Will political liberalisation bring about financial development?

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Abstract

This paper studies the effect of political liberalisation on financial development in two steps. First, the paper examines whether political liberalisation in terms of institutional improvement promotes financial development, using a panel dataset of 90 developed and developing countries over 1960-99. The empirical evidence reveals a positive effect on financial development at least in the short-run, particularly for lower-income countries, ethnically divided countries and French legal origin countries. In the second part of the paper, a before-after event study approach is used to explore the impact of democratic transitions on financial development. It indicates that a democratic transformation is typically followed by an increase in financial development.

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1 Introduction

A considerable increase in financial development during 1980-2000 has been an important economic feature in many developing countries. The average ratio of private credit to GDP increased from 23% in 1980 to 32% in 2000. The average ratio of liquid liabilities to GDP rose from 32% in 1980 to 42% in 2000. On the political front, between 1980 and 2000 there were 62 developing countries undertaking significant political reforms towards democracies[1]. Do the above economic and political events in the developing world interact in important ways?

There has been relatively little work on the impact of political liberalisation on financial development, but much work on the correlation between political liberalisation and economic growth. The existing research in this field does not unanimously establish the consequences of political liberalisation for economic development. Instead, it is made up of one line of research supporting positive consequences, another line stressing negative consequences and some maintaining ambiguous views. Given the diverging arguments as to the effect of democratisation, this paper aims to investigate whether political liberalisation in terms of institutional development has any impact on the speed of financial development. How does democratization influence financial development in countries with low GDP per capita, high ethnic and religious divisions or specific legal origins?

The importance of political liberalisation for financial development has been implicitly indicated by Clague et al. (1996) and Olsen (1993). These authors argue that, in comparison to autocracies, democracies better facilitate property rights protection and contract enforcement, encouraging investment directly. The crucial role of the efficiency of legal and regulatory system involving property rights protection, contract enforcement and accounting practices in determining financial development has been emphasized by La Porta et al. (1997, 1998) and Mayer and Sussman (2001).

[1] Countries are considered as experiencing a political transition when either their "polity2" scores in the PolityIV Database by Marshall et al. (2003) change from negative values to positive values or their "freedom" indices, defined in this paper from the Freedom House Country Survey (2003), change from "Not Free" to "Free" or "Partly Free".

The significance of this study is reflected in recent research on the political economy of financial development. Pagano and Volpin (2001) argue that self-interested policy makers may intervene in financial markets due to their career concerns or group interests. To some extent, the level of financial development is the outcome of specific political bargaining or political intervention. Rajan and Zingales (2003)'s interest groups theory of financial development suggests that dominant interest groups, especially incumbent firms and incumbent financial intermediaries, have strong incentives to prevent new companies from entering, potentially blocking the development of a more advanced financial market. Beck et al. (2003)'s application of the settler mortality hypothesis by Acemoglu et al. (2001) to financial development suggests that the institutions established by the extractive colonizers are likely to be detrimental to financial development, while the institutions created by the settler colonizers tend to favour financial development.

Arguably, countries controlled by elite groups are more inclined to protect the interests of elite from the bulk of society, restrict participation in the political system and so on. The more power held by the elite groups, the more autocratic the system, the more obstacles for financial development. This tends to suggest that political liberalisation intending to limit the influence of elite group over policy making, widen suffrage in the political system, and respect basic political rights and civil liberties could be critical for financial development.

To study whether political liberalisation promotes finanical development, this research employs two methods. One is a dynamic panel data study, focusing on 90 developed and developing countries, to analyse the effect of political liberalisation in terms of institutional improvement on financial development. The countries included are those undertaking some political reforms to improve institutional quality, but not necessarily experiencing a democratic transition over 1960-99. The bias-corrected Least Square Dummy Variable estimate proposed by Kiviet (1995) and recently developed by Bruno (2005) is the central method of this study and compared with the system GMM estimator proposed by Arellano and Bover (1995) and Blundell and Bond (1998).

The second part of this paper moves on to study probably the most

important institutional change, namely political transformation from an autocratic regime to a democratic regime. It studies the effect of the establishment of a representative government on financial development for 33 countries that underwent a democratic transformation during 1960-2000 subject to data availability for financial development. By using a before-and-after comparison, this exercise examines the responses of the level of financial development and the volatility of financial development after a regime transition.

This paper shows that improved institutional quality is associated with increases in financial development at least in the short run, especially for lower income countries, ethnically divided and French legal origin countries. The before and after event study also indicates that in general democratic transitions are typically preceded by low financial development, but followed by a short-run boost in financial development and greater volatility of financial development. The findings of this research underline the influence of political liberalisation over the supply side of finance and shed light on the strong and robust relationship between institutional quality and economic performance.

The remainder of the paper proceeds as follows. Section 2 presents a brief review of the literature on institutions, democratisation and finance. Section 3 describes the measures that are used for political liberalisation and financial development. Section 4 analyses whether institutional improvement stimulates financial development. The empirical results are presented following a description of dynamic panel data methods. Section 5 turns to investigate the link between democratic transitions and financial development. Section 6 concludes.

2 Institutions, democratisation and finance

This section briefly outlines the theoretical background and motivation of this research. It discusses the role of institutions in financial development and the possible links between democratization and finance.

Research on the role of institutions in financial development has been substantial, especially research on the effects of the legal and regulatory en-

vironment on the functioning of financial markets. A legal and regulatory system involving protection of property rights, contract enforcement and good accounting practices has been identified as essential for financial development. Most prominently, La Porta et al. (1997, 1998) have argued that the origins of the legal code substantially influence the treatment of creditors and shareholders, and the efficiency of contract enforcement. They document that countries with a legal code like Common Law tend to protect private property owners, while countries with a legal code like Civil Law tend to care more about the rights of state and less about the rights of the masses. Countries with French legal origins are said to have comparatively inefficient contract enforcement and more corruption, and less well-developed financial systems, while countries with British legal origins enjoy higher levels of financial development. Among others, Mayer and Sussman (2001) emphasize that regulations concerning information disclosure, accounting standards, permissible practices of banks, and deposit insurance do appear to have material effects on financial development.

Beck et al. (2003)'s application of the settler mortality hypothesis due to Acemoglu et al. (2001) to financial development is another significant work in this context. They argue that the extractive colonizers associated with an inhospitable environment aim to establish institutions that privilege the small elite group and potentially ignore private property rights, while the settler colonizers in more favorable environments are more likely to create institutions that support private property and balance the power of the state. Accordingly, institutions in the extractive environment tend to block financial development, while those in setter colonies are more conducive to financial development. Both the legal origin theory of La Porta et al. (1997, 1998) and Beck et al. (2003)'s application are related to colonisation, but the former is more concerned with how colonisation is reflected in national approaches over property rights and financial development, whereas the latter provides a mechanism for how colonisation influences financial development through institutional development, and contributes to the political economy literature from a historical point of view.

The recently developed "new political economy" approach regards "regulation and its enforcement as a result of the balance of power between

social and economic constituencies" (Pagano and Volpin, 2001). It centres on self-interested policy makers who can intervene in financial markets either through overall regulation or individual cases for purposes such as career concerns and the promotion of group interests. Rajan and Zingales (2003) emphasize the role of interest groups, the incumbent industrial firms and the domestic financial sector, on financial development. They argue that incumbents have strong incentives to block the development of a more transparent and competitive financial sector, although these incentives may be weakened by openness to external trade and international flows of capital.

It seems that political liberalisation intending to remove institutional obstacles and enhance institutional efficiency is beneficial to economic development. However, much research undertaken to study the effect of political liberalisation on economic performance is associated with substantial controversies. Some argue that the democratic process enhances fundamental civil liberties, stable politics and an open society; promotes property rights protection and contract enforcement; discourages corruption and lawlessness, and fosters economic growth (Olsen, 1993; Clague et al., 1996; Minier, 1998; Persson, 2005). On the contrary, under pressures from different interest groups democratic structures may suffer from inefficiency in decision-making and difficulty in implementing viable policies for rapid growth. "Premature" democracy in developing countries possibly lowers the economic growth rate, and even results in economic disorder, political instability and ethnic conflict (Persson and Tabellini, 1992; and Blanchard and Shleifer, 2000). Tavares and Wacziarg (2001) show that "the overall effect of democracy on economic growth is moderately negative" - an increase in human capital accumulation is offset by a decrease in physical capital accumulation in the process of democratisation.

The possible links between political liberalisation and financial development have been implicitly studied in the above works, especially Olsen (1993) and Clague et al. (1996). However, research directly exploring the impact of political liberalisation on financial development has been lacking. This research might contribute to our understanding of the structural determinants of finanical development. Looking at this issue is also significant for examining whether political liberalisation contributes to an improved

investment climate. This is because commonly-used financial development indicators such as the ratio of liquid liabilities to GDP and the ratio of credit issued to the private sector to GDP are generally forward-looking - better financial development is then an early indication of a better investment environment.

3 The measures and data

3.1 The sample

This research studies the impact of political liberalisation on financial development in two steps. The first-stage study uses a panel of 90 non-transition economies over the period 1960-99 with 5 observations per country. Averaging data over non-overlapping, eight-year periods enables us to abstract from business cycle influences and to examine both short-run and long-run effects. The sample for this analysis excludes countries that become democracies and independent following the end of the Cold War, mainly the East European countries[2]. The selection of countries is based on the Polity index, "polity2" of the PolityIV Database. To pick up any effect of institutional improvement on financial development, this exercise tries to incorporate all democratic reform episodes in the sense that any increase of the annual "polity2" score for a country will be considered even if it always remains an autocratic regime or a democratic regime over the whole period.

The second-stage study is undertaken by using a before-and-after event study approach on 33 democratizing countries, over the period 1960-2001. Following the conventional procedure, a country is treated as a democracy at any year if it has strictly positive values of the Polity indicator, "polity2", in the PolityIV database by Marshall et al. (2003). The selection of countries hinges on not only the "polity2" in the PolityIV Database but also the "freedom" index, generated from the Freedom House Country Survey (2003) discussed below. Countries having either a "polity2" score jumping

[2]Essentially, data prior to 1990 for these countries generated by the central planning economy are largely incomplete, while data after 1990 are highly problematic or doubtful since most of these countries underwent severe economic disorder for several years in the early stage of the transformation process to a market-oriented economy.

from a negative value to a positive value or a "freedom" index moving from "Not Free" to "Free" or "Partly Free" will be initially selected. The study concentrates on the countries with a democratic transformation lasting for at least 10 years.

Information on the classifications of income levels, region dummies, ethnic fractionaliastion, legal origins is obtained from the World Bank Global Development Network Database (GDN), 2002. The data for GDP, trade openness, and aggregate investment are from the Penn World Table 6.1. Data for the black market premium are from the GDN.

Appendix Table 1 summarizes the description and sources of the variables involved in the empirical analysis.

3.2 The measure and data for financial development

The aggregate measure of financial development in this context is denoted by FD. Since there is no single aggregate index in the literature, we use principal components analysis to produce a new aggregate index. Ideally, the principal component analysis should be based on indicators from the banking sector, stock market and the bond market so as to capture different aspects of financial development. However, data on stock market and bond market development is rarely available before 1975 or even later, so the analysis focuses on financial intermediary development.

The measure is based on three widely-used indicators of financial intermediary development as follows[3]:

1. Liquid Liabilities (LLY), calculated as the liquid liabilities of banks and non-bank financial intermediaries (currency plus demand and interest-bearing liabilities) over GDP. It measures the size, relative to the economy, of financial intermediaries including three types of financial institutions: the central bank, deposit money banks and other financial institutions.

2. Private Credit (PRIVO), defined as the credit issued to the private sector by banks and other financial intermediaries divided by GDP, excluding the credit issued to government, government agencies and public enterprises, as well as the credit issued by the monetary authority and

[3]The description here is mainly from Demirguc-Kunt and Levine (1996, 1999).

development banks. This captures general financial intermediary activities provided to the private sector.

3. Commercial-Central Bank (BTOT), the ratio of commercial bank assets over the sum of commercial bank and central bank assets. It proxies the advantages of financial intermediaries in channelling savings to investment, monitoring firms, exerting corporate governance and undertaking risk management relative to the central bank.

Since these indicators are used to measure the size of the banking system[4], FD mainly captures the size of bank-based intermediation. FD is the first principal component of these three indicators above and accounts for 72% of their variation. The weights from this procedure are 0.59 for Liquid Liabilities, 0.63 for Private Credit and 0.50 for Commercial-Central Bank.

The data on these indicators are obtained from the World Bank's Financial Structure and Economic Development Database (2005).

3.3 The data for political liberalisation

The first political liberalisation index is the Polity indicator "polity2" in the PolityIV Database (Marshall et al. 2003), denoted by POLIT. It proxies the degree of democracy and seeks to measure institutional quality based on the freedom of suffrage, operational constraints and balances on executives, and respect for other basic political rights and civil liberties. It is called the "combined polity score", defined as the democracy score minus the autocracy score. The democracy and autocracy scores are derived from six authority characteristics (regulation, competitiveness and openness of executive recruitment; operational independence of chief executive or executive constraints; and regulation and competition of participation). Based on these criteria, each country is assigned a democracy score and an autocracy score ranging from 0 to 10. The larger is the democracy score, the fairer is the election of executive power, the more open is the political process

[4]Two measures for the efficiency of financial intermediation that are sometimes used are Overhead Costs, the ratio of overhead costs to total bank assets, and Net Interest Margin, the difference between bank interest income and interest expenses, divided by total assets. Due to the incompleteness of the relevant data, they are not included in this analysis.

and the higher the extent of the constraints on executive power. On the contrary, a larger autocracy score reflects a less open political process in a country in terms of less competitiveness and fairness in election, narrower participation and fewer contraints on execution.

The second index of political liberalisation is the average of political rights and civil liberties from the Freedom House Country Survey (2003), denoted by "freedom" index. This survey assigns an annual score of political rights and an annual score of civil liberties to each country or territory on a scale of 1 to 7 with lower values indicating a higher level of protection. The average of political rights and civil liberties scores stands for the overall freedom value for a country. The countries with an average score less than 2.5 are considered as "Free", those with average score 2.5-5.5 are "Partly Free", and those having scores greater than 5.5 are treated as "Not Free". Since this dataset only covers the period 1972-2003, it is not used for the panel data study, but used for selecting the democratic transition countries, where a country is selected if its average score falls from above 5.5 to under 4.5 without reversals for at least 10 years.

Appendix Table 2 presents descriptive statistics for political liberalisation and the measure of financial intermediary development. Appendix Figure 1 is a scatter plot of the newly-defined financial development measure, FD, and political liberalisation index, POLIT, showing that they are in general positively correlated. Appendix Figure 2 plots the evolution of the means of FD and POLIT over 1960-99. FD increases relatively gradually, while POLIT, associated with the "Third Wave of Democratisation", moves upwards rapidly from the late 1970s.

4 Institutional improvement and financial development

4.1 Methodology

To assess the relationship between political liberalisation and financial development, the following model is estimated:

$$
\begin{aligned}
y_{it} &= \alpha y_{i,t-1} + \beta x_{i,t-1} + z'_{i,t-1}\delta + \eta_i + \phi_t + v_{it} \\
i &= 1, 2, ...90 \text{ and } t = 2...5
\end{aligned} \tag{1}
$$

Where y_{it} is the dependent variable FD, x_{it} is the explanatory variable POLIT, z_{it} is a vector of controlling variables including the logarithm of the GDP, trade openness (OPENC), aggregate investment (CI) and the black market premium (BMP). GDP is real GDP per capita. OPENC is the logarithm of the trade share, the sum of exports and imports over GDP (at current prices), divided by 100 plus one. CI is the ratio of investment to real GDP per capita (using domestic prices), divided by 100. BMP is the logarithm of the black market premium divided by 100 plus one. δ is a parameter vector, e.g. $(\delta_1,..\delta_4)'$. 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. v_{it} is the transitory disturbance term. The subscripts i and t represent country and time period, respectively.

We assume that (1) the transient errors v_{it} are serially uncorrelated; (2) $x_{i,\,t}$ and $z_{i,\,t}$ are potentially correlated with η_i and endogenous[5]. To avoid the potential endogeneity of explanatory variables, lagged values of $x_{i,\,t}$ and $z_{i,\,t}$ are included in the regression equation, which allows feedbacks from the past shocks onto $x_{i,\,t-1}$and $z_{i,\,t-1}$ where the current and future realisations of y do not affect them. The assumption is inspired by Rodrik and Wacziarg (2004) who argue that "democratisations tend to follow periods of low growth rather than precede them".

When the Ordinary Least Square (OLS) technique is used to estimate this model, the OLS estimate of α is inconsistent and likely to be biased upwards since the lagged values of y are positively correlated with the omitted fixed effects.

The Least Square Dummy Variables (LSDV) method eliminates any omitted variables bias created by the unobserved individual effect by using the within-group operator and estimates the new model below by OLS:

[5]The series $x_{i\,t}$ is defined as being endogenous when $x_{i\,t}$ is correlated with $v_{i,\,t}$ and earlier shocks, but is uncorrelated with $v_{i\,t+1}$ and subsequent shocks. The series $x_{i\,t}$ is strictly exogenous when $x_{i\,t}$ is uncorrelated with earlier, current and future errors. See Bond (2002) and Arellano(2003) for details.

$$
\begin{aligned}
y_{it} - \bar{y_i} &= \alpha(\mathbf{y}_{i,t-1} - \bar{y_{i,-1}}) + (x_{i,t-1} - \bar{x_{i,-1}})\beta + (z_{i,t-1} - \bar{z_{i,-1}})\delta + (v_{it} - \bar{v_i}) \\
i &= 1, 2, ...90 \text{ and } t = 2...5
\end{aligned} \tag{2}
$$

Where $\bar{y_i}$, $\bar{x_i}$ and $\bar{z_i}$ are the group means, that is, $\bar{y_i} = \sum_{t=1}^{5} y_{it}/5$, $\bar{x_i} = \sum_{t=1}^{5} x_{it}/5$ and $\bar{z_i} = \sum_{t=1}^{5} z_{it}/5$.

Since the lagged value of y is correlated with the new error term, as shown by Nickell (1981), the LSDV estimate of α can be badly downwards biased for small T, even as N goes to infinity.

The Anderson and Hsiao (1980, 1981) first-difference Two Stage Least Squares estimator (2SLS) wipes out the individual effects by first differencing Equ (1) and uses the lagged value of y, x and z in t-2 as instruments for $\Delta\mathbf{y}_{i,t-1}$,$\Delta\mathbf{x}_{i,t-1}$ and $\Delta\mathbf{z}_{i,t-1}$ in the first difference equation below:

$$
\begin{aligned}
\Delta y_{it} &= \alpha\Delta\mathbf{y}_{i,t-1} + \Delta x_{i,t-1}\beta + \Delta z'_{i,t-1}\delta + \phi_t - \phi_{t-1} + \Delta v_{it} \\
i &= 1, 2, ...90 \text{ and } t = 3...5
\end{aligned} \tag{3}
$$

Arellano and Bond (1991) and Ahn and Schmidt (1995) point out that the first-differenced 2SLS estimator is consistent, but not asymptotically efficient since it does not make use of all available moment conditions, nor does it account for the differenced structure of the residual disturbances (Δv_{it}).

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 $\Delta\mathbf{y}_{i,t-1}, \Delta\mathbf{x}_{i,t-1}$ and $\Delta\mathbf{z}_{i,t-1}$ in the first difference equation above. The first differenced GMM estimator is consistent and asymptotically more efficient than the first-differenced 2SLS estimator.

Blundell and Bond (1998) argue that when the autoregressive parameter α is close to unity or the variance of the individual effects (η_i) increases relative to the variance of the transient disturbances (v_{it}) in the standard AR(1) model, the instruments available for the first-differenced equation

are likely to be weak. The first-differenced GMM estimator employing these weak instruments has been found to suffer from finite sample bias.

A "system GMM" estimator developed by Arellano and Bover (1995), and Blundell and Bond (1998) imposes a mean stationarity assumption on initial conditions[6], which 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 is expected to have much smaller finite sample bias and greater precision in the presence of persistent data and weak instruments for first differences.

The asymptotic properties of these estimators depend on having a large number of cross-section units, however. One of the main problems of using these estimators is that they may have poor finite sample properties in terms of bias and imprecision. Starting from Kiviet (1995), a bias-correction of LSDV has been developed recently for finite samples. Kiviet (1995) derives an approach to approximating the small sample bias of the LSDV estimator and suggests that the bias approximation be evaluated at the estimates from some consistent estimates rather than the unobserved true parameter values, which makes bias correction operationally feasible. The Monte Carlo evidence from Kiviet (1995), Judson and Owen (1999) and Bun and Kiviet (2003) suggest that the bias-corrected LSDV estimator (LSDVC) is more efficient than LSDV, first–differenced 2SLS, first–differenced GMM and system GMM in terms of bias and root mean square error (RMSE) for small or moderately large samples. Bruno (2005) derives a bias approximation of various orders in dynamic unbalanced panels with a strictly exogenous selection rule[7].

This analysis compares the OLS, LSDV, LSDVC and SYS-GMM, stand-

[6]For the multivariate autoregressive model, Blundell and Bond (2000) show that a sufficient condition for the additional moment conditions to be valid is the joint mean stationarity of all the series.

[7]Essentially, in the bias approximation of Bruno (2005), the within operator is adjusted to include an exogenous selection rule which only selects the observations with observable current and one-time lagged values, by which missing observations for some individuals are allowed.

ing for the system GMM estimator, for the whole sample and 3 subsamples. The LSDVC estimator is regarded as the preferred estimator, especially for subsamples, in which the independent variables other than the lagged dependent variable are assumed to be strictly exogenous. The initial estimator for the LSDVC could be either first differenced GMM or SYS-GMM estimator. However, the SYS-GMM is selected since the Difference Sargan test of additional moments conditions could not reject the null, and the SYS-GMM may be a more reliable estimator than the first–differenced GMM in this context.

4.2 The regression results

4.2.1 Whole sample results

Table 1 presents the results for the whole sample, including estimation by OLS, LSDV, LSVDC and SYS-GMM. For every estimate, the first column is the baseline specification in which the income level and trade openness are present, while the second column controls for the black market premium and aggregate investment. The point estimate and the approximate standard error of the long run effect for each model are reported. For the SYS-GMM estimate, the table reports serial correlation tests, a Sargan test and a Difference Sargan test. The serial correlation tests are used to examine the null hypothesis of no first-order serial correlation and no second-order serial correlation respectively in residuals in first-differences. Given the errors in levels are serially uncorrelated, we would expect to find significant first-order serial correlation, but no significant second-order correlation in the first-differenced residuals. The Sargan test of overidentifying restrictions is used to examine the overall validity of the instruments by comparing the sample moment conditions with their population analogue. The Difference Sargan test, proposed by Blundell and Bond (1998), is used to test the null hypothesis that the lagged differences of the explanatory variables are uncorrelated with the errors in the levels equations.

It is worth noting that, firstly, the autoregressive parameter estimated by LSDVC and SYS-GMM lies in the interval defined by the OLS levels and LSDV estimates. Recall that, in AR(1) models, the OLS levels estimate

of the autoregessive parameter is biased upwards in the presence of fixed effects, and the LSDV estimate is biased downwards in a short panel. A consistent estimate of the autoregressive parameter can be expected to lie in between the OLS levels and LSDV estimates. It is a simple indication of the presence of serious finite sample biases when particular estimates fail to fall into this interval or are very close to the bounds.

Both OLS and LSDV estimates indicate a significant positive effect of political liberalisation on financial development although they are biased in opposite directions. The LSDVC suggests weaker evidence at the 20% significance level. The SYS-GMM estimate provides strong evidence that the improvement in institutional quality is associated with financial development, and the diagnostic tests, including the first-order and second-order serial correlation tests, Sargan test and Different Sargan test, are supportive. In general, the coefficients on the GDP level, trade openness and aggregate investment are positively signed, while the coefficient of the black market premium is negatively signed. The long run effects in the cases of the OLS and LSDV estimates have been found to be positive and stable, however, the long run effects for LSDVC and SYS-GMM are less precisely estimated.

In general, the table provides evidence that political liberalisation in terms of institutional improvement is followed by advances in financial development at least in the short run, which is not due to unobserved heterogeneity, or endogeneity biases.

4.2.2 Subsamples

One concern over the above findings is that these parameters may be heterogeneous across countries. A natural way to confront this problem is to investigate subsamples, which are more homogeneous. We turn to three subsamples in this section[8]: lower income countries, ethnically diverse countries and French legal origin countries. Since the cross-section dimensions of these

[8] The selection of these subsamples is mainly stimulated by Rodrik and Wacziarg (2005) in which low income countries, ethnically diverse countries and Sub-Saharan African countries are studied. However, I find no evidence in support of a positive/negative link between political liberalisation and financial development for the Sub-Saharan African countries. Experiments were also conducted for the Asian countries and Latin American countries, again finding no evidence.

samples are relatively small, LSDVC is expected to be more appropriate than SYS-GMM for these subsamples.

Table 2 presents the results for the lower income countries, made up of low income and lower-middle income countries, covering the majority of the developing countries. We find strong evidence of a positive effect of political liberalisation on financial development in the short run for every estimate. The LSDVC should be the most reliable estimate given the above discussion. Moreover, it also indicates that the effect of improved institutional quality on financial development is sustained into the long run. Trade openness positively enters the models at the 20% significance level.

Table 3 shows the results for ethnically diverse countries which have a level of ethnic fractionalisation greater than the sample median. We find strong evidence of the positive effect of political liberalization on financial development in the short run. The autoregressive parameter estimated by LSDVC and SYS-GMM are very close. The LSDVC estimates suggest a positive effect of political liberalization on financial development at the 20% significance level with GDP and trade openness entering significantly. The SYS-GMM estimates provide much stronger evidence for this effect, in which GDP and trade openness are present at the 20% significance level. The long run effects and approximate standard errors are in general less precisely estimated except for the case of the OLS and LSDV estimates.

The results for countries with French legal origin are reported in Table 4. This selection is essentially inspired by the work of La Porta et al. (1998) which regards the legal origin as a main determinant of financial development. The experiments for British legal origin group, German legal origin group and Scandinavian legal origin group produce no evidence in favor of such a link.

Firstly it is worth noting that the autoregressive parameter estimated by SYS-GMM in the baseline model lies outside of the interval defined by the OLS and LSDV estimates, further implying the LSDVC may be a more reasonable estimator in this context. The LSDVC estimates typically show evidence in support of a positive effect of institutional improvement on financial development for French legal origin countries at the 15% significance level. The finding seems to be in line with La Porta et al. (1998) which claims that

the main characteristic for countries with French legal origins is that private property rights are generally neglected, while British legal origin countries care more about private property owners. The finding supports a tentative hypothesis that democratisation in French legal origin countries tends to change the status of private property owners in the national economy, and is thus conducive to financial development.

In sum, the above studies on subsamples have produced consistent findings: improved institutional quality lends to greater financial development, at least in the short run. In the group of lower income countries, a significant long run effect is also observed. In general, we find the black market premium has a negative effect, while GDP, trade openness and aggregate investment enter positively. These findings are in accordance with Huang and Temple (2005) on the positive effect of external trade on financial development and Huang (2005) who observes a positive effect going from investment to financial development.

5 Democratic transition and financial development

The previous section focuses on the broader sense of political liberalisation in terms of institutional improvement, based on even a slight change of the Polity index, "polity2". This section studies the effect of the establishment of representative government on financial development by applying a "before-and-after" approach to a group of countries that underwent transformation from autocratic regimes to complete or partial democracies at some point during 1960-2001.

The sample selection in this section relies on both the "polity2" and "freedom" indices discussed earlier. Countries with either their "polity2" index increasing from negative values to positive values or their "freedom" index jumping from "Not Free" to "Partly Free" or "Free" for at least 10 years are considered for this analysis. In general, the "polity2" index and "freedom" index yield similar results on the timing of democratic transition for most cases. However, the "polity2" index excludes small population countries (less than half a million) and the "freedom" index is only available from 1972-73. For completeness, the selection of democratic transition

countries combines both of them when both are available and relies on either of them otherwise.

The event identification methodology of Papaioannou and Siourounis (2004) has been found useful for selecting the democratic transition countries, but the selection method in this analysis differs from their method in the following ways. Firstly, for simplicity this analysis selects the sample exclusively depending on the changes from autocratic rule to democratic regimes without any further divisions, while Papaioannou and Siourounis (2004) divide democratisations into "full", "partial" and "borderline" with different thresholds in terms of either the "polity2" or the "freedom" index. Secondly, this analysis is interested in the effect of a stable regime change on financial development. Hence, the sample only includes the countries whose regime changes last for at least 10 years.

The "before-and-after" approach compares an individual country's financial development performance under autocratic and democratic regimes. To ease interpretation, the FD measure has been rescaled[9] in Table 5. The five or ten years average of FD preceding democratic transition is compared with the mean of the FD during the first five or ten years under democracy for 33 countries. The 10-year average of standardised FD for the sample countries increases by 0.093 on average after the initiation of a democratic transition and more than half of the sample countries exhibit a boost in financial development. Looking at the financial development performance of each individual country, we find enormous heterogeneity across countries, ranging from an increase of 1.096 of a cross-country standard deviation of FD in the 10-year average of standardised FD for Thailand to a decline of 0.415 of a cross-country standard deviation of FD for Zambia. Korea and Madagascar also witnessed a drastic increase in the difference of 10-year average of standardised FD, whilst Chile and Uruguay experienced a tremendous drop in FD following their democratisation. It is worth noting that the majority of countries that suffered from a dramatic drop in financial development after democratisation are Latin American countries. On the contrary, most African countries underwent a pick-up in financial develop-

[9]The FD measure has been standardised. More specifically, it is divided by the cross-country standard deviation of FD in 1999.

ment after their democratic transformation. The divergent performance in countries' financial development implies that, apart from democratisation, the level of financial development in each country may be affected by numerous factors including macroeconomic risks and changes in the general investment climate.

Table 5 also shows that the 5-year average of standardised FD post-democratisation for 33 countries is larger by 0.015 cross-country standard deviations of FD than before their democratisation, and about two-thirds of the sample countries benefit from this process. The mean increase is small, but there is also considerable heterogeneity. The median values of the increase in of standardised FD for both the 5-year and 10-year average are positive. On average, these results tend to suggest that the establishment of representative government is often associated with an increase in financial development, but the effect is only sizeable for a subset of countries.

The upper chart of Figure 1 displays the cross-country median FD 10 years before and after transitions for the whole sample. The lower chart of Figure 1 plots the coefficients on the fixed effect estimate of 20 time dummies before and after democratisation to reflect the dynamic effect of a sustained democratisation. The regression is estimated by OLS in which the unobserved country specific effects, time effect and controlling variables such as trade openness, GDP, aggregate investment and black market premium are included. The two figures show that the sample countries in general experience a drop in FD prior to democratisation, which is in accordance with the view that worsened economic conditions are associated with subsequent democratisation. After democratisation, FD appears to move slightly upwards on average in 1-5 years, followed by a surge in 5-10 years. The charts vividly portray the main features of FD as well as economic performance in the process of democratisation. At the beginning of the process, democratisation may produce economic chaos, political instability, ethnic conflict and poor economic performance. These negative effects have been observed and emphasized by many authors. However, in about 5-10 years the positive effects of democratisation appear and become pronounced. It is expected that the effect will become stable in the medium run and long run. This finding supports the conclusion that positive effects of political liberalisation

on FD exist at least in the short run, as identified in the previous panel data study.

Figure 2 describes the standard deviation of the FD growth rate before and after a stable democratisation for whole sample and subsamples. Democratisation has led to a substantial rise in FD volatility for the whole sample. Regional groups like Latin America (LAC) and Sub-Saharan Africa (SSA) countries experience a higher volatility of financial development, but Asian countries (ASIA) do not[10]. The standard deviations of the FD growth rate in income groups, like low-income countries (INCLOW) and middle income countries (INCMID), and legal origin groups, like British legal origin countries (LEG_UK) and French legal origin countries (LEG_FR), increases after their democratic transition. An increase of FD volatility may reflect the fact that the removal of institutional obstacles after democratic transition could bring about short-run investment booms, reflected in a more volatile FD growth rate.

6 Conclusion

This research studies the impact of political liberalisation on financial development. It firstly examines whether institutional improvement stimulates financial development using a panel of 90 economies over the period 1960-99. By comparing newly developed panel data techniques, including bias-corrected LSDV and system GMM estimators, this research shows that improved institutional quality is associated with increases in financial development at least in the short run, and this is particularly true for lower income countries, ethnically divided and French legal origin countries. For the lower income countries, this effect is expected to persist over longer horizons.

This research further conducts a "before-and-after" approach to address whether significant democratic transitions in terms of the establishment of representative government are good for financial development. The within

[10]Largely, among Asian countries, the financial development performance as well as other economic performance in East Asian and Pacific countries are different from those in South Asian countries.

country comparisons reveal the heterogeneity of countries' experiences of financial development, which implies that further investigation into other relevant factors should be worthwhile. The results also indicate that in general democratic transitions are typically preceded by low financial development, but followed by a short-run boost in financial development and greater volatility of financial development. The increase of financial development volatility is perhaps related to the immediate consequences of democratisation which may introduce greater openness to trade and competition, speed up growth, encourage investment and give more confidence over the economic environment being open, free and competitive.

The findings of this research highlight the influence of political liberalisation on the supply side of financial development. They shed light on the strong and robust relationship between institutional quality and economic performance, and present further grounds for political reform.

The findings in the panel data study on the coexistence of the effect of political liberalisation, GDP and trade openness on financial development are very significant. Firstly, it enriches the evidence for an openness-finance nexus. Huang and Temple (2005)'s cross-section and panel data study suggests that trade openness is very likely to boost financial development, for which institutional improvement could serve as one channel. The IMF (2003) indicates the possible existence of such a channel by concluding that "greater openness to trade and stronger competition are conducive to institutional improvement, and thus to growth". However, the findings of this research tend to suggest that there are additional channels via which more open policies exert a positive effect on financial development. The findings are also consistent with Rajan and Zingales (2003)'s claim that trade openness is helpful for changing incumbents' willingness to promote financial development.

Secondly, it has implications for economic liberalisation and political liberalisation. Giavazzi and Tabellini (2004) argue that "studying the effects of each reform (economic and political reform) individually can be misleading" and there are positive feedback effects and interaction effects between economic liberalisation and political liberalisation. They suggest that "causality is more likely to run from political to economic liberalisa-

tion, rather than vice versa... we cannot rule out feedback effects in both directions." The findings of this paper seem to be consistent with their findings on the interaction effects in the sense that political liberalisation under an open economic environment exerts an additional boost to investment and economic growth, and thus to financial development.

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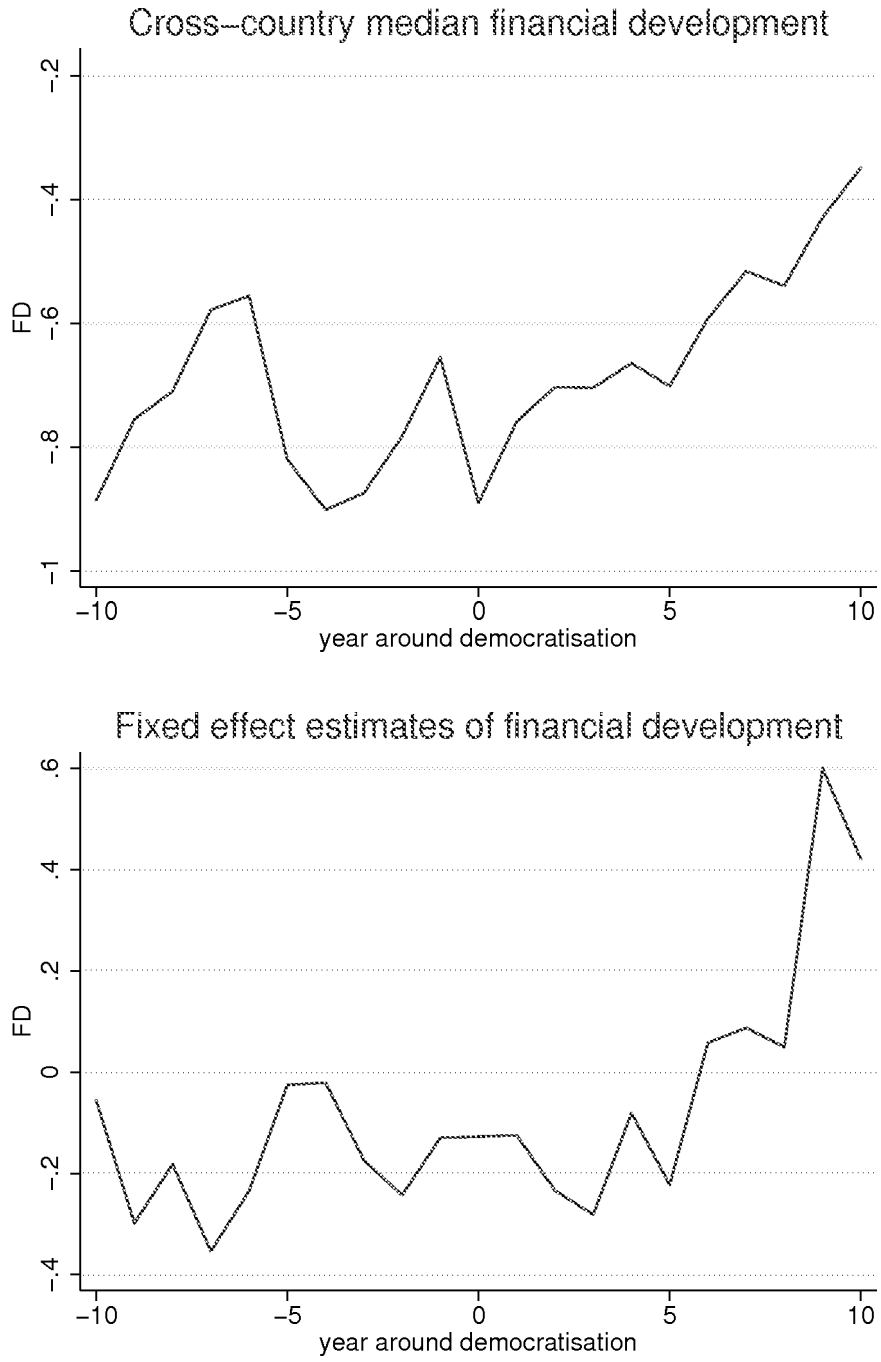
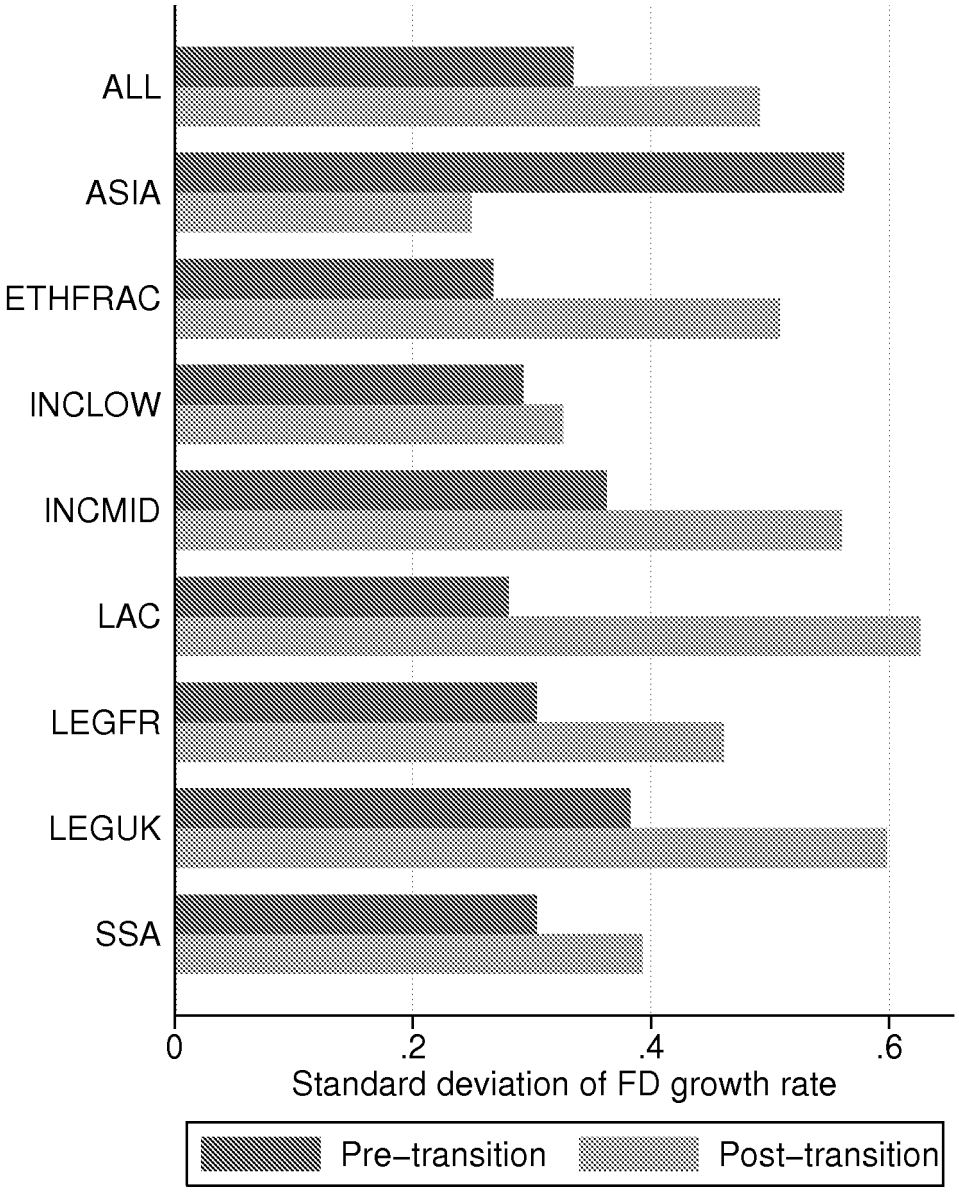
Figure 1: Financial development 10–year before and after democratisation



Note: 33 developing countries, 1960–99. Variables and data sources are described in Appendix Table 1.

Figure 2: Volatility of financial development 10–year pre/post– democratization



Note: 33 developing countries, 1960–99. Appendix Table 1 describes variables.

Table 1. Political liberalisation and financial development (whole sample) , 1960-1999

Dependent variable: FD_(it)	OLS		LSDV		LSDVC		SYS-GMM	
FD_(i, t-1)	0.951	0.863	0.379	0.320	0.825	0.796	0.689	0.848
	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***	[0.01]***	[0.00]***
POLIT_(i, t-1)	0.015	0.015	0.025	0.026	0.018	0.020	0.080	0.028
	[0.04]**	[0.04]**	[0.04]**	[0.05]**	[0.19]	[0.15]	[0.03]**	[0.05]**
LGDP_(i, t-1)	0.133	0.013	1.232	1.179	0.655	0.567	0.466	0.048
	[0.02]**	[0.85]	[0.00]***	[0.00]***	[0.02]**	[0.04]**	[0.20]	[0.74]
OPENC_(i, t-1)	0.159	0.273	1.818	1.912	1.214	1.470	2.195	0.500
	[0.53]	[0.31]	[0.01]***	[0.02]**	[0.05]**	[0.06]*	[0.17]	[0.31]
BMP_(i, t-1)		-0.240		-0.089		-0.050		-0.236
		[0.00]***		[0.45]		[0.73]		[0.02]**
CI_(i, t-1)		2.372		0.798		0.755		2.785
		[0.00]***		[0.49]		[0.48]		[0.10]*
M1(p-value)[1]							0.03	0.04
M2(p-value)[1]							0.20	0.98
Sargan(p-value)[2]							0.28	0.34
Diff-Sargan (p-value)[2]							0.18	0.89
LR effect point estimate[3]	0.306	0.110	0.041	0.038	0.102	0.099	0.256	0.187
(Standard error)	[0.39]	[0.06]*	[0.02]*	[0.02]*	[0.08]	[0.07]	[0.23]	[0.17]
Observations	233	220	233	220	233	220	233	220

Notes: 82 countries. P-value is reported in brackets below point estimates. Year dummies included in all models. * significant at 10%; ** significant at 5%; *** significant at 1%.

The LSDVC estimator is the corrected LSDV estimator developed by Kiviet (1995) for finite sample bias and contructed for dynamic unbalanced panels by Bruno (2005). The SYS-GMM results are two-step estimates with heteroskedasticity-consistent standard errors and test statistics; the standard errors are based on the finite sample adjustment of Windmeijer (2005).

[1] M1 and M2 are tests for null of no first-order and no second-order serial correlation in the first-differenced residuals, asymptotically N(0,1).

[2] Sargan is a test of the overidentifying restrictions for GMM estimators, asymptotically ?[2]. Diff-Sargan tests the null of mean stationarity for the system GMM estimator.

[3] LR measures the long-run effect of political liberalisation on financial development. Its standard error is approximated using the delta method.

Table 2. Political liberalisation and financial development (lower income countries), 1960-1999

Dependent variable: FD_(it)	OLS		LSDV		LSDVC		SYS-GMM	
FD_(i, t-1)	0.932	0.854	0.387	0.292	0.840	0.775	0.991	0.790
	[0.00]***	[0.00]***	[0.00]***	[0.04]**	[0.00]***	[0.00]***	[0.00]***	[0.00]***
POLIT_(i, t-1)	0.012	0.009	0.044	0.048	0.030	0.032	0.049	0.027
	[0.11]	[0.25]	[0.00]***	[0.00]***	[0.04]**	[0.07]*	[0.07]*	[0.04]**
LGDP_(i, t-1)	0.128	0.049	0.662	0.659	0.249	0.245	0.238	0.255
	[0.05]*	[0.49]	[0.03]**	[0.04]**	[0.35]	[0.29]	[0.52]	[0.13]
OPENC_(i, t-1)	-0.297	-0.348	1.676	1.412	1.177	1.123	0.603	0.363
	[0.33]	[0.26]	[0.03]**	[0.10]*	[0.14]	[0.18]	[0.51]	[0.63]
BMP_(i, t-1)		-0.244		-0.123		-0.086		-0.223
		[0.01]***		[0.26]		[0.47]		[0.04]**
CI_(i, t-1)		2.202		0.847		0.554		2.213
		[0.01]***		[0.50]		[0.64]		[0.12]
M1(p-value)[1]							0.00	0.00
M2(p-value)[1]							0.26	0.22
Sargan(p-value)[2]							0.41	0.68
Diff-Sargan (p-value)[2]							0.84	0.97
LR effect point estimate[3]	0.180	0.064	0.072	0.068	0.186	0.142	5.454	0.13
(Standard error)	[0.18]	[0.05]	[0.02]***	[0.02]***	[0.11]*	[0.08]*	[141.51]	[0.09]
Observations	177	169	177	169	177	169	177	169

Notes: 57 countries. For other notes, please see Table 1.

Table 3. Political liberalisation and financial development (ethnically diverse countries), 1960-1999

Dependent variable: FD_(it)	OLS		LSDV		LSDVC		SYS-GMM	
FD_(i, t-1)	0.913	0.840	0.365	0.313	0.820	0.794	0.857	0.807
	[0.00]***	[0.00]***	[0.00]***	[0.01]***	[0.00]***	[0.00]***	[0.00]***	[0.00]***
POLIT_(i, t-1)	0.017	0.018	0.026	0.025	0.020	0.021	0.055	0.034
	[0.02]**	[0.01]***	[0.04]**	[0.07]*	[0.16]	[0.17]	[0.11]	[0.06]*
LGDP_(i, t-1)	0.144	0.045	1.193	1.148	0.585	0.501	0.378	0.206
	[0.01]***	[0.51]	[0.00]***	[0.00]***	[0.03]**	[0.08]*	[0.18]	[0.11]
OPENC_(i, t-1)	0.333	0.388	1.879	1.959	1.318	1.529	1.447	0.816
	[0.17]	[0.12]	[0.01]***	[0.02]**	[0.06]*	[0.07]*	[0.21]	[0.14]
BMP_(i, t-1)		-0.237		-0.091		-0.055		0.218
		[0.00]***		[0.44]		[0.67]		[0.01]***
CI_(i, t-1)		1.894		0.458		0.530		1.304
		[0.02]**		[0.70]		[0.69]		[0.24]
M1(p-value)[1]							0.02	0.03
M2(p-value)[1]							0.19	0.54
Sargan(p-value)[2]							0.12	0.24
Diff-Sargan (p-value)[2]							0.73	0.61
LR effect point estimate[3]	0.200	0.115	0.041	0.036	0.109	0.103	0.384	0.175
(Standard error)	[0.15]	[0.06]**	[0.02]**	[0.02]*	[0.08]	[0.08]	[0.69]	[0.159]
Observations	220	211	220	211	220	211	220	211

Notes: 67 countries. For other notes, please see Table 1.

Table 4. Political liberalisation and financial development (French legal origin countries) , 1960-1999

Dependent variable: FD_(it)	OLS		LSDV		LSDVC		SYS-GMM	
FD_(i, t-1)	0.763	0.721	0.214	0.214	0.708	0.694	0.848	0.709
	[0.00]***	[0.00]***	[0.10]*	[0.12]	[0.00]***	[0.00]***	[0.00]***	[0.00]***
POLIT_(i, t-1)	0.018	0.020	0.027	0.030	0.027	0.032	0.038	0.042
	[0.12]	[0.07]*	[0.11]	[0.08]*	[0.12]	[0.14]	[0.11]	[0.04]**
LGDP_(i, t-1)	0.144	0.042	0.643	0.572	0.294	0.155	0.319	0.129
	[0.04]**	[0.63]	[0.06]*	[0.12]	[0.47]	[0.65]	[0.10]*	[0.51]
OPENC_(i, t-1)	0.468	0.755	2.691	2.110	2.421	1.997	0.522	1.250
	[0.23]	[0.04]**	[0.01]***	[0.06]*	[0.03]**	[0.07]*	[0.48]	[0.12]
BMP_(i, t-1)		-0.185		-0.135		-0.088		-0.135
		[0.01]***		[0.35]		[0.61]		[0.06]*
CI_(i, t-1)		1.836		1.110		1.558		1.445
		[0.04]**		[0.49]		[0.38]		[0.38]
M1(p-value)[1]							0.08	0.06
M2(p-value)[1]							0.12	0.19
Sargan(p-value)[2]							0.31	0.91
Diff-Sargan (p-value)[2]							0.51	0.95
LR effect point estimate[3]	0.075	0.070	0.034	0.038	0.094	0.104	0.251	0.144
(Standard error)	[0.05]	[0.04]*	[0.02]	[0.02]*	[0.06]	[0.08]	[0.27]	[0.12]
Observations	153	150	153	150	153	150	153	150

Notes: 49 countries. For other notes, please see Table 1.

Table 5. Change in FD standardised before and after democratization

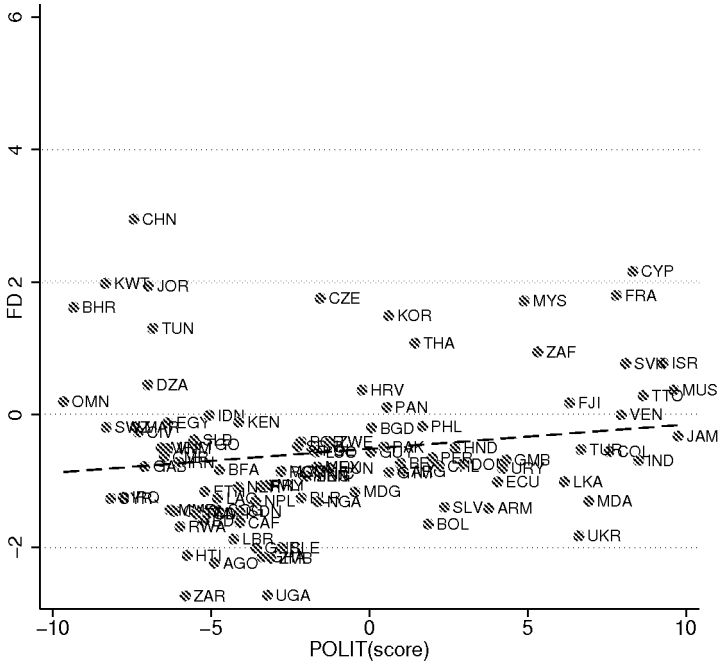
Countries	Democratization year	before10	after10	d10	before5	after5	d5
Argentina	1983	-0.375	-0.466	-0.092	-0.266	-0.723	-0.457
Bolivia	1982	-1.055	-0.789	0.266	-1.000	-1.397	-0.396
Brazil	1985	-0.492	-0.341	0.151	-0.492	-0.610	-0.118
Chile	1989	-0.136	-0.507	-0.371	-0.138	0.040	0.178
Dominican Rep.	1978	-0.527	-0.351	0.176	-0.337	-0.311	0.027
Ecuador	1979	-0.674	-0.486	0.188	-0.629	-0.451	0.178
Ethiopia	1994	-0.562	-0.615	-0.053	-0.547	-0.458	0.090
Ghana	1996	-1.295	-1.042	0.252	-1.256	-0.969	0.288
Grenada	1984	0.247	0.635	0.388	0.232	0.256	0.024
Guatemala	1986	-0.569	-0.411	0.157	-0.645	-0.532	0.114
Honduras	1980	-0.199	-0.278	-0.079	-0.142	-0.252	-0.110
Hungary	1989	-0.631	-0.335	0.296	-0.584	-0.323	0.261
Korea, Rep.	1987	0.307	1.031	0.724	0.482	0.874	0.393
Lesotho	1993	-0.300	-0.266	0.034	-0.572	-0.364	0.208
Madagascar	1991	-0.942	-0.460	0.483	-0.983	-0.808	0.176
Mexico	1994	-0.592	-0.367	0.224	-0.404	-0.138	0.267
Mali	1992	-0.625	-0.532	0.093	-0.625	-0.559	0.066
Malawi	1994	-0.814	-0.737	0.078	-0.840	-0.783	0.056
Nicaragua	1990	-0.342	-0.548	-0.206	-0.667	-0.757	-0.090
Nepal	1990	-0.735	-0.657	0.077	-0.745	-0.506	0.239
Pakistan	1988	-0.224	-0.266	-0.042	-0.186	-0.231	-0.045
Panama	1989	0.142	0.035	-0.106	0.093	0.039	-0.054
Peru	1979	-0.300	-0.351	-0.051	-0.230	-0.433	-0.203
Philippines	1986	-0.003	-0.113	-0.110	0.034	-0.363	-0.396
Poland	1989	-0.398	-0.167	0.230	-0.610	-0.319	0.291
Paraguay	1989	-0.467	-0.588	-0.121	-0.588	-0.471	0.117
El Salvador	1982	-0.685	-0.740	-0.055	-0.724	-0.876	-0.151
Suriname	1987	0.036	-0.110	-0.146	0.221	0.405	0.184
Seychelles	1993	-0.299	0.029	0.328	-0.275	-0.128	0.148
Thailand	1978	-0.193	0.903	1.096	-0.132	0.048	0.181
Uruguay	1985	-0.145	-0.523	-0.378	0.246	-0.419	-0.666
South Africa	1994	0.453	0.514	0.061	0.434	0.562	0.128
Zambia	1991	-0.926	-1.341	-0.415	-0.926	-1.349	-0.423
Average				0.093			0.015
1st Quartile				-0.092			-0.110
Median Value				0.077			0.090
3rd Quartile				0.230			0.181

Note: The "before10" or "after10" is the average of FD standardized 10 years before or after transition. The "d10" is the difference between the two. This applies to "before5", "after5" and "d5". The FD standardised measure is the FD measure divided by cross-country standard deviation of FD in 1999.

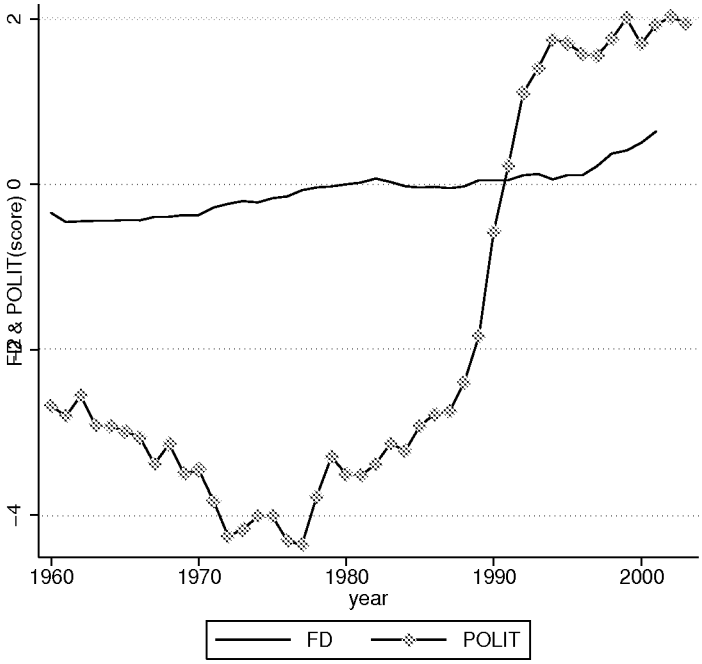
Appendix Table 1. The variables

Variable	Description	Source
FD	Index for financial development in this paper, mainly measuring the size of financial intermediary development. It is the first principal component of LLY, PRIVO and BTOT.	
LLY	Liquid Liabilities, the ratio of liquid liabilities of financial system (currency plus demand and interest-bearing liabilities of banks and nonbanks) to GDP.	Financial Development and Structure Database (FDS) in World Bank, 2005
PRIVO	Private Credit, the ratio of credits issued to private sector by banks and other financial intermediaries to GDP.	FDS, 2005
BTOT	Commercial-central Bank, the ratio of commercial bank assets to the sum of commercial bank and central bank assets.	FDS, 2005
POLIT	The index for the degree of democracy. It is the "polity2" in PolityIV Database.	PolityIV Database Marshall et al. (2003)
LGDP	Real GDP per capita (Chain) in log.	Penn World Table 6.1
OPENC	The sum of exports and imports over GDP (at current prices). The regression uses log(1+OPENC/100).	Penn World Table 6.1
CI	The sum of investment over real GDP per capita (using domestic prices). The regression uses CI/100.	Penn World Table 6.1
BMP	Black market premium (%, means zero). The regression uses log(1+BMP/100).	Global Development Network (GDN), 2002
INCLOW	Dummy for low income group	GDN, 2002
INCMID	Dummy for middle income group, made up of lower-middle income and low income countries	GDN, 2002
ETHFRAC	Dummy for ethnic fractionalisation	GDN, 2002
LEG_UK	Dummy for British legal origin	GDN, 2002
LEG_FR	Dummy for French legal origin	GDN, 2002
LEG_GE	Dummy for German legal origin	GDN, 2002
LEG_SC	Dummy for Scandivanian legal origin	GDN, 2002
ASIA	Dummy for Asian countries	GDN, 2002
LAC	Dummy for Latin American countries	GDN, 2002
SSA	Dummy for Sub-Sarahan African countries	GDN, 2002

Appendix Figure 1: Scatter plot of financial development and political liberalisation



Appendix Figure 2: Financial development during the process of political liberalisation



Note: 82 countries, 1960–2001. Variables and data sources are described in Appendix Table 1.