MÉNDEZ and STEVEN ONGENA

ABSTRACT

We assess the relationship between finance and growth over the period 1980-2014. We estimate a cross-country growth regression for 48 countries during 20 periods of 15 years starting in 1980 (to 1995) and ending in 1999 (to 2014). We use OLS and IV estimations and we find that: 1) overall financial development had a positive effect on economic growth during *all* periods of our sample, i.e., we confirm that from 1980 to 2014 financial services provided by the various financial systems were significant (to various degrees) for firm creation, industrial expansion and economic growth; but that, 2) the *structure* of *financial markets* was particularly relevant for economic growth until the financial crisis; while 3) the *structure* of the *banking sector* played a major role since; and finally that, 4) the *legal system* is the primary determinant of the effectiveness of the overall financial system in facilitating innovation and growth in (almost) *all* of our sample period. Hence, overall our results suggest that the relationship between finance and growth matters but also that it varies over time in strength and in sector origination.

JEL Classification: O16, G16, G20.

Key words: Financial Structure, Economic Growth, Financial Development.

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INTRODUCTION

We empirically assess the relationship between financial structure and economic growth for 48 countries over the period from 1980 to 2014. There are two theoretical approaches to explain the impact of financial structure on economic growth: the *bank-based* and the *market-based* ones. The first highlights that *bank-based* systems are better at mobilizing savings, identifying good investments, and exerting sound corporate control, particularly during early stages of economic development and in weak institutional environments. On the other hand, the *market-based* view emphasizes the advantages of markets in allocating capital, providing risk-management tools, and mitigating the problems associated with excessively powerful banks (Levine, 2002).

Those approaches stand in pointed contrast: the *bank-based* approach argues that bank activity is better than stock market development for economic growth, because: 1) well-developed markets quickly reveal information in public markets, which reduces the incentives for individual investors to acquire information and for identifying innovative projects; 2) in liquid markets investors can inexpensively sell their shares, so they have fewer incentives to monitor managers rigorously; and 3) greater market development may hinder corporate control and national productivity (Beck et al, 2001).

Meanwhile, the proponents of the *market-based* view stress the deficiencies of banking systems: 1) by acquiring expensive information about enterprises that can extract large rents from firms, and reducing the incentives to undertake high-risk and high-return projects; 2) banks have an inherent bias toward low risk, and low return project, and that may retard innovation and growth; 3) powerful banks may collude with firm managers against other investors, which stymies competition, effective corporate control, the emergence of new firms, and economic growth (Beck et al, 2001).

We wade into this debate by comprehensively revisiting the assessment of the relationship between finance and growth over the period 1980-2014. We estimate a cross-country growth regression for 48 countries during 20 periods of 15 years in duration starting in 1980 (to 1995) and ending in 1999 (to 2014). We find that overall financial development had a positive effect on economic growth during (almost) *all* periods of our sample (from 1980 to 2014). When we consider the activity of the financial system – i.e., the ratio of Total Value Traded and Bank Credit – the *market-based* structure was relevant for economic growth during eleven periods (from 1984 to 2009), while the development of the bank-based financial system was strongly relevant for economic activity *only* during the last four periods in our sample (from 1996 to 2014). Therefore, our results suggest that the relationship between finance and growth varies (rather dramatically) over time in strength and in sector origination.

The rest of the paper proceeds as follows. Section I reviews the literature, Section II introduces the estimated models and data. Section III presents the estimates. Section IV concludes.

I. Literature Review

We are obviously not the first to study the link between financial structure and economic growth. Goldsmith (1969) for example analyzes whether the mixture of markets and intermediaries operating in a country influence economic growth.[1] He shows that banks tend to become larger relative to national output as countries develop; he also presents evidence suggesting that stock markets and nonbank financial intermediaries frequently grow relative to banks in size and importance as countries expand economically; and he documents a

[1] Goldsmith (1969) considered that "One of the most important problems in the field of finance, if not the single most important one, … is the effect that financial structure and development have on economic growth" (as cited in Levine, 2005, p. 889).

positive correlation between overall financial development and the level of economic activity for 35 countries, using data from 1860 to 1963. However he is unable to provide much in terms of cross-country evidence due to then prevailing data limitations (Demirgüç-Kunt and Levine, 2001).

For over a century, the relationship between financial structure and economic growth primarily involved country studies of Germany and Japan as bank-based systems and the United States and the United Kingdom as market-based systems, but the four countries have very similar long-run growth rates, so it was difficult to correlate differences in financial structure with differences in long-run growth rates (Beck *et al.*, 2000).[2] That changed significantly in 2000, with the *New Database on the Structure and Development of Financial Sector* constructed by Beck, Demirgüç-Kunt and Levine. With more specific information of financial systems over the world, it was possible to improve the cross-country analysis between finance and economic growth with a wide variety of indicators that measure the size, activity and efficiency of financial intermediaries and markets. For example, Demirgüç-Kunt and Levine (2001) analyzes this data and observes that: 1) banks, nonbanks, stock markets, and bond markets are larger, more active, and more efficient in richer countries; 2) financial systems, on average, are more developed in richer countries; 3) in higher-income countries, stock markets tend to become more active and efficient relative to banks; and 4) there is a general tendency for a national financial systems to become more market-oriented as they become richer.

With the motivation to contribute to the long debate of financial structure and growth, Beck *et al.* (2001) use different datasets and econometric methodologies to assess the relationship

[2] Studies of Germany commonly focus on the extent to which banks own shares or vote proxy shares. Studies of Japan frequently focus on whether a company has a main bank. Studies of United States sometimes concentrate on the role of market takeovers as corporate control devices (Levine, 2002, p. 401).

between financial structure and economic development. They extend three papers on financial structure (Levine, 2002; Beck and Levine, 2001; Demirgüç-Kunt and Maksimovic, 2002). They examine the *bank-based* view, the *market-based* view, and also add two theoretical approaches: the *law and finance view*, which stresses that the legal system is the primary determinant of the effectiveness of the overall financial system in facilitating innovation and growth; and the *financial services view*, which argue that overall financial services provided by financial systems are crucial for firm creation, industrial expansion and economic growth. In both cases, it is not necessary the distinction between bank-based or market-based financial structure and those approaches deny that financial structure exert influence on growth.

First, they estimate standard cross-country growth regressions to answer the question: "Do countries with bank-based financial systems grow faster than countries with market-based systems, or is financial structure unrelated to the pace of economic development?" They explore the impact of financial structure on long-run economic growth in a sample of forty-eight countries, with data averaged over the period 1980-1995. They run an Ordinary Less Square (OLS) and Instrumental Variables (IV) regressions.

Second, they explore the impact of financial development and financial structure on industry growth and new firm creation based on an extension of the Rajan and Zingales (2001) model. They use a country-industry panel of 34 countries and 36 industries to test whether industries that depend more heavily on external finance grow faster in market- or bank-based financial systems, or whether it is the overall level of financial development that is critical in accounting for cross-country differences in industrial growth patterns. They also run OLS and IV models.

Third, they use firm-level data from a panel of 33 countries and six years between 1990 and 1995 to explore whether firms' access to external finance varies across financial systems with

different structures, or whether the overall level of initial development and legal system determine firms' access to external finance. They run an IV regression on this account.

After comparing the three methodologies, Beck *et al.* (2001) conclude that financial structure (the difference between bank-based and market-based systems) is not an analytically useful way to distinguish the relationship between finance and economic growth, and they argue that the *law and finance* and the *financial services* views are more useful to understand the impact of finance on economic growth. The first view stresses that the legal system is the primary determinant of the effectiveness of the financial system in facilitating innovation and growth. Work in this area uses indicators to examines legal rules covering the protection of corporate shareholders (*anti-director*) and creditors (*creditor*), the origin of these rules (*legal origin*), and the quality of their enforcement (*rule of law*).

La Porta et al. (1998) show that national *legal origin* strongly influences the legal and regulatory environment governing financial sector transactions. They explain that, in general, commercial laws come from two broad traditions: common law, which is English in origin, and civil law, which derives from Roman law. Within the civil tradition, there are three major families that modern commercial laws originate from: French, German and Scandinavian. They also argue that the quality of law enforcement is the highest in Scandinavian and German civil law countries, next highest in common law countries and the lowest in French civil law countries. Finally, they suggest that the French and the German civil traditions as well as the common law tradition (British), have spread around the world through a combination of conquest, imperialism, outright borrowing and more subtle imitation. Since legal origin explains cross-country differences in financial intermediary development and since legal origin is (reasonably) exogenous, Levine et al. (2000) use this set as instrumental variables to control for the simultaneity bias.

Creditor is an index of the degree to which the legal codes of the country protect the claims of secured creditors in the case of reorganization or liquidation of a company[3], and it ranges from 0 to 4. The authors explain that for higher values of *creditor*, outside investors have more rights relative to the management and other stakeholders, and should therefore be more willing to provide the external resources that firms need. *Anti-director* is an index of the degree to which the legal codes of the country protect minority shareholder rights, and it ranges from 0 to 6. In economies with higher values of *anti-director*, minority shareholders are better protected against expropriation by management and large shareholders and should therefore be more willing to provide external financing to firms. Finally, *Rule of law* is an assessment of the law and order tradition of a country that ranges from 10, strong law and order tradition, to 1, weak law and order tradition. In countries with a higher law and order tradition, outside investors can more easily enforce their claims and rights and should therefore be more willing to provide external finance.

Moreover, Beck *et al.* (2001) argue that the *financial-services* view consider key financial services that are crucial for firm creation, industrial expansion and economic growth. In this approach, the division between banks and markets in providing these services, is of secondary importance. Thus, the financial services view predicts that overall financial development is important for economic development, but also that financial structure per se will not add much to our understanding of the process of economic development.

[3] *Creditor* is the sum of four dummy variables that indicate whether: 1) the reorganization procedure does not impose an automatic stay on assets, thereby not preventing secured creditors from taking possession of loan collateral, 2) secured creditors are ranked first in the case of liquidation, 3) management does not stay in charge of the firm during reorganization, thereby enhancing creditors' power, and 4) management needs creditors' consent when filing for reorganization. *Anti-director* is the sum of six dummy variables that indicate whether: 1) shareholders are allowed to mail their proxy vote to the firm, 2) shareholders are not required to deposit their shares prior to the General Shareholders' Meeting, 3) cumulative voting or proportional representation of minorities on the board of directors is allowed, 4) an oppressed minority mechanism is in place, 5) the minimum percentage of share capital that entitles a shareholder to call for an Extraordinary Shareholders' Meeting is less than or equal to 10 percent, and 6) shareholders have preemptive rights that can only be waived by a shareholders' vote. *Rule of law* use the measure constructed by International Country Risk Guide (ICRG) and is an average over the period (1982-1995) (Beck et al., 2001, 203).

However other authors have obtained different results. Tadesse (2002) takes industry-level data from a panel of 36 countries and 10 industries over the period 1980-1995 and estimated an OLS grow equation to examines whether real economic performance varies across countries of differing financial architecture (*bank-based* or *market-based*). He finds that across countries with developed financial sectors, industries supported by market-based financial systems grow faster than industries with bank-based systems. Conversely, bank-based financial systems significantly outperform market-based systems across countries with underdeveloped financial sectors. Furthermore, he showed that market-oriented systems retard economic growth, and conversely, bank-oriented systems promote growth in countries dominated by smaller firms.

Other studies have been focusing only on the effect of banking structure on economic growth, in particular on banking concentration. For example, Cetorelli and Gambera (2001) provide evidence of a positive relationship between the level of development of the banking sector of an economy and its long-run output growth. In particular, they show that bank concentration promotes growth of those industrial sectors that are more in need of external finance by facilitating credit access to younger firms. However, they also find a general dead weight loss that depresses economic growth, which impacts all sectors and all firms indiscriminately. They base themselves on Rajan and Zingales (2001) to estimate a OLS and Instrumental Variables (IV) using a sample of 41 countries and, for each of them, 36 industries over the period 1980-1990.

Other researchers focus on the nonlinear relationship between financial structure and growth. Ergungor (2008) highlights that there is a nonlinear (contingent) relationship between financial structure and growth and posits that "countries that have an inflexible judicial system grow faster when have a more bank-oriented financial system". He uses a sample of 46 countries from 1980 to 1995 and runs a growth equation with IV regression.

Recently, different papers have emphasized the effect of financial structure on the firms' size. Beck and Singer (2013) combine two data sets and explore the relationship between financial structure and firm's access to financial services in a sample of eighty-nine countries during the period 1995-2008. They highlight two important aspects: 1) dominance of the financial system by banks is associated with lower use of financial services by firms of all sizes, while low-end financial institutions and specialized lenders seem particularly suited to ease access to finance in low-income countries; and 2) there is no evidence that smaller institutions are better in providing access to finance. Focusing also in the size of the firms, Kim, Lin and Chen (2016) adapt the methodology of Beck *el al.* (2008) and use data for forty-two countries and for each 33 industries over the period 1980-1990. They find evidence that industries dominated by small firms grow faster in a country with a more bank-based financial system. They also find that the effect of financial structure on industry growth runs mostly through growth in the number of establishments rather than through growth in the average size of establishments. Table 1 summarizes our empirical review.

Our paper represents an effort to contribute to the intense debate on whether financial structure promotes economic growth. We have concentrated on the methodology used by Beck et al (2001) to test the impact of financial structure on economic growth but we consider a larger period, over 1980-2014, and we used 20 event windows to test the hypothesis that financial structure matters for economic growth with OLS and IV estimates.

II. Estimated Models and Data

A. Estimated Models

We assess the impact of financial structure on economic growth in a sample of 48 countries with data averaged over the period 1980-2014. Using OLS, we estimate a modified growth regression used in Beck *et al* (2001) to test the validity of the *bank-based* or *market-based* approach as follow:

$$Growth_i = \alpha' X_i + \beta FD_i + \gamma FS_i + \varepsilon_i \qquad (1)$$

where $Growth$ is the average annual growth rate of real per capita GDP, X is a set of potential growth determinants, FD is a set of financial development indicators, FS is a set of financial structure indicators, and ε is the error term. Each financial structure predicts different signs for β andγ. The bank-based approach predicts that bank-based systems are better for growth, implying $\beta > 0$ and $\gamma < 0$; in that case, the overall financial system and the banking activity have a positive effect on economic growth. The *market-based* view expects that market-based financial systems grow faster, implying $\beta > 0$ and $\gamma > 0$; when both, the overall financial system and the stock market, have a positive impact on economic growth. Then, when $\beta > 0$ and γ is not significant, the financial structure is not relevant to explain economic growth and the overall financial system have a positive impact on growth. And finally, when both β and γ are not significant, neither the financial system nor the financial structure have an effect on economic growth.

We estimate equation (1) for twenty periods of fifteen years each one. We considered the model of Beck *et al* (2001) as point of departure, with the same number of countries and the initial period 1980-1995. Then we moved the period of 15 years, one by one, until our last year: 1981-1996, 1982-1997, 1983-1998… 1999-2014.

We also estimate a growth equation for 20 periods using the indicators of financial development as control variables as follows:

$$Growth_i = \alpha' X_i + \gamma FS_i + \varepsilon_i \qquad (2)$$

X include the set of potential growth determinants and the FD indicators, FS is the set of financial structure indicators and ε is the error term. Now we focus on signs of γ and the analysis is very similar. The market-based view expects that $\gamma > 0$ and the bank-based view predicts $\gamma < 0$. We run equation (2) for the 20 periods using OLS.

We also use instrumental variable (IV) estimations with Two-Stage Least-Squares (2SLS). We consider *legal origin (dummies)*, *creditor*, *anti-director* and *rule of law* as instrumental variables for financial development to extract the component of finance that is defined by the legal system. We examine the appropriateness of the instruments with Wooldridge's (1995) robust score test of overidentifying restrictions. The null hypothesis is that our instruments are valid. Beck et al. (2001) argue that we can interpret this result as indicating that the instruments affect real per capita GDP growth only through the financial development or structure indicators.

B. Data

We assess the impact of financial structure on economic growth in a sample of 48 countries took from different sources. All data definitions and sources are given in Table 2. Our dependent variable is the average annual growth rate of real per capita GDP. Following the methodology employed in Beck et al (2001), we use five indicators of financial *Development* (FD):

1) *Development Activity,* is a measure of overall activity of financial intermediaries and markets and it is defined as the log of the product of Private Credit and Value Traded;
2) *Development Size*, is a measure of the overall size of the financial sector and is defined as the log of the sum of Private Credit and Market Capitalization;
3) *Development Efficiency*, measures the efficiency of financial intermediaries and markets and is defined as the log of the ratio of Value Traded and Overhead Costs;
4) *Development Aggregate,* combines the previous three measures and is thus a conglomerate indicator of the activity, size and efficiency of the financial sector and it is the first principal component of the first three indicators;
5) *Development Dummy*; it equals 0 if both Private Credit and Value Traded are less than the sample mean and 1 otherwise.[4]

We field five financial *Structure* indicators (FS). Each of these measures is constructed so that higher values indicate more market-based financial systems:

1) *Structure Activity*, indicates the activity of stock markets relative to the activity of banks and is defined as the log of the ratio of Value of Equity Shares Traded and Bank Credit;[5]
2) *Structure Size*, indicates the size of stock markets relative to the size of the banking sector and is defined as the log of the ratio of Equity Market Capitalization and Bank Credit;

[4] Private Credit is the most comprehensive indicator of the activity of financial intermediaries as it includes both bank and nonbank intermediaries. Value Traded measures the activity of the stock market trading volume as a share of national output and thus indicates the degree of liquidity that stock markets provide to economic agents. Market Capitalization is defined as the value of listed shares divided by GDP and is a measure of the size of stock markets relative to the economy. Large Overhead Cost may reflect inefficiencies in the banking system and therefore proxy as a negative indicator of banking-sector inefficiency (Beck et al, 2001, p. 196-1996).

[5] Bank Credit equals the claims of the banking sector on the private sector as a share of GDP. This is focus on the commercial banking sector (Beck *et al*., 2001, p. 1997).

3) *Structure Efficiency* is defined as the log of the product of Overhead Cost and Value Traded and indicates the efficiency of the stock market relative to the banking sector;
4) *Structure Aggregate* combines the previous three measures and is thus a conglomerate indicator of the size, activity and efficiency of stock markets relative to banks. It is the first principal component of structure activity, structure size and structure efficiency;
5) *Structure Dummy*, is a bivariate classification of stock market versus bank-based financial systems. Is equals 1 if structure aggregate is greater than the sample median and 0 otherwise.

Appendix A shows the average of financial development and financial structure indicators from 1980 to 2014. We observe that Switzerland is the country with the highest level of financial activity with 9.81 followed by United States with 9.75 and Japan with 9.15 points. The lowest levels of financial activity are in Honduras, Ghana and Ecuador with 0, 1.13 and 1.81 points each. For the *Structure Activity* indicator we observe that the United States, Zimbabwe, Turkey and Pakistan have a more stock market activity than banking activity, and that therefore the indicators are positive. On the other hand, the lowest levels of *Structure Activity* indicate that in some countries banking activity is larger than stock market activity. While the classification of some countries is intuitively attractive, such as the United States being classified as market-based, the indicator also classifies Turkey and Zimbabwe as market-based; but, this classification is due to a low value of Bank Credit, rather than to a high level of Total Value of Equity Shares Traded (Beck et al., 2001).

Our set of potential growth determinants for each country is presented in Appendix B. We consider the initial GDP per capita to control for convergence; years of total schooling to control for the effect of human capital accumulation; the average rate of inflation as

macroeconomic stability; the government size as share of GDP to proxy for government intrusion; the average black market premium and the exports plus imports as share of GDP to capture the degree of openness of economies. We use *creditor*, *anti-director*, *rule of law* and three dummies for *legal origin* (British, French, and German relative to Scandinavian origin) as instruments. The Appendix C shows the mean statistics of our cross-country data: mean, standard deviation, minimum., maximum, and the number of observations.

III. Results

Tables 3 and 4 report the estimates for equation (1). First, we run our growth equation with OLS using heteroskedasticity-consistent standard errors considering as control variables the set of potential growth determinants and the set of Financial Development indicators. We find a positive relationship between the development of the overall financial system (banks, non-banks and stock market) and economic growth over the first ten periods (I-X). However, that relationship becomes insignificant from period XI until period XX. For example, the effect of *Financial Activity* has a positive effect of 0.57 on economic growth over the first period (1980-1995), then the coefficient decreases to 0.33 on the tenth period (1989-2004) but is it still significant; however in the next period the coefficient decrease and is no longer significant, and that insignificance persists until and including the last period (1999-2014). The results suggest that the magnitude and significance of financial development coefficients (size, efficiency, aggregate and dummy) also decrease during the last periods (Figure 1). The results only indicate that the overall financial sector development has a positive effect on long-run economic growth over the first ten periods (I-X).

The results in Table 3 are not only significant, but also economically important. To explain the economic view of our results we use the Development Activity coefficient of 0.5673 in period I (1980-1995). Now we consider the Development Activity indicator of France y

Germany in period I of 6.24 and 7.23 respectively (Appendix D). That implies that overall financial activity of Germany is 0.99 greater than financial activity of France. Then, if France had enjoyed Germany's level of financial activity during this 15-year period, the coefficient estimates that France would have grown 0.56 percentage points faster each year. This example are meant to illustrate the economic size of the coefficients and should not be viewed as elasticities.

Second, we run our grow equation with OLS and calculate heteroskedasticity-consistent standard errors considering our control variables and now our Financial Structure indicators (Table 4). The results suggest that Structure Activity is significantly related to economic growth on six periods (II-VII). The positive sign of Structure Activity coefficients indicates that market-based systems dominate during that periods (II-VII). The results also indicates that bank-based systems started to dominate since period XI (1990-2005) until XX (1990-2014), because the sign of Structure Activity indicator is negative during these periods, however, the coefficient is not significant.

Then we observe that Structure Size indicators are significantly related with economic growth over eight different periods (IX, X, XI, XII, XV, XVI, XVIII, XIX and XX). But now the coefficient is negative. That result suggest that considering the size of financial institutions commercial banks dominate financial systems and that banking activity is significantly related with economic growth over these eight periods. When we consider efficiency, we find that market-based systems are significant in two periods (II and III). And considering Structure Dummy (equals 1 if the first principal of structure activity, structure size and structure efficiency is greater than the sample median and 0 otherwise) we find three periods (X, XI and XII) where bank-based systems are significant for economic growth. Those results are too weak to conclude that financial structure matters for economic growth. Figure 2 shows the change of the coefficients across the time.

Third, we estimate the equation (2) with OLS again calculating heteroskedasticity-consistent standard errors and we also consider our Financial Development indicators as control variables. Table 5 show the results which indicates that bank-based financial systems dominate in our 48 countries sample over all 20 periods, because the sign of almost all the coefficients is negative. Figure 3 shows that coefficients on the last periods are more negative and banking activity is then higher (than stock market activity). We also find that the relationship between financial structure and economic growth was not significant during the first periods of the sample (I: 1980-1995 and VIII: 1989-2014). However, that relationship increases and become stronger from period IX (1988-2003) until period XIV (1994-2009). Then, the results over the periods XV (1995-2010)-XX (1999-2014) show that bank-based financial system is relevant for economic growth.

Then, Table 6 and Figure 4 present the IV coefficients for equation (1) with the instruments mentioned before. We confirm that financial development is positively correlated with long-run economic growth over (almost) *all* periods of our sample (since 1980-1995 until 1999-2014). Only in two regressions (of 100),[6] our coefficients were not statistically significant (numbers without asterisk). We also confirm that instruments affect real per capita GDP growth only through the financial development indicators (coefficients in bold).

Table 7 and Figure 5 show that financial structure was not highly correlated with economic growth, but we find that stock-market activity (positive coefficients in blue) prevail over banking activity (Bank Credit) in eleven periods (since 1984-1999 until 1994-2009). These results change when we consider financial development as a control variable (Table 8 and Figure 6). In that case, banking activity (negative coefficients in blue) prevail over stock-

[6] Each coefficient represents one regression using real GDP growth as dependent variable and considering the policy conditioning information set: logarithm of initial income, schooling, inflation, black market premium, government size, and trade openness.

market activity, but only it becomes stronger only during the last four periods of our sample data (from 1996-2011 to 1999). Those results are coherent, because at the same time that stock market prevail (in Table 7) banking activity becomes less significant (in Table 8), in particular considering the years of the financial crisis (2007, 2008 and 2009); and, at the end, becomes stronger in the last four periods.

We also find that *creditor*, *anti-director*, *rule of law* and three dummies for *legal origin* (British, French, and German relative to Scandinavian origin) were good instruments for the financial structure indicators. Only in eight regressions (of in total 500 regressions) we reject the null hypothesis that our instruments are valid (in Table 8).

IV. Conclusion

We estimate cross-country growth regressions for 48 countries during 20 periods of 15-years starting in 1980 and ending in 2014. Our results suggest, that using OLS coefficients overall financial system development had a positive effect on economic growth during the first ten periods (from 1980-1995 to 1989-2004) and financial structure was strongly linked with economic activity during the las five periods (from 1995-2010 to 1999-2014). When we use IV estimations (in equation 1) and we consider the financial development as control variables (equation 2), we see similar results. This evidence supports the *financial services* view as valid during *all* the periods (from 1980 to 2014). Second, we find that stock-market activity prevails during eleven periods (from 1984 to 2009) when we consider the ratio of the total value of equity stocks traded over bank credit as the financial structure indicator. Third, we observe that bank-based financial systems were pertinent to economic activity only during the last four periods of our sample. Therefore, financial structure matters for economic growth through time-varying manifestations. And, finally, our results also support the *law and*

finance view is valid in most of our sample data, because legal system characteristics are good instruments for the financial indicators during all sub-periods. Overall, we conclude that the relationship between financial structure and economic growth matters but also that it varies over time in strength and in sector origination.

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Figure 1. Financial Development Indicators and Real Economic Growth OLS

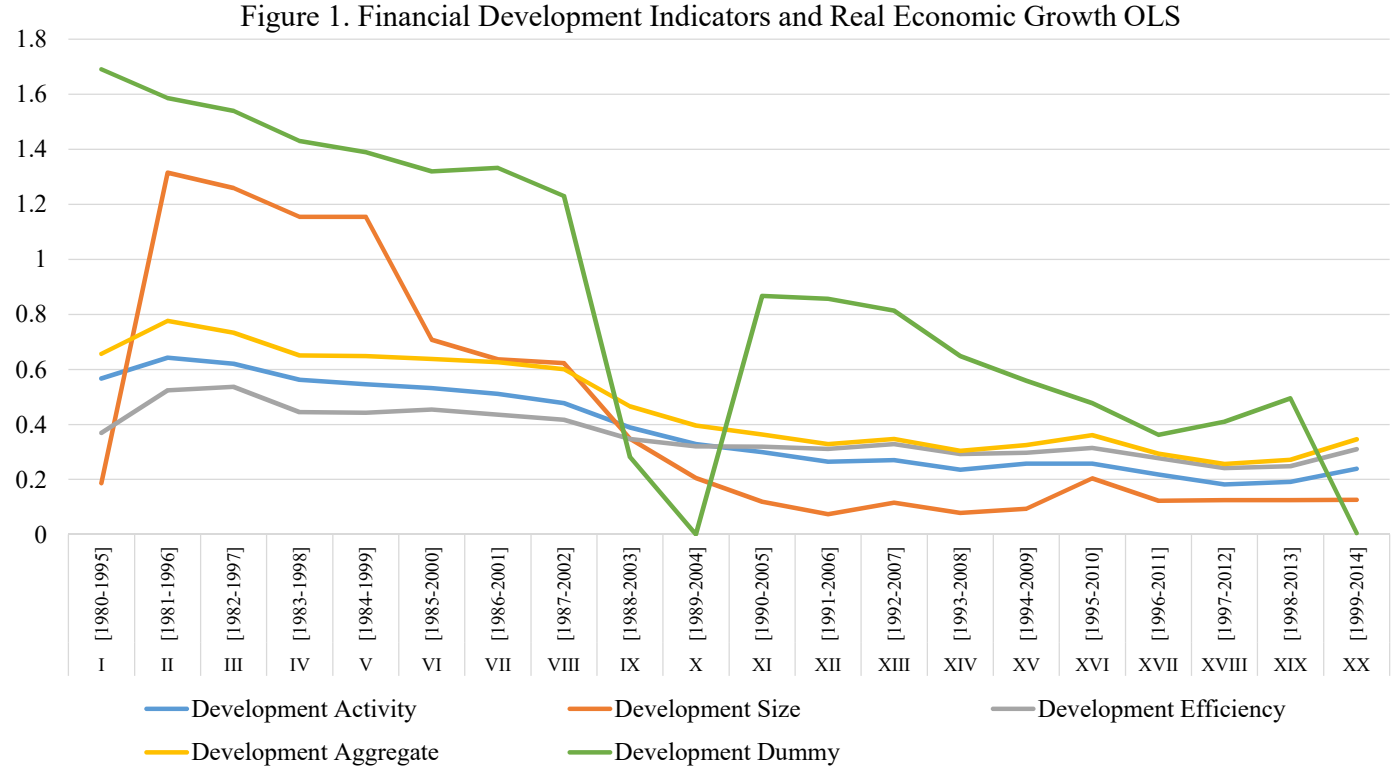


Figure 1 shows the evolution of the relationship between Financial Development Indicators and real Economic Growth with OLS coefficients (Table 2). The dependent variable is real GDP per capita growth.

Figure 2. Financial Structure and Economic Growth OLS

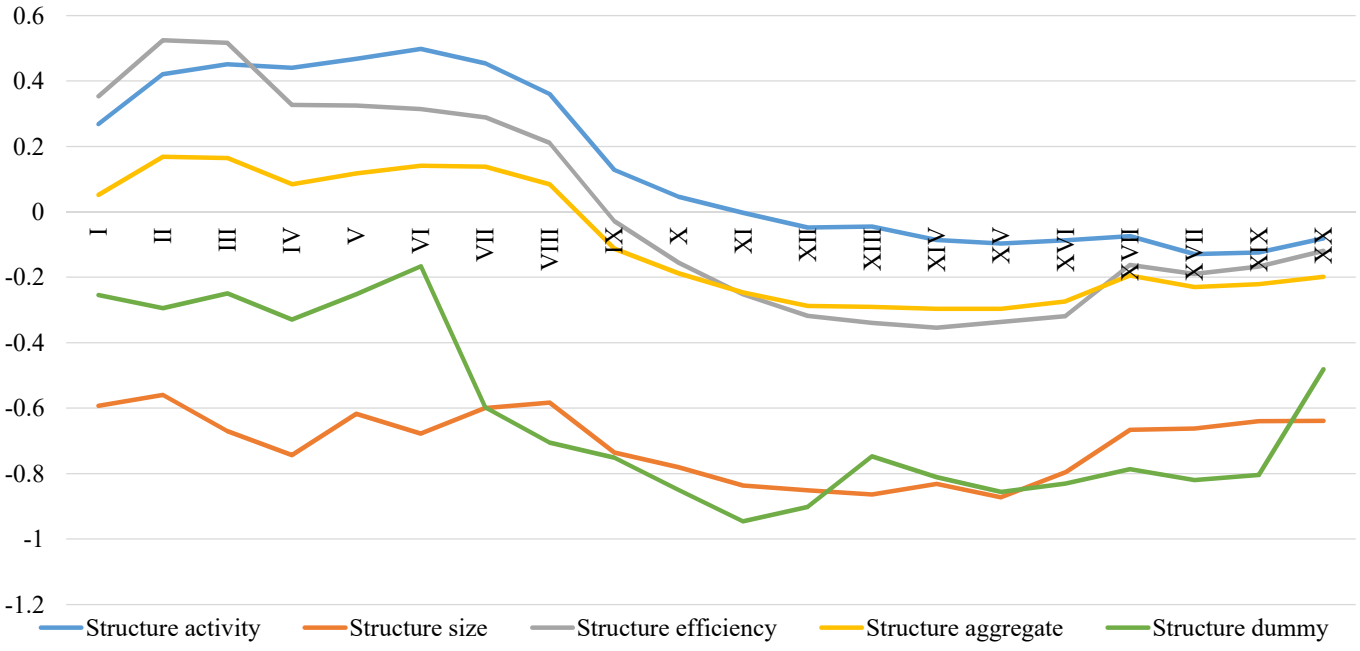


Figure 2 shows the evolution of the relationship between Financial Structure Indicators and real Economic Growth with OLS coefficents (Table 3). The dependent variable is real GDP per capita growth.

Figure 3. Financial Structure and Economic Growth controling by Financial Development with OLS

Figure 3a. Controlling by Development Activity

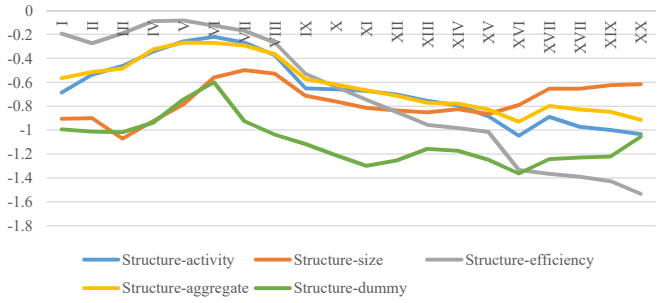


Figure 3b. Controlling by Development Size

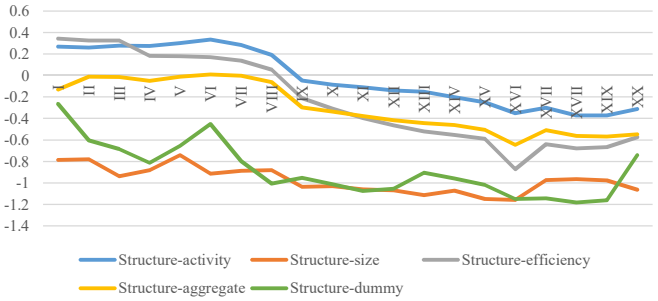


Figure 3c. Controlling by Development Efficiency

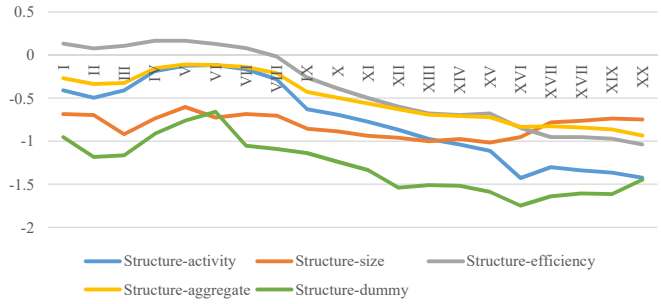


Figure 3d. Controlling by Development Aggregate

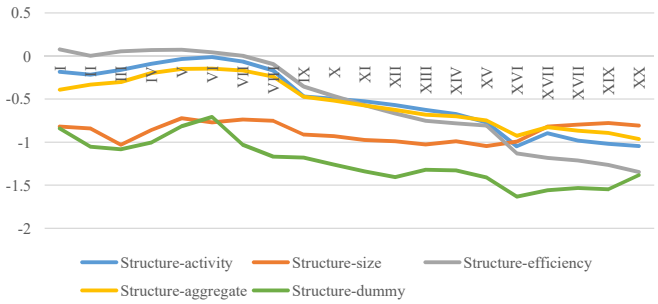


Figure 3e.Controlling by Development Dummy

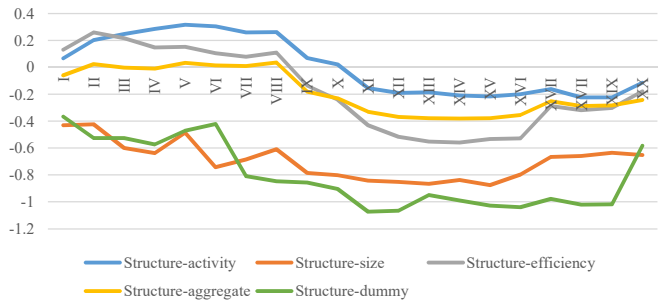


Figure 3 shows the evolution of the relationship between Financial Structure Indicators and real Economic Growth with OLS controling by Financial Development Indicators: Development Activity, Development Size, Development Efficiency, Development Aggregate and Development Dummy (Table 5). The dependent variable is real GDP per capita growth.

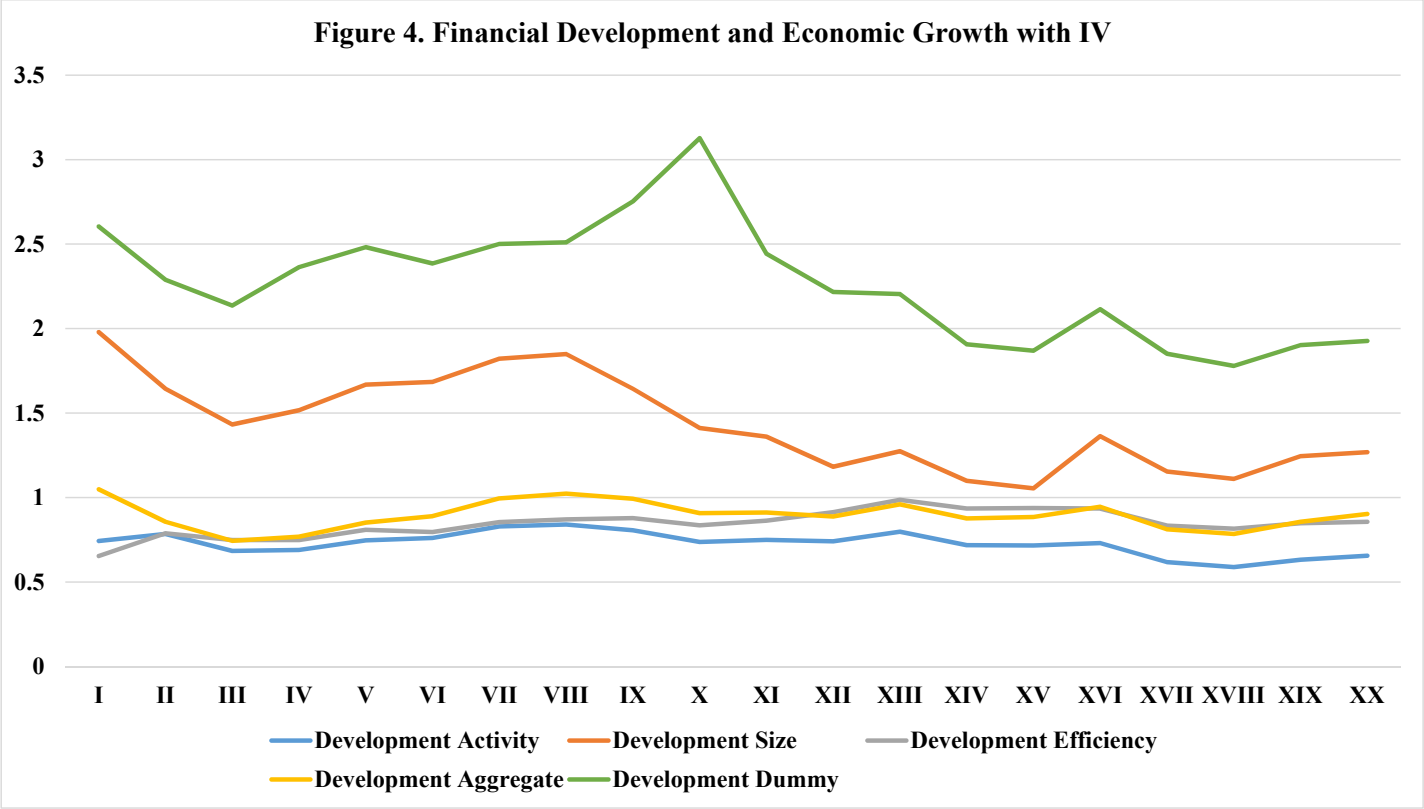


Figure 4 shows the evolution of the relationship between Financial Development Indicators and real Economic Growth with IV model (Table 6) with IV coefficients. The dependent variable is real GDP per capita growth.

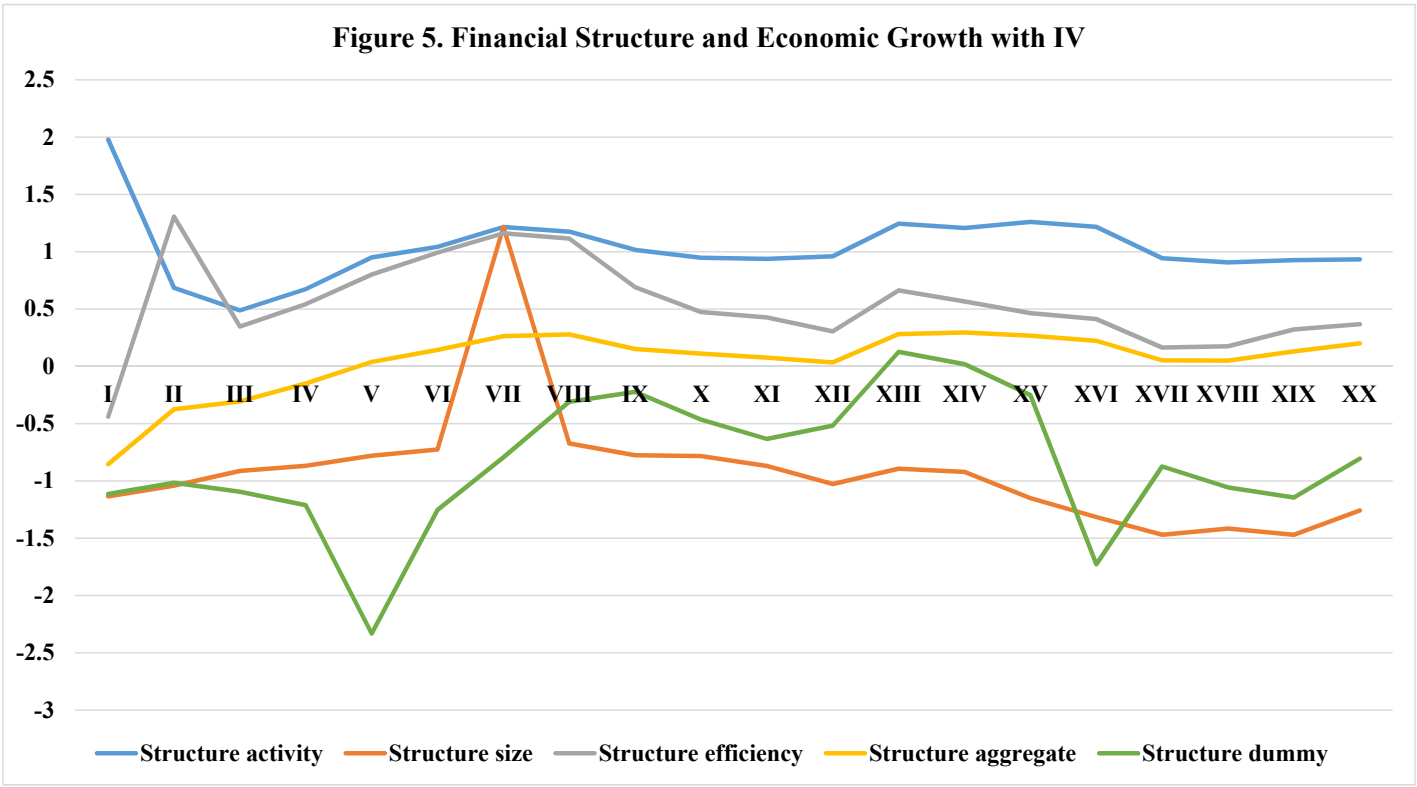
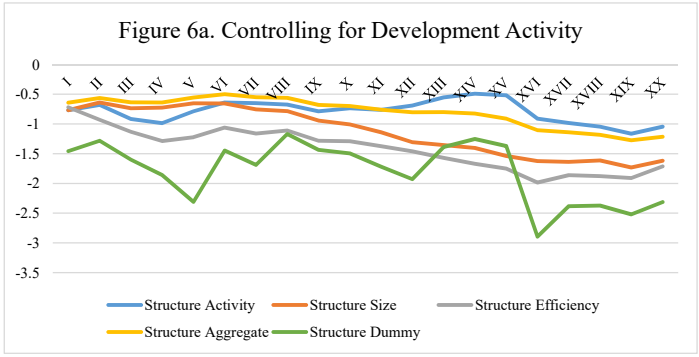
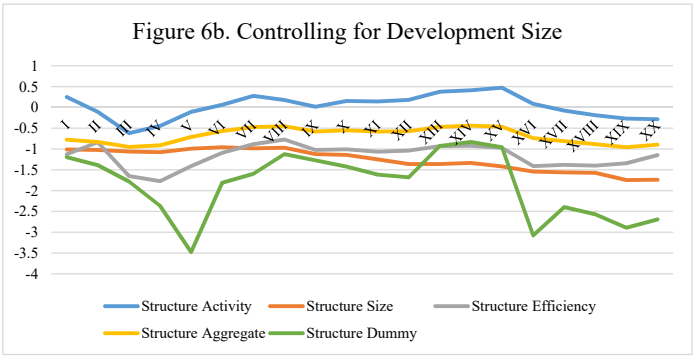
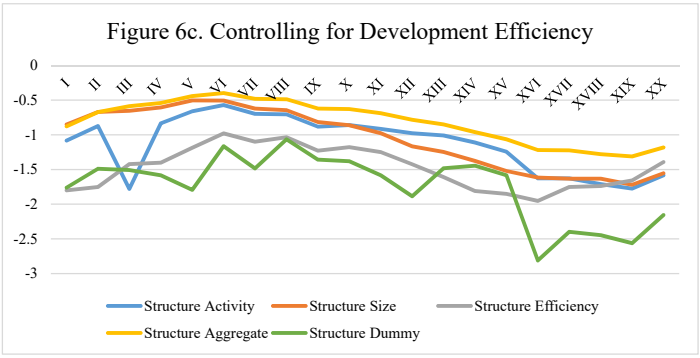


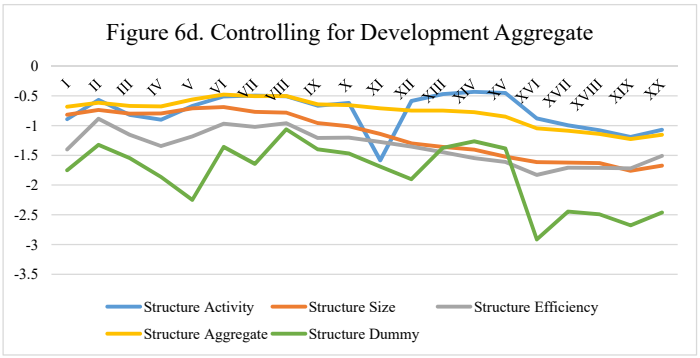
Figure 5 shows the evolution of the relationship between Financial Structure Indicators and real Economic Growth with with IV model (Table 7) with IV coefficients. The dependent variable is real GDP per capita growth.

Figure 6. Financial Structure and Economic Growth controling by Financial Development with IV









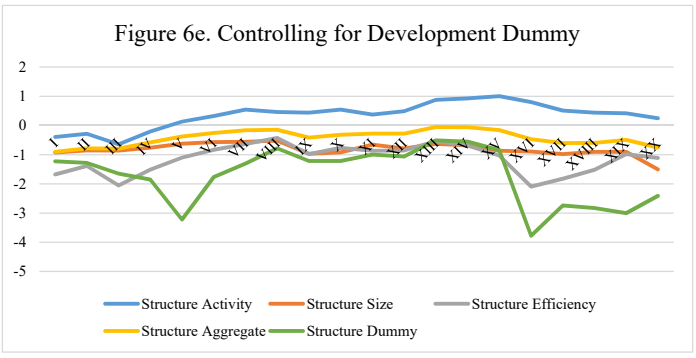


Figure 6 shows the evolution of the relationship between Financial Structure Indicators and real Economic Growth with IV model controling by Financial Development Indicators: Development Activity, Development Size, Development Efficiency, Development Aggregate and Development Dummy (Table 8). The dependent variable is real GDP per capita growth.

Table 1. Evidence of Financial Structure and Economic Growth

Paper	Countries-Industries	Period	Level of Analysis			Model		Source	Results
			Country	*Industry*	*Firm*	*OLS*	*IV*		
Goldsmith (1969)	35	1860-1963	*yes*			*yes*		Authors` data	positive correlation between financial structure and economic growth
Beck *et al* (2001)	48	1980-1995	*yes*			*yes*	*yes*	World Bank; OECD; GFDD; Barro and Lee (1996)	financial structure does not explain economic growth
	34-36	1980-1989		*yes*		*yes*	*yes*	World Bank; OECD; GFDD; Barro and Lee (1996); ISY-UN	financial structure doesn't explain economic growth
	33	1990-1995			*yes*		*yes*	Accounting data for the largest publicly traded manufacturing firms	financial structure doesn't explain economic growth
Tadesse (2002)	36-10	1980-1995		*yes*	*yes*	yes		World Bank; ISY-UN	in countries with developed financial sectors, industries supported by market-based system grow faster; In countries with undeveloped financial sectors, bank-based systems grow faster; and bank-based systems promote growth in countries dominated by smaller firms
Cetorelli and Gambera (2001)	41-36	1980-1990	*yes*	*yes*	*yes*	*yes*	*yes*	Rajan and Zingales data set made available by the authors; IBCA-Bank Scope 1997	positive relationship between banking sector and economic growth
Ergungor (2008)	46	1980-1995	*yes*				*yes*	Demirgüç-Kunt and Levine (2001); Djankov et al (2003); Larson et al (2000); La Porta et al (1998)	there is a nonlinear relationship between financial structure and economic growth
Beck and Singer (2013)	33, 36, 50	1995-2008	*yes*		*yes*	*yes*		World Bank's Enterprise Surveys; IMF-FSAP	dominance of the financial system by banks is associated with lower use of financial services by firms of all sizes
Kim, Lin and Chen (2016)	41-33	1980-1990	*yes*		*yes*	*yes*		Beck, Demirgüç-Kunt and Laeven (2008); Rajan and Zingales (1998); Beck and Levine (2002)	industries dominated by small firms grow faster in a country with a more bank-based financia system

Notes: World Bank national accounts data. OECD National Accounts data files. Global Financial Development Database (GFDD). Industrial Statistics Yearbook database by United Nations (ISYD-UN), International Monetary Fund (IMF)-Financial Sector Assessment Program (FSAP)

Table 2. Data Definitions and Sources

Name	Variable definition	Source
Growth	Annual percentage growth rate of GDP per capita based on constant 2010 U.S. dollars. GDP per capita is gross domestic product divided by midyear population	World Bank and OECD
Development Activity	Log(total value of equity stock traded as share of GDP x claims on private sector by financial institutions as share of GDP)	GFDD World Bank
Development Size	Log(equity market capitalization + claims on private sector by financial institutions as share of GDP)	GFDD World Bank
Development Efficiency	Log(total value of equity stocks traded as share of GDP divided by bank's overhead costs as share of total assets)	GFDD World Bank
Development Aggregate	First principal component of Development Activity, Development Size, and Development Efficiency	GFDD World Bank
Development Dummy	Takes value 0 if (claims on private sector by banks as share of GDP + value traded as share of GDP) are less than sample mean, 1 otherwise.	GFDD World Bank
Structure Activity	Log(total value of equity stocks traded divided by claims on private sector by commercial banks)	GFDD World Bank
Structure Size	Log(equity market capitalization divided by claims on private sector by commercials banks)	GFDD World Bank
Structure Efficiency	Log(total value of equity stocks traded as share of GDP times banks' overhead costs as share of total assets)	GFDD World Bank
Structure Aggregate	First principal components of Structure Activity, Structure Size, and Structure Efficiency	GFDD World Bank
Structure Dummy	Takes the value 1 if Structure Aggregate is above the median, 0 otherwise.	GFDD World Bank
Initial GDP	GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. Data are in constant 2010 U.S. Dollars	World Bank and OECD
Schooling	Average Years of Total Schooling	Barro and Lee (2011)
Inflation	Shows the rate of price change in the economy as a whole (%)	World Bank and OECD
Black Market Premium	Formula: (parallel Xrate/official Xrate-1)*100); values for industrial countries are added as 0	Levine and Renelt (1985, 1990-93); Adrian Wood (1988); and Global Development Finance & World Development Indicators (1996-1997).
Government	General government final consumption expenditure (% of GDP)	World Bank and OECD
Trade	Trade is the sum of exports and imports of goods and services measured as a share of gross domestic product. (% GDP)	World Bank and OECD
Creditor	An index aggregating different creditor rights, takes values from 1 to 4.	Beck et al. (2001)
Anti-director	An index aggregating the shareholder rights, takes values from 1 to 6.	Beck et al. (2001)
Rule of law	Measure of the law and order tradition of a country. It ranges from 10, strong law and order tradition, to 1, weak law and order tradition. Is an average over diferent periods.	ICRG
British origin	Takes the value 1 for countries with British legal origin, 0 otherwise.	Beck et al. (2001)
French origin	Takes the value 1 for countries with French legal origin, 0 otherwise.	Beck et al. (2001)
German origin	Takes the value 1 for countries with German legal origin, 0 otherwise.	Beck et al. (2001)
Scandinavian origin	Takes the value 1 for countries with Scandinavian legal origin, 0 otherwise.	Beck et al. (2001)

Notes: World Bank national accounts data and OECD National Accounts data files. Global Financial Development Database (GFDD). International Country Risk Guide (ICRG).

Table 3. Financial Development and Economic Growth

OLS Regressions. Dependent variable real GDP growth by period

Model	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII	XVIII	XIX	XX
Period	[1980-1995]	[1981-1996]	[1982-1997]	[1983-1998]	[1984-1999]	[1985-2000]	[1986-2001]	[1987-2002]	[1988-2003]	[1989-2004]	[1990-2005]	[1991-2006]	[1992-2007]	[1993-2008]	[1994-2009]	[1995-2010]	[1996-2011]	[1997-2012]	[1998-2013]	[1999-2014]
Development Activity	0.5673***	0.6424***	0.6204***	0.5627***	0.5456***	0.5322***	0.5112***	0.4774***	0.3893**	0.3286*	0.299	0.265	0.2704	0.2351	0.2578	0.258	0.2175	0.1819	0.191	0.239
Development Size	0.1868	1.3149*	1.2588*	1.1538*	1.1545*	0.7076	0.6364	0.6226	0.3482	0.2057	0.1197	0.0735	0.1153	0.0788	0.0939	0.2041	0.1223	0.1255	0.1255	0.1257
Development Efficiency	0.3687*	0.5235**	0.537**	0.4446**	0.4422**	0.4541**	0.4358**	0.4171**	0.3472*	0.3207*	0.3188*	0.3107	0.3283	0.2925	0.2969	0.3144	0.2773	0.2414	0.248	0.3097
Development Aggregate	0.657**	0.7766***	0.7329***	0.651**	0.6481**	0.6378**	0.626**	0.6005**	0.4654*	0.3961	0.3636	0.329	0.3476	0.3037	0.3247	0.3615	0.2934	0.2559	0.2719	0.3462
Development Dummy	1.6903**	1.5859**	1.5393*	1.4302*	1.3891*	1.3193*	1.3325*	1.2293	0.2818	0.0004	0.8667	0.8569	0.8139	0.6481	0.5592	0.4777	0.3618	0.4099	0.4947	0.0053

Notes: all regressions include the policy conditioning information set: logarithm of initial income, schooling, inflation, black market premium, government size, and trade openness.

*Statistical significance at 10% level

**Statistical significance at 5% level

***Statistical significance at 1% level

Table 4. Financial Structure and Economic Growth

OLS Regressions. Dependent variable real GDP growth by period

Model	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII	XVIII	XIX	XX
Period	[1980-1995]	[1981-1996]	[1982-1997]	[1983-1998]	[1984-1999]	[1985-2000]	[1986-2001]	[1987-2002]	[1988-2003]	[1989-2004]	[1990-2005]	[1991-2006]	[1992-2007]	[1993-2008]	[1994-2009]	[1995-2010]	[1996-2011]	[1997-2012]	[1998-2013]	[1999-2014]
Structure Activity	0.2678	0.4206*	0.4506*	0.44*	0.4679*	0.4976*	0.4538*	0.3598	0.1285	0.0459	-0.0034	-0.0481	-0.0448	-0.0861	-0.0969	-0.087	-0.0743	-0.129	-0.1238	-0.0816
Structure Size	-0.5925	-0.5592	-0.6706	-0.7432	-0.6169	-0.6776	-0.5997	-0.5827	-0.7358*	-0.7804*	-0.8366*	-0.8512*	-0.8635	-0.8319	-0.8723*	-0.7967*	-0.6662	-0.6625*	-0.6401*	-0.6384*
Structure Efficiency	0.3535	0.5246**	0.5167**	0.3269	0.3246	0.314	0.2887	0.2104	-0.028	-0.1553	-0.2523	-0.3176	-0.3396	-0.3544	-0.3366	-0.3185	-0.1624	-0.1895	-0.1671	-0.1196
Structure Aggregate	0.052	0.168	0.1642	0.0845	0.1176	0.1412	0.1382	0.0843	-0.113	-0.1881	-0.2467	-0.2878	-0.2909	-0.2964	-0.2965	-0.2735	-0.1943	-0.2297	-0.2207	-0.1983
Structure Dummy	-0.2541	-0.2947	-0.2492	-0.3301	-0.2527	-0.1664	-0.598	-0.7056	-0.7517	-0.8504*	-0.9461*	-0.9024*	-0.7473	-0.8108	-0.8562	-0.831	-0.787	-0.8203	-0.8038	-0.4809

Notes: all regressions include the policy conditioning information set: logarithm of initial income, schooling, inflation, black market premium, government size, and trade openness.

*Statistical significance at 10% level

**Statistical significance at 5% level

***Statistical significance at 1% level

Table 5. Financial Structure and Economic Growth

OLS Regressions. Dependent variable real GDP growth	I [1980-1995]	II [1981-1996]	III [1982-1997]	IV [1983-1998]	V [1984-1999]	VI [1985-2000]	VII [1986-2001]	VIII [1987-2002]	IX [1988-2003]	X [1989-2004]	XI [1990-2005]	XII [1991-2006]	XIII [1992-2007]	XIV [1993-2008]	XV [1994-2009]	XVI [1995-2010]	XVII [1996-2011]	XVIII [1997-2012]	XIX [1998-2013]	XX [1999-2014]
1. Controlling for Development Activity																				
Structure Activity	-0.686*	-0.5357	-0.4637	-0.3433	-0.2595	-0.2213	-0.2682	-0.3746	-0.6505	-0.6592	-0.6718	-0.7021	-0.7565	-0.7921	-0.8853*	-1.0488*	-0.8907*	-0.9714**	-0.9983**	-1.0347**
Structure Size	-0.9048***	-0.8993***	-1.0711***	-0.9256**	-0.7865*	-0.5594	-0.4998	-0.5295	-0.7125*	-0.7612**	-0.8146**	-0.8358*	-0.8516	-0.8248	-0.8652*	-0.7911*	-0.654	-0.6533	-0.6252	-0.6156
Structure Efficiency	-0.1949	-0.2737	-0.1901	-0.0883	-0.0849	-0.1259	-0.1694	-0.2683	-0.5298	-0.64	-0.7477*	-0.8507*	-0.9568**	-0.9834**	-1.0147**	-1.3351***	-1.3661***	-1.3888***	-1.4276***	-1.5333***
Structure Aggregate	-0.5653*	-0.514*	-0.4845*	-0.3244	-0.2682	-0.2708	-0.2926	-0.3639	-0.5749**	-0.6183**	-0.6683**	-0.7139**	-0.7716**	-0.7809*	-0.8271**	-0.9295***	-0.7976**	-0.8288**	-0.8476**	-0.9135***
Structure Dummy	-0.9933*	-1.0114*	-1.0193*	-0.9366	-0.7438	-0.5995	-0.9274**	-1.0392**	-1.1165**	-1.2118**	-1.2987**	-1.2544**	-1.1584*	-1.1729*	-1.2493*	-1.3624**	-1.2434**	-1.2292*	-1.2226*	-1.055
2. Controlling for Development Size																				
Structure Activity	0.2689	0.2587	0.2767	0.2726	0.3	0.3344	0.2839	0.1896	-0.0474	-0.0867	-0.1112	-0.1388	-0.1521	-0.2011	-0.2498	-0.3505	-0.3014	-0.3719	-0.3735	-0.3118
Structure Size	-0.7869*	-0.7796*	-0.9368*	-0.882*	-0.7414	-0.9153**	-0.8872**	-0.8824**	-1.037**	-1.0296**	-1.0595**	-1.0699*	-1.1143*	-1.0728*	-1.1503*	-1.1594*	-0.9722*	-0.9657*	-0.9768*	-1.0619*
Structure Efficiency	0.3423	0.326	0.3233	0.1814	0.1798	0.1696	0.1376	0.0543	-0.2104	-0.3089	-0.3956	-0.4642	-0.5202	-0.5547	-0.5902*	-0.8731**	-0.6394*	-0.6776**	-0.6657**	-0.5748**
Structure Aggregate	-0.1297	-0.0119	-0.014	-0.0493	-0.0119	0.0084	-0.003	-0.0636	-0.2964	-0.3375	-0.3788	-0.4167**	-0.4436	-0.4609	-0.507	-0.646*	-0.5103*	-0.5633*	-0.5682*	-0.5484*
Structure Dummy	-0.2638	-0.6048	-0.6855	-0.8129	-0.6544	-0.4539	-0.7972*	-1.0077*	-0.9538*	-1.0116*	-1.0737*	-1.0542*	-0.9061	-0.9578	-1.0183	-1.1493*	-1.1422*	-1.1821*	-1.1617*	-0.7425
3. Controlling for Development Efficiency																				
Structure Activity	-0.4085	-0.4967	-0.4098	-0.1882	-0.1249	-0.1157	-0.165	-0.2803	-0.6275	-0.6937	-0.7742*	-0.8678*	-0.9749*	-1.036*	-1.1103**	-1.4298***	-1.3017***	-1.3402***	-1.3643***	-1.4257***
Structure Size	-0.6843*	-0.6964*	-0.919**	-0.7383	-0.6045	-0.7257**	-0.6861**	-0.7018**	-0.8554***	-0.8873***	-0.9371**	-0.9613**	-1.0017**	-0.9729*	-1.014**	-0.9505**	-0.7822*	-0.761*	-0.7354*	-0.7479*
Structure Efficiency	0.1322	0.0779	0.105	0.1669	0.1669	0.1282	0.0814	-0.0153	-0.2595	-0.3867	-0.4979	-0.5991*	-0.6769*	-0.6959*	-0.6777*	-0.843**	-0.9523**	-0.9536**	-0.9697**	-1.0377***
Structure Aggregate	-0.2685	-0.3363	-0.323	-0.1542	-0.1101	-0.1159	-0.1381	-0.2085	-0.4283	-0.4934*	-0.5627*	-0.63**	-0.6925**	-0.707**	-0.7214**	-0.8347***	-0.8265**	-0.8421***	-0.8616***	-0.9353***
Structure Dummy	-0.951	-1.1836**	-1.1647*	-0.9159	-0.7644	-0.6597	-1.0521**	-1.0887**	-1.1394**	-1.2381**	-1.336**	-1.5387**	-1.5101**	-1.5159**	-1.5867**	-1.7477**	-1.64**	-1.6056**	-1.6132**	-1.4471*
4. Controlling for Development Aggregate																				
Structure Activity	-0.1824	-0.2178	-0.1607	-0.0913	-0.0359	-0.0118	-0.0649	-0.1698	-0.4684	-0.495	-0.5261	-0.5682	-0.6236	-0.6738	-0.7701	-1.0507**	-0.8977*	-0.9819**	-1.0178**	-1.0453**
Structure Size	-0.8187***	-0.8393**	-1.0316***	-0.861*	-0.7218	-0.7714**	-0.7384**	-0.7534**	-0.9103***	-0.9308**	-0.9728**	-0.9892**	-1.025**	-0.9895*	-1.045**	-0.9919**	-0.8182*	-0.7961*	-0.7768*	-0.8091*
Structure Efficiency	0.0755	0.0022	0.055	0.0705	0.0725	0.0427	0.0015	-0.0921	-0.3543	-0.4663	-0.5704*	-0.6668*	-0.7524*	-0.7822*	-0.8071**	-1.1309***	-1.1822**	-1.2143**	-1.2639**	-1.3445***
Structure Aggregate	-0.3919	-0.3306	-0.3008	-0.1966	-0.149	-0.1473	-0.1681	-0.2376	-0.4716	-0.5187*	-0.5726*	-0.6264*	-0.6817*	-0.6992*	-0.7496**	-0.9253***	-0.8274**	-0.8663**	-0.8946**	-0.9651***
Structure Dummy	-0.8399	-1.0513*	-1.0813*	-1.0045*	-0.8145	-0.7064	-1.0296**	-1.1685**	-1.1802**	-1.261**	-1.3376**	-1.405**	-1.3209*	-1.3289*	-1.411*	-1.6324**	-1.558**	-1.5313**	-1.5462**	-1.3838*
5. Controlling for Development Dummy																				
Structure Activity	0.0655	0.2017	0.2475	0.2866	0.3156	0.3043	0.2591	0.2618	0.0691	0.0213	-0.1544	-0.1912	-0.1851	-0.21	-0.2172	-0.2	-0.1617	-0.2228	-0.2236	-0.1129
Structure Size	-0.4308	-0.424	-0.6	-0.6384	-0.4854	-0.7427*	-0.6845*	-0.608*	-0.7849*	-0.8009*	-0.8411**	-0.8505*	-0.8651*	-0.8369*	-0.8756*	-0.7967*	-0.6654*	-0.6584*	-0.6358*	-0.6507
Structure Efficiency	0.131	0.2586	0.2171	0.1471	0.1518	0.1056	0.0794	0.1088	-0.1355	-0.2396	-0.4315	-0.5157	-0.5524	-0.5589	-0.5335	-0.5281	-0.2877	-0.3191	-0.3027	-0.1776
Structure Aggregate	-0.0583	0.0233	-0.002	-0.0085	0.0326	0.0135	0.0089	0.0358	-0.1795	-0.2311	-0.3303	-0.3692	-0.3774	-0.3793	-0.3783	-0.3548	-0.2518	-0.2884	-0.2837	-0.2425
Structure Dummy	-0.3669	-0.5257	-0.5267	-0.5737	-0.4708	-0.422	-0.8089*	-0.8461*	-0.8553*	-0.9037	-1.073*	-1.065*	-0.9498	-0.9895	-1.0284	-1.0403	-0.9774	-1.0206	-1.0178	-0.5828

Notes: all regressions include the policy conditioning information set: logarithm of initial income, schooling, inflation, black market premium, government size, and trade openness.

*Statistical significance at 10% level.

**Statistical significance at 5% level.

***Statistical significance at 1% level.

Table 6. Financial Development and Economic Growth IV

IV Regressions. Dependent variable real GDP growth by period

Model	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII	XVIII	XIX	XX
Period	[1980-1995]	[1981-1996]	[1982-1997]	[1983-1998]	[1984-1999]	[1985-2000]	[1986-2001]	[1987-2002]	[1988-2003]	[1989-2004]	[1990-2005]	[1991-2006]	[1992-2007]	[1993-2008]	[1994-2009]	[1995-2010]	[1996-2011]	[1997-2012]	[1998-2013]	[1999-2014]
Development Activity	**0.7433*** **	**0.7845*** **	**0.6845** **	**0.6896** **	**0.7473*** **	**0.7611*** **	**0.8293*** **	**0.8409*** **	**0.8068** **	**0.7377** **	**0.7500** **	**0.7411** **	**0.7983** **	**0.7184** **	**0.7169* **	**0.7310** **	**0.6176** **	**0.5884* **	**0.6321* **	**0.6561** **
Development Size	**1.9791** **	**1.6442** **	**1.4325** **	**1.5165** **	**1.6686** **	**1.6842** **	**1.8215*** **	**1.8490** **	**1.6433** **	**1.4113** **	**1.3602* **	**1.1826* **	**1.2745* **	**1.0988**	**1.0551* **	**1.3634* **	**1.1540* **	**1.1102* **	**1.2448* **	**1.2683* **
Development Efficiency	**0.6537 ** **	**0.7885*** **	**0.7483** **	**0.7485** **	**0.8092*** **	**0.7958*** **	**0.8546*** **	**0.8708*** **	**0.8785*** **	**0.8355*** **	**0.8633** **	**0.9134** **	**0.9863*** **	**0.9358** **	**0.9378 * **	**0.9349** **	**0.8339** **	**0.8156** **	**0.8480** **	**0.8571** **
Development Aggregate	**1.0486** **	**0.8570*** **	**0.7443** **	**0.7690** **	**0.8520*** **	**0.8896*** **	**0.9950*** **	**1.0232*** **	**0.9933** **	**0.9076** **	**0.9113** **	**0.8881** **	**0.9596** **	**0.8767** **	**0.8847* **	**0.9459** **	**0.8123** **	**0.7851* **	**0.8570** **	**0.9032** **
Development Dummy	**2.6041*** **	**2.2888** **	**2.1362** **	**2.3640** **	**2.4821*** **	**2.3853** **	**2.5012*** **	**2.5099*** **	**2.7524** **	**3.1271**	**2.4433** **	**2.2169** **	**2.2047* **	**1.9069* **	**1.8691* **	**2.1145** **	**1.8508* **	**1.7795* **	**1.9025* **	**1.9268* **

Notes: all regressions include the policy conditioning information set: logarithm of initial income, schooling, inflation, black market premium, government size, and trade openness. We use legal origin dummies (British, French and German relative to Scandinavian origin), creditor, anti-director and rule of law as instruments for financial development. The regressions in bold pass the Wooldridge's (1995) robust score test of overidentifying restrictions.

*Statistical significance at 10% level.

**Statistical significance at 5% level.

***Statistical significance at 1% level.

Table 7. Financial Structure and Economic Growth IV

IV Regressions. Dependent variable real GDP growth by period

Model	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII	XVIII	XIX	XX
Period	[1980-1995]	[1981-1996]	[1982-1997]	[1983-1998]	[1984-1999]	[1985-2000]	[1986-2001]	[1987-2002]	[1988-2003]	[1989-2004]	[1990-2005]	[1991-2006]	[1992-2007]	[1993-2008]	[1994-2009]	[1995-2010]	[1996-2011]	[1997-2012]	[1998-2013]	[1999-2014]
Structure activity	**1.9791**	**0.6860**	**0.4891**	**0.6741**	**0.9510****	**1.0425***	**1.2168****	**1.1758****	**1.0166****	**0.9486****	**0.9382****	**0.9600****	**1.2458****	**1.2073****	**1.2611***	**1.2181**	**0.9438**	**0.9074**	**0.9271**	**0.9345**
Structure size	**-1.1347****	**-1.0403****	**-0.9118**	**-0.8674**	**-0.7789**	**-0.7247**	**1.2168**	**-0.6721**	**-0.7753**	**-0.7821**	**-0.8693**	**-1.0263**	**-0.8931**	**-0.9203**	**-1.1500**	**-1.3144**	**-1.4700**	**-1.4151**	**-1.4699**	**-1.2578**
Structure efficiency	**-0.4389**	**1.3075**	**0.3471**	**0.5424**	**0.8008**	**0.9929**	**1.1613**	**1.1161**	**0.6908**	**0.4744**	**0.4270**	**0.3062**	**0.6626**	**0.5666**	**0.4646**	**0.4138**	**0.1647**	**0.1758**	**0.3221**	**0.3681**
Structure aggregate	**-0.8542**	**-0.3744**	**-0.3066**	**-0.1502**	**0.0390**	**0.1440**	**0.2636**	**0.2796**	**0.1516**	**0.1112**	**0.0759**	**0.0348**	**0.2825**	**0.2964**	**0.2678**	**0.2228**	**0.0534**	**0.0505**	**0.1313**	**0.2010**
Structure dummy	**-1.1134**	**-1.0162**	**-1.0942**	**-1.2111**	**-2.3314**	**-1.2524**	**-0.7936**	**-0.3095**	**-0.2221**	**-0.4638**	**-0.6330**	**-0.5168**	**0.1273**	**0.0200**	**-0.2506**	**-1.7266**	**-0.8727**	**-1.0558**	**-1.1443**	**-0.8047**

Notes: all regressions include the policy conditioning information set: logarithm of initial income, schooling, inflation, black market premium, government size, and trade openness. We use legal origin dummies (British, French and German relative to Scandinavian origin), creditor, anti-director and rule of law as instruments for financial development. The regressions in bold pass the Wooldridge's (1995) robust score test of overidentifying restrictions.

*Statistical significance at 10% level.

**Statistical significance at 5% level.

***Statistical significance at 1% level.

Table 8. Financial Structure and Economic Growth IV

IV Regressions Regressions. Dependent variable real GDP growth

	I [1980-1995]	II [1981-1996]	III [1982-1997]	IV [1983-1998]	V [1984-1999]	VI [1985-2000]	VII [1986-2001]	VIII [1987-2002]	IX [1988-2003]	X [1989-2004]	XI [1990-2005]	XII [1991-2006]	XIII [1992-2007]	XIV [1993-2008]	XV [1994-2009]	XVI [1995-2010]	XVII [1996-2011]	XVIII [1997-2012]	XIX [1998-2013]	XX [1999-2014]
1. Controlling for Development Activity																				
Structure Activity	**-0.7679***	**-0.6782**	**-0.9172**	**-0.9848**	**-0.7858**	**-0.6395**	**-0.6506**	**-0.6739**	**-0.7859**	**-0.7349**	**-0.7617**	**-0.6897**	**-0.5527**	**-0.4919**	**-0.5178**	**-0.9110**	**-0.9833***	**-1.0458***	**-1.1642****	**-1.0456****
Structure Size	**-0.7675****	**-0.6382***	**-0.7356***	**-0.7249**	**-0.6532**	**-0.6539**	**-0.7543**	**-0.7838**	**-0.9439***	**-1.0078***	**-1.1404***	**-1.3068***	**-1.3538***	**-1.4021***	**-1.5387****	**-1.6242****	**-1.6381****	**-1.6142****	**-1.7306****	**-1.6197****
Structure Efficiency	**-0.7182**	**-0.9284**	**-1.1324**	**-1.2882**	**-1.2232***	**-1.0611***	**-1.1611****	**-1.1111****	**-1.2826****	**-1.2894****	**-1.3739****	**-1.4586****	**-1.5693****	**-1.6708****	**-1.7496*****	**-1.9851*****	**-1.8602*****	**-1.8765*****	**-1.9105*****	**-1.7124*****
Structure Aggregate	**-0.6412****	**-0.5629***	**-0.6358**	**-0.6380**	**-0.5540**	**-0.4990**	**-0.5505***	**-0.5610***	**-0.6794***	**-0.6989***	**-0.7596***	**-0.8021***	**-0.8011**	**-0.8234**	-0.9112**	-1.1031**	**-1.1382****	**-1.1817****	**-1.2753*****	**-1.2143*****
Structure Dummy	**-1.4567***	**-1.2820***	**-1.5986****	**-1.8594****	**-2.3096****	**-1.4459**	**-1.6897***	**-1.1691**	**-1.4351**	**-1.4948**	**-1.7194**	**-1.9269**	**-1.3880**	**-1.2531**	**-1.3696**	**-2.8942****	**-2.3834***	**-2.3726***	**-2.5211****	**-2.3137****
2. Controlling for Development Size																				
Structure Activity	**0.2491**	**-0.1070**	**-0.6204**	**-0.4478**	**-0.1093**	**0.0611**	**0.2776**	**0.1746**	**0.0144**	**0.1542**	**0.1407**	**0.1815**	**0.3760**	0.4111	**0.4722**	**0.0852**	**-0.0768**	**-0.1890**	**-0.2701**	**-0.2870**
Structure Size	**-1.0133****	**-1.0223****	**-1.0628***	**-1.0787***	**-0.9912**	**-0.9588**	**-0.9839**	**-0.9700**	**-1.1232**	**-1.1423**	**-1.2492**	-1.3628*	**-1.3604**	**-1.3348**	**-1.4208**	**-1.5418****	**-1.5623**	**-1.5746****	**-1.7474****	**-1.7391*****
Structure Efficiency	**-1.1259**	**-0.8393**	**-1.6502**	**-1.7719**	**-1.4140**	**-1.0916**	**-0.8861**	**-0.7757**	**-1.0246**	**-1.0083**	**-1.0669**	-1.0397	-0.9308	-0.9252	**-0.9734**	**-1.4141****	**-1.3818**	**-1.4014****	**-1.3440****	**-1.1454***
Structure Aggregate	**-0.7778**	**-0.8315**	**-0.9525**	**-0.9131**	**-0.7136**	**-0.5699**	**-0.4726**	**-0.4547**	**-0.5818**	**-0.5521**	**-0.5810**	**-0.5722**	**-0.4702**	**-0.4381**	**-0.4668**	-0.7391	**-0.8127**	**-0.8843***	**-0.9591****	**-0.8978****
Structure Dummy	**-1.1955**	**-1.3895**	**-1.7813**	**-2.3659***	**-3.4762***	**-1.8109**	**-1.5980**	**-1.1227**	**-1.2748**	**-1.4231**	**-1.6158**	**-1.6817**	**-0.9286**	**-0.8322**	**-0.9567**	**-3.0779***	**-2.3950**	**-2.5687**	**-2.8941***	**-2.6923***
3. Controlling for Development Efficiency																				
Structure Activity	**-1.0833****	**-0.8730***	**-1.7813**	**-0.8350**	**-0.6604**	**-0.5700**	**-0.6986***	**-0.7053**	**-0.8836***	**-0.8592***	**-0.9138***	**-0.9763***	**-1.0101**	**-1.1105***	**-1.2442****	**-1.6280*****	**-1.6272*****	**-1.7114*****	**-1.7751*****	**-1.5844*****
Structure Size	**-0.8497*****	**-0.6709****	**-0.6534**	**-0.6046**	**-0.5053**	**-0.5056**	**-0.6227**	**-0.6451**	**-0.8148***	**-0.8612***	**-0.9772***	**-1.1654****	**-1.2483***	**-1.3767****	**-1.5222****	**-1.6161****	**-1.6316****	**-1.6323****	**-1.7210*****	**-1.5548****
Structure Efficiency	**-1.8000***	**-1.7516**	**-1.4236**	**-1.4008**	**-1.1865***	**-0.9805**	**-1.0993****	**-1.0354****	**-1.2298****	**-1.1788****	**-1.2492****	**-1.4251*****	**-1.6102*****	**-1.8109*****	**-1.8512*****	**-1.9523*****	**-1.7533*****	**-1.7377*****	**-1.6573*****	**-1.3915****
Structure Aggregate	**-0.8790*****	**-0.6732****	**-0.5862***	**-0.5407**	**-0.4415**	**-0.3984**	**-0.4803***	**-0.4879***	**-0.6213****	**-0.6299****	**-0.6876****	**-0.7830****	**-0.8507****	**-0.9613****	**-1.0657*****	**-1.2188*****	**-1.2237*****	**-1.2786*****	**-1.3109*****	**-1.1830*****
Structure Dummy	**-1.7612****	**-1.4884****	**-1.5088****	**-1.5841****	**-1.7948****	**-1.1638**	**-1.4837****	**-1.0655**	**-1.3575**	**-1.3808**	**-1.5840**	**-1.8856**	**-1.4836**	**-1.4459**	**-1.5830**	**-2.8126*****	**-2.3976****	**-2.4466****	**-2.5634*****	**-2.1566****
4. Controlling for Development Aggregate																				
Structure Activity	**-0.8936***	**-0.5667**	**-0.8206**	**-0.9006**	**-0.6699**	**-0.5092**	**-0.4928**	**-0.5084**	**-0.6658**	**-0.6183**	**-1.5840**	**-0.5864**	**-0.4707**	**-0.4321**	**-0.4516**	**-0.8791**	**-0.9951***	**-1.0790****	**-1.1903****	**-1.0708****
Structure Size	**-0.8161****	**-0.7363***	**-0.7981***	**-0.7947**	**-0.7088**	**-0.6882**	**-0.7690**	**-0.7808**	**-0.9568***	**-1.0118***	**-1.1395***	**-1.2993****	**-1.3569***	**-1.4037***	**-1.5236****	**-1.6128****	**-1.6229****	**-1.6290****	**-1.7587*****	**-1.6722***
Structure Efficiency	**-1.4018***	**-0.8854**	**-1.1547**	**-1.3439**	**-1.1819**	**-0.9687**	**-1.0229***	**-0.9597***	**-1.2063***	**-1.2033****	**-1.2754****	**-1.3536****	**-1.4466****	**-1.5455****	**-1.6123*****	**-1.8302*****	**-1.7087*****	**-1.7106*****	**-1.7191*****	**-1.5094*****
Structure Aggregate	**-0.6821****	**-0.6146**	**-0.6683**	**-0.6773**	**-0.5610**	**-0.4789**	**-0.5054**	**-0.5025**	**-0.6428***	**-0.6562***	**-0.7097***	**-0.7477***	**-0.7476**	**-0.7739**	-0.8499*	**-1.0456****	**-1.0857****	**-1.1393****	**-1.2254*****	**-1.1542*****
Structure Dummy	**-1.7520****	**-1.3235**	**-1.5470***	**-1.8637****	**-2.2495***	**-1.3585**	**-1.6435***	**-1.0611**	**-1.3984**	**-1.4691**	**-1.6894**	**-1.9011**	**-1.3736**	**-1.2641**	**-1.3857**	**-2.9130****	**-2.4459****	**-2.4905****	**-2.6781****	**-2.4625****
5. Controlling for Development Dummy																				
Structure Activity	**-0.3961**	**-0.2817**	**-0.6446**	**-0.2070**	**0.1335**	**0.3218**	**0.5434**	**0.4635**	**0.4408**	**0.5456**	**0.3747**	**0.4893**	**0.8800**	**0.9285***	**1.0059***	**0.7996**	**0.5089**	**0.4389**	**0.4187**	**0.2498**
Structure Size	**-0.9258****	**-0.8517***	**-0.8573**	**-0.7609**	**-0.6259**	**-0.5704**	**-0.5557**	**-0.5173**	**-0.9700**	**-0.9176**	**-0.6557**	**-0.7868**	**-0.6268**	**-0.6846**	**-0.8670**	**-0.8929**	**-0.9791**	**-0.9008**	**-0.9058**	**-1.5040**
Structure Efficiency	**-1.6755**	**-1.3871**	**-2.0554**	**-1.5121**	**-1.1007**	**-0.8301**	**-0.6324**	**-0.4271**	**-0.9809**	**-0.7637**	**-0.8648**	**-0.8572**	**-0.5338**	**-0.6872**	**-1.0274**	**-2.0909**	**-1.8265**	**-1.5176**	**-0.9777**	**-1.1132**
Structure Aggregate	**-0.9055***	**-0.7806**	**-0.7956**	**-0.5821**	**-0.3770**	**-0.2566**	**-0.1652**	**-0.1445**	**-0.4173**	**-0.3172**	**-0.2782**	**-0.2804**	**-0.0520**	**-0.0618**	**-0.1603**	**-0.4718**	**-0.6043**	**-0.5977**	**-0.4898**	**-0.7531**
Structure Dummy	**-1.2264**	**-1.2830**	**-1.6481**	**-1.8513**	**-3.2200**	**-1.7628**	**-1.3012**	**-0.7817**	**-1.2145**	**-1.2152**	**-0.9965**	**-1.0612**	**-0.5100**	**-0.5519**	**-0.8417**	**-3.7765**	**-2.7406**	**-2.8279**	**-3.0003**	**-2.4127**

Notes: all regressions include the policy conditioning information set: logarithm of initial income, schooling, inflation, black market premium, government size, and trade openness. We use legal origin dummies (British, French and German relative to Scandinavian origin), creditor, anti-director and rule of law as instruments for financial development. The regressions in bold pass Wooldridge's (1995) robust score test of overidentifying restrictions.

*Statistical significance at 10% level.

**Statistical significance at 5% level.

***Statistical significance at 1% level.

Appendix A. Average of Financial Development and Financial Structure Indicators (1980-2014)

	Country	Development Activity	Development Size	Development Efficiency	Development Aggregate	Development Dummy	Structure Activity	Structure Size	Structure Efficiency	Structure Aggregate	Structure Dummy
1	Argentina	4.15	3.23	-0.55	-2.29	0	-1.26	-0.38	3.40	-0.18	0
2	Australia	8.11	5.01	3.25	1.26	1	-0.50	0.02	4.34	0.98	1
3	Austria	6.50	4.64	1.50	0.04	1	-2.42	-1.63	2.58	-2.03	0
4	Belgium	6.51	4.57	2.16	0.17	0	-1.38	-0.13	2.97	-0.32	0
5	Brazil	6.24	4.25	0.77	-0.55	0	-0.90	-0.03	4.51	0.82	1
6	Canada	8.48	5.35	3.03	1.56	1	-0.61	0.22	4.61	1.18	1
7	Chile	6.35	5.04	1.12	0.21	0	-1.81	0.51	3.24	-0.01	0
8	China	8.48	4.86	3.81	1.40	1	-0.63	-1.04	4.04	0.09	0
9	Colombia	4.43	4.03	-0.96	-1.70	0	-2.32	-0.08	2.99	-0.79	0
10	Cyprus	7.35	5.13	1.08	0.53	1	-2.47	-1.39	3.81	-1.25	0
11	Denmark	7.67	4.87	2.48	0.81	1	-1.36	-0.83	3.83	-0.29	0
12	Ecuador	1.81	3.35	-3.29	-3.60	0	-4.33	-1.14	0.75	-3.72	0
13	Egypt	5.97	4.15	1.96	-0.36	0	-1.03	-0.09	2.98	-0.10	0
14	Finland	8.16	4.89	3.91	1.37	1	-0.26	-0.03	3.99	0.89	1
15	France	7.91	4.86	2.88	0.98	1	-0.92	-0.59	4.11	0.25	1
16	Germany	8.13	4.84	3.05	1.07	1	-0.97	-1.11	4.11	-0.11	0
17	Ghana	1.13	2.87	-6.28	-5.02	0	-2.95	0.25	4.46	-0.14	0
18	Greece	6.71	4.51	1.65	0.04	0	-1.30	-0.40	3.76	-0.03	0
19	Honduras	0.00	5.85	0.00	-1.17	1	0.00	2.20	0.00	0.00	1
20	India	6.74	4.32	2.46	0.12	1	-0.07	0.41	4.21	1.38	1
21	Ireland	6.85	4.88	3.14	0.79	1	-1.88	-0.41	1.83	-1.37	0
22	Israel	7.06	4.70	1.93	0.35	0	-1.25	-0.33	3.88	0.11	0
23	Italy	7.45	4.54	2.44	0.48	1	-0.86	-0.73	4.16	0.22	1
24	Jamaica	3.94	4.26	-1.25	-1.73	0	-2.33	0.74	2.86	-0.35	0
25	Japan	9.15	5.49	4.01	2.13	1	-0.91	-0.65	4.02	0.16	1
26	Kenya	3.39	3.78	-1.52	-2.34	0	-2.94	-0.17	1.97	-1.72	0
27	Malaysia	7.95	5.42	3.14	1.51	1	-1.24	0.25	3.57	0.31	1
28	Mexico	4.78	3.66	0.39	-1.51	0	-0.99	0.17	3.31	0.25	1
29	Netherlands	8.50	5.08	4.05	1.65	1	-0.55	-0.30	3.89	0.51	1
30	New Zealand	6.43	4.76	1.58	0.14	1	-2.29	-0.71	2.56	-1.39	0
31	Norway	7.40	4.66	2.58	0.60	1	-0.87	-0.46	3.72	0.14	1
32	Pakistan	6.44	3.73	2.23	-0.49	1	0.20	-0.18	4.41	1.27	1
33	Panama	3.75	4.47	-1.19	-1.60	0	-4.54	-0.95	0.40	-3.91	0
34	Peru	4.02	3.82	-0.67	-1.89	0	-1.59	0.59	3.00	0.03	0
35	Philippines	5.76	4.41	0.99	-0.49	0	-1.06	0.57	3.56	0.60	1
36	Portugal	7.39	4.80	2.38	0.65	1	-1.65	-1.11	3.37	-0.87	0
37	South Africa	8.00	5.55	2.10	1.33	1	-0.72	0.95	4.60	1.57	1
38	Spain	8.61	5.15	3.30	1.52	1	-0.59	-0.32	4.71	0.91	1
39	Sri Lanka	4.01	3.66	-0.49	-1.97	0	-2.21	-0.30	2.28	-1.24	0
40	Sweden	8.60	5.11	3.42	1.52	1	-0.20	-0.01	4.60	1.26	1
41	Switzerland	9.81	5.64	4.52	2.58	1	-0.09	0.00	5.20	1.64	1
42	Thailand	8.01	5.03	2.75	1.10	1	-1.07	-0.49	4.13	0.24	1
43	Trinidad and Tobago	4.16	4.45	-0.85	-1.41	0	-2.86	0.48	1.90	-1.30	0
44	Tunisia	4.52	4.28	-0.45	-1.34	0	-3.56	-1.49	1.30	-3.24	0
45	Turkey	6.39	3.75	1.78	-0.61	1	0.24	-0.02	4.82	1.60	1
46	United Kingdom	8.76	5.34	3.39	1.73	1	-0.65	-0.12	4.72	1.01	1
47	United States	9.75	5.44	3.61	2.14	1	0.88	0.59	6.00	2.96	1
48	Zimbabwe	6.21	5.31	0.71	0.27	0	0.63	2.58	5.81	3.97	1

Notes: We use the countries considered by Beck, Demirgüç-Kunt, Levine and Maksimovic(2001).

Appendix B. Economic Growth and Potential Growth Determinants (1980-2014)

	Country	Growth	Initial GDP pc*	Schooling	Black Market Premium	Inflation	Government	Trade	Creditor	Anti-director	Rule of law	Legal Origin
1	Argentina	0.98	8,053	8.24	29.02	233.07	11.60	24.62	1	4	3.7	F
2	Australia	1.79	29,787	11.27	0	4.41	17.83	37.04	1	4	5.9	B
3	Austria	1.65	27,514	8.93	0	2.43	18.88	80.19	3	2	6.0	G
4	Belgium	1.53	27,478	9.59	0	2.43	22.15	130.38	2	0	5.5	F
5	Brazil	1.24	8,268	5.08	41.71	335.24	16.51	21.11	1	3	2.8	F
6	Canada	1.35	31,769	10.91	0.0	3.21	21.20	62.09	1	5	6.0	B
7	Chile	3.39	4,934	5.64	15.34	11.30	11.67	60.56	2	5	4.6	F
8	China	8.76	348	6.05	53.33	11.30	13.94	37.12	2	3	4.3	G
9	Colombia	1.99	3,753	6.03	10.28	16.54	14.23	33.62	0	3	1.4	F
10	Cyprus	2.26	13,165	8.87	4.07	4.44	16.07	114.64			4.5	B
11	Denmark	1.42	36,378	9.66	0	3.20	25.10	79.03	3	2	6.0	S
12	Ecuador	1.18	3,687	6.52	32.19	3.20	12.73	47.56	4	2	3.5	F
13	Egypt	2.49	1,213	4.21	11.54	10.69	12.79	52.39	4	2	3.4	F
14	Finland	1.83	25,662	8.59	0	3.53	21.33	65.15	1	3	6.0	S
15	France	1.27	26,964	8.38	0	3.11	22.52	48.62	0	3	5.2	F
16	Germany	1.62	26,066	9.83	0	3.11	19.29	57.61	3	1	5.5	G
17	Ghana	1.79	901	5.28	437.34	31.12	11.64	62.79			2.4	B
18	Greece	0.51	19,144	8.36	7.68	9.61	18.67	47.16	1	2	4.1	F
19	Honduras	0.88	1,644	4.51	29.63	10.48	13.66	94.31			2.1	F
20	India	4.31	394	3.62	12.09	10.48	11.30	28.11	4	5	3.4	B
21	Ireland	3.38	16,961	10.36	0	4.12	18.00	139.77	1	4	5.5	B
22	Israel	2.02	17,220	11.34	6.98	41.32	28.09	77.83	4	3	4.3	B
23	Italy	1.03	24,452	7.89	0	5.51	18.78	45.31	2	1	5.0	F
24	Jamaica	0.61	3,709	7.49	24.24	5.51	14.87	96.50			2.3	B
25	Japan	1.82	25,489	10.17	0.55	0.30	16.28	23.69	2	4	5.4	G
26	Kenya	0.66	898	4.44	17.16	10.69	16.39	56.72	4	3	2.8	B
27	Malaysia	3.57	3,309	7.26	1.08	3.48	13.25	160.62	4	4	4.0	B
28	Mexico	0.90	7,471	6.30	10.83	3.48	10.77	44.77	0	1	2.7	F
29	Netherlands	1.52	30,078	10.53	0	2.05	22.93	117.06	2	2	6.0	F
30	New Zealand	1.42	22,543	11.50	0	4.77	18.04	57.99	3	4	5.9	B
31	Norway	1.89	48,552	10.69	0	4.70	20.26	71.14	2	4	6.0	S
32	Pakistan	2.21	556	3.02	12.67	4.70	11.23	34.17	4	5	2.7	B
33	Panama	2.89	4,387	7.78	0	2.75	14.95	129.55			2.7	F
34	Peru	1.54	3,727	7.29	54.86	306.66	10.83	39.48	0	3	2.5	F
35	Philippines	1.29	1,687	6.98	7.57	9.07	9.94	73.43	0	3	2.6	F
36	Portugal	1.73	12,388	5.71	5.68	9.07	17.31	63.42	1	3	5.1	F
37	South Africa	0.55	6,603	7.03	2.12	10.82	18.74	52.54	3	5	2.4	B
38	Spain	1.58	17,442	7.92	2.79	5.12	17.11	47.21	2	4	4.8	F
39	Sri Lanka	4.01	927	8.39	14.68	10.85	10.48	69.19	3	3	2.4	B
40	Sweden	1.64	31,094	10.94	0	10.85	25.65	72.16	2	3	6.0	S
41	Switzerland	0.95	54,497	10.89	0	1.89	10.79	93.75	1	2	5.7	G
42	Thailand	4.21	1,404	4.66	0.02	3.99	12.94	95.37	3	2	4.1	B
43	Trinidad and Tobago	1.76	9,407	8.62	35.75	6.15	15.10	86.65			3.6	B
44	Tunisia	2.32	2,029	4.20	7.41	6.15	16.70	89.03			4.1	F
45	Turkey	2.42	4,788	4.91	6.08	44.29	11.60	41.74	2	2	3.8	F
46	United Kingdom	1.75	21,795	9.70	0	4.25	19.09	51.68	4	5	5.6	B
47	United States	1.62	28,734	12.65	0	2.87	15.46	22.79	1	5	5.7	B
48	Zimbabwe	-0.39	1,146	5.31	57.45	2.87	17.55	68.20	4	3	2.7	B

Notes: We take the Policy Conditioning Information set (inicial GDP, schooling, inflation, black market premium, government and trade) using by Beck, Demirgüç-Kunt, Levine and Maksimovic (2001). Legal origin: British (B), French (F), German (G), Scandinavian (S). *2010 US dollars.

Appendix C. Descriptive Statistics for Cross-country Data

	Mean	Std. Dev.	Min.	Max.	Obs.
Growth	1.94	1.40	-0.39	8.76	48
Development Activity	6.42	2.20	0.00	9.81	48
Development Size	4.62	0.68	2.87	5.85	48
Development Efficiency	1.50	2.12	-6.28	4.52	48
Development Aggregate	0.00	1.58	-5.02	2.58	48
Development Dummy	0.58	0.50	0.00	1.00	48
Structure Activity	-1.33	1.17	-4.54	0.88	47
Structure Size	-0.15	0.80	-1.63	2.58	48
Structure Efficiency	3.60	1.18	0.40	6.00	47
Structure Aggregate	0.00	1.48	-3.91	3.97	47
Structure Dummy	0.50	0.51	0.00	1.00	48
Initial GDP pc*	14592.0	13749.1	347.9	54497.5	48
Schooling	7.78	2.46	3.02	12.65	48
Black Market Premium	0.26	0.71	0.00	3.35	48
Inflation	19.84	63.52	0.00	437.34	48
Government	16.38	4.40	9.94	28.09	48
Trade	66.79	32.43	21.11	160.62	48
Creditor	2.12	1.35	0.00	4.00	41
Anti-director	3.10	1.28	0.00	5.00	41
Rule of law	4.22	1.39	1.42	6.00	48
British origin	0.40	0.49	0.00	1.00	48
French origin	0.42	0.50	0.00	1.00	48
German origin	0.10	0.31	0.00	1.00	48
Scandinavian origin	0.08	0.28	0.00	1.00	48

Notes: This table shows the main descriptive statistics for the all variables from 1980 to 2014. *2010 US dollars

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