FINANCIAL DEVELOPMENT, INSTITUTIONS AND ECONOMIC POLICY – PANEL DATA EVIDENCE

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Abstract: *In recent years significant researches have been done to identify what are the determinants of financial development. With regard to this outline, the main objective is to investigate the effect of economic, political and social dimension of institutional quality, as well as the effect of political and macroeconomic factors on financial development. More specifically, the present work aims to contribute to the relevant literature in the following ways: i) in the econometric front, we employ dynamic panel techniques, that allow for heterogeneity among variables, avoiding the known problems of traditional techniques. More specifically, we employ the "system GMM" estimator controlling for endogeneity among variables; ii) we disentangle into economic, political and social institutional quality in order to quantify the effect of institutions on financial development and check the robustness of our results; iii) in the same logic, we decompose our measure of financial openness into equity- and loan-related foreign assets and liabilities in order to assess whether the hoarding of risky vs. riskless assets or the accumulation of equity vs. debt liabilities affect the development of domestic financial institutions; and iv) to control for a potential bias among variables, we include a large set of information, which covers all the spectrum of possible effects on finance, giving emphasis on political factors and government policies. Our main finding from the regression analyses is a robust empirical relationship from institutions to financial development, a result consistent with most empirical studies. Also, we find a stronger effect from economic institutions to banking sector development and from political institutions to stock market development. Regarding the trade and finance link, we find that openness has a much stronger association with bank-based finance than with stock market development. As for financial openness, equity-related assets and liabilities have a more robust impact on financial development. Finally, government policy in terms of less government size and less interest rate controls have a significant effect on the banking sector rather on the stock market sector.*

Keywords: Financial development, institutions, trade openness, financial liberalisation, panel data analysis.

JEL classification: G29, F19, K49.

1. Introduction

In recent years significant researches have been done to identify the question: what are the determinants of financial development? The main findings from this literature can be summarized as follows. First, the degree of a country' s openness, such as capital account openness (Chinn and Ito, 2002; Demirguc-Kunt and Detragiache, 1998) and trade openness (Rajan και Zingales, 2003; Beck et. al., 2001, 2003), helps the development of the financial sector. Second, a country's institutions, formed by

a country's legal origin (La Porta et al, 1997, 1998; Beck et al 2000, 2003; Djankov et al 2007) or by a country's geography and initial endowment (Acemoglu, Johnson, and Robinson, 2001), affects both creditor rights and private credit, and the extent of creditor rights protection has an independent effect on financial sector development. Third, political economy factors, where the government's position as arbitrator of financial contracts, potential borrower and regulator of the financial system, impacts on the functioning of the financial market (La Porta et al, 1999, 2002; Andrianova et. al., 2008). Finally, macroeconomic factors, such as the level of inflation, impact on financial sector development (Boyd et al, 2001).

Based on these results, our main objective is to investigate the economic, political and social dimension of institutional quality, as well as the effect of political and macroeconomic factors. More specifically: i) we employ the "system GMM" estimator developed by Arellano and Bover (1995), and Blundell and Bond (1998), controlling for endogeneity among variables; ii) we disentangle into economic, political and social institutional quality in order to quantify the effect of institutions on financial development; iii) in the same logic, we decompose our measure of financial openness into equity- and loan-related foreign assets and liabilities in order to assess whether the hoarding of risky vs. riskless assets or the accumulation of equity vs. debt liabilities affect the development of domestic financial institutions; iv) we include a large set of information, which covers all the spectrum of possible effects on finance, giving emphasis on political factors and government policies; and v) in order to investigate the whole impact of institutional changes on financial development, our data consists of 44 countries, for the period 1988-2007.

2. Methodology

To assess the relationship between institutions and financial development, the following model is estimated: $y_{it} = \alpha y_{i,t-1} + \beta x_{i,t-1} + \gamma z_{i,t-1} + \eta_i + \varphi_t + \upsilon_{it}$, where y_{it} is financial development, x_{it} is institutions, z_{it} is a vector of controlling variables including trade openness (TO), financial openness (FO), inflation (INFL), gdp growth (GDP), government size (GOV) and interest rate controls (RATE). γ is a parameter vector. η is an unobserved country-specific time-invariant effect and can be regarded as capturing the combined effect of all omitted variables. φ_t is the time effect. υ_{it} is the transitory disturbance term. The subscripts i and t represent country and time period, respectively.

Arellano and Bond (1991) propose the first-differenced GMM estimator for dynamic panel data models which uses all lagged values of y, x and z as instruments for $\Delta y_{i,t-1}$, $\Delta x_{i,t-1}$ and $\Delta z_{i,t-1}$ in the first-difference equation above. The Arellano-Bover/Blundell-Bond estimator augments Arellano-Bond by making an additional assumption, that first differences of instrument variables are uncorrelated with the fixed effects. This allows the introduction of more instruments, improving efficiency. It builds a system of two equations - the original equation as well as the transformed one - and is known as System GMM. In other words, a "system GMM" estimator enables the lagged first-differences of the series (y_{it}, x_{it}, z_{it}) dated t-1 to be used as instruments for the untransformed equations in levels. Based on the combination of first-difference equations with suitably lagged levels as instruments, and levels equations with suitably lagged first-differences as instruments, the system GMM estimator generally produces more efficient estimates by improving precision and reducing the finite sample bias (Baltagi, 2008).

3. Results

In Table 1, we present the results for the stock market. Overall financial openness index (namely FO) is decomposed into equity-related (foreign direct investment and portfolio equity, namely EQUITY) and loan-related (financial derivatives and debt, namely LOAN) assets and liabilities. As expected, financial openness is highly associated with stock market development in all specifications. The coefficients of FO, EQUITY and LOAN for the stock market are 0.076422, 0.2020214 and 0.1019987, respectively. It is noticeable that the impact of EQUITY is greater than of political regime (note that lower values of POL indicating a higher degree of democracy), which at best reaches -0.1672581 (column 3) and of gdp growth (0.0151378, column 2). The other variables, even though they are of the correct sign at most cases, are not statistically significant. In sum, political institutions, financial openness (particularly risky assets and liabilities) and economic performance (measured by gdp growth) are the main determinants of stock market sector development.

Table 1. Institutions and Stock market

Dependent variable: Financial Development (stock market)			
Financial Development$_{-1}$ (FD_{-1})	0.7848774*** (0.0676886)	0.7728131*** (0.0878394)	0.7637571*** (0.0667814)
Economic Institutions (ECON)	0.0661346 (0.121365)	0.0658836 (0.132195)	0.0915555 (0.1212115)
Political Institutions (POL)	-0.1056864** (0.0456062)	-0.0244126 (0.0760781)	-0.1605853*** (0.0572852)
Social Institutions (SOC)	-0.0388421 (0.0249517)	-0.0300839 (0.0276932)	-0.0469797* (0.0253536)
Financial Openness (FO)	0.076422*** (0.0285546)		
Financial Openness (EQUITY)		0.2020214** (0.0803056)	
Financial Openness (LOAN)			0.1019987*** (0.0364487)
Trade Openness (TO)	0.0147206 (0.0651795)	-0.0481047 (0.0790806)	0.05527 (0.0717264)
Inflation (INFL)	-0.0002929 (0.0037942)	-0.0003573 (0.0032164)	-0.0011614 (0.0053329)
Gdp growth (GDP)	0.0131543* (0.0077313)	0.0151378* (0.0080897)	0.0158297 (0.0098225)
Government size (GOV)	-0.0069147 (0.0064002)	-0.0048115 (0.0062632)	-0.0073221 (0.0067911)
Interest Rate Controls (RATE)	0.0109952 (0.0315941)	0.0188127 (0.0341517)	0.0149092 (0.0322638)
Specification tests			
AR(1) test	0.031	0.032	0.032
AR(2) test	0.314	0.314	0.286
Hansen test	0.499	0.322	0.507

Sources: International Country Risk Guide (ECON), Freedom House (POL), Human Rights Dataset - Workers' Rights (SOC), External Wealth of Nations (FO), World Bank World Development Indicators (FD, TO, INFL, GDP), Economic Freedom of the World (GOV), Abiad, Detragiache and Tressel (RATE).
Regressions use 'System GMM' based on the xtabond2 command developed by Roodman (2006) for use with STATA. Robust standard errors are reported in brackets. *** , **, and * denote significance at the 1%, 5%, and 10% level, respectively. Arellano-Bond test for serial correlation and Hansen test for over-identifying restrictions report p-value.
A different logic prevails in the banking sector (Table 2). Economic institutions are statistically significant in all cases. The coefficients of 0.0588339, 0.0571176 and 0.0658521 indicate the significant role and magnitude of economic institutions in the context of the banking sector development. Even though the banking sector is affected by a wide spectrum of variables, since trade, inflation, government size and interest rate controls are statistically important (note that higher values of RATE and GOV indicating a higher degree of interest rate liberalization and a lower degree of government intervention, respectively), economic institutions seem to have the greater effect. In sum, the results demonstrate that the banking sector is more responsive in changes in economic institutions (rather than in changes in political institutions), trade and macroeconomic policies (inflation), as well as in political choices (government intervention and interest rate controls). Finally, the impact of the lagged value of the dependent variable is significant in all cases, emphasizing the dynamic view of financial development.

Table 2. Institutions and Banking Sector

Dependent variable: Financial Development (banking sector)			
Financial Development$_{-1}$ (FD_{-1})	0.8463392*** (0.0501344)	0.8609389*** (0.0448038)	0.830649*** (0.0607606)
Economic Institutions (ECON)	0.0588339** (0.0269281)	0.0571176** (0.0249387)	0.0658521** (0.0325821)
Political Institutions (POL)	0.00123 (0.008411)	0.0009763 (0.00793)	0.0002438 (0.0104453)
Social Institutions (SOC)	-0.0012531 (0.0025433)	-0.0010706 (0.0024669)	-0.0010064 (0.0025131)
Financial Openness (FO)	0.0008993 (0.0022653)		
Financial Openness (EQUITY)		0.0003838 (0.0052335)	
Financial Openness (LOAN)			0.0023012 (0.0038165)
Trade Openness (TO)	0.0085662** (0.0042615)	0.0092942* (0.0053566)	0.0099571** (0.0042427)
Inflation (INFL)	-0.000873* (0.0005182)	-0.0008541* (0.0004737)	-0.0008882 (0.0005749)
Gdp growth (GDP)	0.0010314 (0.0006654)	0.0007084 (0.0006944)	0.0010385 (0.0006666)
Government size (GOV)	0.001219* (0.0007457)	0.0010724* (0.0005873)	0.0010386 (0.0008792)

Interest Rate Controls (RATE)	0.0059099** (0.0026582)	0.0048797** (0.0022383)	0.0062893** (0.0029802)
Specification tests			
AR(1) test	0.001	0.001	0.003
AR(2) test	0.251	0.235	0.251
Hansen test	0.705	0.562	0.599

Sources: International Country Risk Guide (ECON), Freedom House (POL), Human Rights Dataset - Workers' Rights (SOC), External Wealth of Nations (FO), World Bank World Development Indicators (FD, TO, INFL, GDP), Economic Freedom of the World (GOV), Abiad, Detragiache and Tressel (RATE).
Regressions use 'System GMM' based on the xtabond2 command developed by Roodman (2006) for use with STATA. Robust standard errors are reported in brackets. *** , **, and * denote significance at the 1%, 5%, and 10% level, respectively. Arellano-Bond test for serial correlation and Hansen test for over-identifying restrictions report p-value.

Conclusions

In this paper we construct the new data set on institutions and policies indices for 44 economies from 1988 to 2007. We go beyond the identification of the effects of an overall institutional index and try to provide a more comprehensive assessment of the financial development-institutions-policy links by asking which dimension of institutions (economic, political, social) matter vis-à-vis financial development and whether the effects of institutions and policies differ when the dependent variable differ (stock market or banking sector development).
Our main finding from the regression analyses is a robust empirical relationship from institutions to financial development, a result consistent with most empirical studies. Also, we find a stronger effect from economic institutions to banking sector development and from political institutions to stock market development. Regarding the trade and finance link, we find that openness has a much stronger association with bank-based finance than with stock market development. As for financial openness, equity-related assets and liabilities have a more robust impact on financial development. Finally, government policy in terms of less government intervention and interest rate liberalization have a significant effect on the banking sector rather on the stock market sector.

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