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Are property rights institutions and financial development complements or substitutes? The case of private investment

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Abstract

This article explores whether the quality of the financial sector has an impact on the relationship between property rights institutions and private investment. Using dynamic panel techniques, we show that strong property rights promote increased private investment and that this positive effect is stronger in countries with poorer financial systems, suggesting that institutions and finance act as substitutes in their effect on investment.

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1. Introduction

Most investment decisions are forward looking and therefore associated with risks and uncertainties. However, well-functioning institutions can mitigate these uncertainties through various channels. First, they can enhance contract enforcement and restrain arbitrary state action. Second, they can lower transaction and information costs and thus increase net returns. Third, they can reduce the likelihood of distortionary macroeconomic policies and, hence, boost the investment climate (Acemoglu *et al.*, 2003). Thus, a positive relationship between institutions and private investment is expected.

Recently, a growing body of evidence has emerged emphasising the importance of property rights institutions (*PRI*) for economic performance (see for example, Acemoglu and Johnson, 2005). A related literature (for example, La Porta *et al.*, 1998; Johnson *et al.*, 2002) has also convincingly shown that *PRI* encourage the development of financial market institutions. Financial markets, in turn, can serve as a vehicle for increased economic activity through risk diversification, corporate control, and resource mobilisation (Levine, 1997).

This note contributes to this literature by addressing the related issue of whether *PRI* and financial development (*FD*) act as substitutes or complements in explaining private investment. The joint effect of institutions and finance on economic performance is increasingly being explored since their individual effect has become clearer. For example, Compton and Giedeman (2011) and Ahlin and Pang (2008) find that the positive effect of *FD* on growth diminishes with the level of institutional development (i.e. they are substitutes in improving economic performance).

Our results reinforce these findings and suggest that *PRI* and *FD* act as substitutes in encouraging private investment. More specifically, we find that *PRI* promote increased private investment especially in countries where the financial system is either inadequate or perhaps missing. One possible channel through which this can happen is, for example, through the provision of some of the functions of the financial sector including trade facilitation, corporate control and risk reduction.

The article is organised as follows. Section 2 presents the data and empirical strategy. Section 3 discusses the results while Section 4 concludes.

2. Data and Empirical Strategy

The dataset consists of 79 developing and emerging economies over the period 1970 to 1999. As is common in the literature, we average the data over 5-year periods in order to reduce possible business cycle effects that may influence private investment. Table A1 in the appendix provides the definition and sources of the variables. We estimate the following dynamic panel model:

$$PI_{it} = \beta_0 + \gamma PI_{it-1} + \beta_1 PRI_{it} + \beta_2 FD_{it} + \beta_3 (PRI_{it} * FD_{it}) + \lambda' X_{it} + \eta_i + \zeta_t + \varepsilon_{it} \qquad (1)$$

where for country *i* at time *t*, PI_{it} is the ratio of private investment to GDP. To capture *PRI*, we use 'constraint on the executive' from the Polity IV dataset. This is following Acemoglu and Johnson (2005) who make a strong case for the appropriateness of this indicator as a measure of *PRI*. According to them, this proxy captures procedural rules which constrain political leaders and other powerful elites, and, thus is closely linked with the security of private property rights. To measure *FD*, we use financial system deposits as a ratio to GDP. This variable captures the volume of resources available to the financial system for its lending activities and thus is an appropriate proxy for the depth of the financial sector (Beck *et al*. 2010). $PRI_{it} * FD_{it}$ is the interaction of institutions with finance. A significant positive

interaction term implies that institutions and finance are complementary, suggesting that sophisticated financial sectors increase the beneficial effect of *PRI* on private investment. On the contrary, a significant negative interaction term points to the substitutability of the two variables, such that the positive effect of *PRI* on investment is stronger the weaker the financial sector.

The vector X_{it} contains a set of standard controls including GDP growth, inflation, real lending rate, macroeconomic volatility, currency overvaluation, and economic openness, η_i is time invariant country-specific fixed effect, ζ_t is a time specific effect and ε_{it} is the error term. In estimating equation (1), we use the two-step system GMM estimator developed by Arellano and Bover (1995) and Blundell and Bond (1998), which addresses potential endogeneity, measurement error and omitted variable biases.

3. Results

Table 1 reports the results. Column (1) presents the basic specification that includes both *PRI* and measures of *FD* but no interaction term. All the variables have the expected signs and are predominantly significant at conventional levels. More specifically, the coefficient on *PRI* is highly significant, suggesting that, on average, countries with strong property rights tend to have higher shares of investment in GDP. One explanation for this could be that countries that limit the exercise of arbitrary power are more likely to mitigate the uncertainties associated with investment projects by, for example, reducing expropriation risks. This is in line with the results of a broader research agenda showing the positive effects of institutions on private investment and on economic performance in general (see for example, Acemoglu and Johnson, 2005; Escaleras and Thomakos, 2008).

As expected, we find a significant positive relationship between financial development and private investment. This is consistent with the idea that financial sector development enables higher financial intermediation by facilitating trade and channelling investment funds to their most efficient use and thereby promoting investment.

In columns (2) and (3), we examine whether the relationship between *PRI* and investment works through the financial sector by augmenting the basic specification with an interaction term between *PRI* and *FD*. The results show that the interaction term carries a significant negative sign while property rights are positively and significantly related to investment. This suggests that the positive effect of *PRI* on private investment diminishes with the level of *FD*. Put it differently, strong property rights have increased private investment in countries with poorer financial sectors. For example, since *PRI* underpin the enforcement of financial contracts, for example, high quality institutions may have also directly provided other essential functions including corporate control, trade facilitation and risk reduction and thereby enhanced private investment. In addition, they may have reduced transaction and information costs which are essential for private investment. This is in line with the findings of Compton and Giedeman (2011) and Ahlin and Pang (2008).

In column (3), the key results remain unchanged when we include additional variables. More importantly, the results point to the importance of *PRI* and *FD* for private investment. Moreover, the interaction term retains its significant negative sign, emphasising the substitutability of *PRI* and *FD*.

Across the different specifications, we find that economic growth and openness boost private investment while inflation and real lending rates along with macroeconomic volatility hinder it. In contrast, currency overvaluation does not seem to have any explanatory power on private investment[1].

[1] The central findings hold if we use liquid liabilities (a measure of the size of financial intermediaries) as an indicator of financial development. Results available upon request.

Finally, the validity of the instruments is not rejected as the specifications pass the Hansen J test for over-identifying restrictions. They also pass the Difference-in-Hansen test for the exogeneity of the instrument subset and the Arellano-Bond test for second order serial correlation.

Table 1: Property Rights Institutions, Financial Depth and Private Investment

	(1)	(2)	(3)
PI (-1)	0.456	0.456	0.507
	[0.113]***	[0.166]***	[0.165]***
Growth	0.353	0.364	0.429
	[0.156]**	[0.173]**	[0.168]**
Real lending rate	-0.155	-0.178	-0.169
	[0.075]**	[0.071]**	[0.061]***
Ln (1+ inflation)	-1.739	-1.673	-1.298
	[0.979]*	[0.906]*	[0.710]*
Economic openness	0.139	0.154	0.158
	[0.079]*	[0.077]**	[0.081]*
PRI	0.066	0.362	0.369
	[0.020]***	[0.142]**	[0.166]**
FD	8.998	14.218	13.261
	[4.052]**	[5.464]***	[4.975]***
PRI x *FD*		-1.322	-1.339
		[0.584]**	[0.655]**
Macro volatility			-0.000
			[0.000]*
Overvaluation			0.004
			[0.008]
Time effect	Yes	Yes	Yes
Constant	3.583	2.241	-0.035
	[4.958]	[3.815]	[3.367]
# of observations	198	198	193
# of instruments	42	43	45
Hansen test	0.693	0.737	0.832
Diff Hansen test	0.710	0.579	0.701
AR(1) test	0.022	0.028	0.029
AR(2) test	0.437	0.267	0.262

Notes: 2- step system GMM estimates. Dependent variable is private investment/ GDP. *, ** and *** denote significance at 10%, 5% and 1% levels, respectively. Windmeijer corrected SEs in parenthesis. The Hansen test reports the *p*-values for the null of instrument validity. The Diff Hansen reports the *p*-values for the validity of the additional moment restrictions required for the 2-step SGMM.

4. Concluding remarks

This note presents evidence which shows that *PRI* and *FD* promote private investment in developing countries. More importantly, the analysis indicates that the impact of *PRI* on investment varies with the level of financial sector development, such that a strong *PRI* increase private investment especially in countries where the financial system is either missing or inadequate. On the contrary, well-functioning financial systems do not seem to increase the beneficial effect of property rights on investment. We postulate that this is so because well-functioning institutions can perform similar functions to sophisticated financial systems including the reduction of information and transaction costs and thereby enhance private investment in the absence of well developed financial sectors.

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Table A1: Data description

Variable	Source
PI	Private investment as a share of GDP. Source: Easterly-Yu dataset available at http://www.macrorules.com/mhopkins/datasets.html.
PRI	Property rights institutions measured by 'constraint on the executive' from the Polity IV dataset. A 7-point scale where higher values imply strong property rights. Source: Marshall et al. (2009) available online at www.systemicpeace.org/polity/polity4.htm
FD	Financial development is captured by financial system deposits as a share of GDP. This variable is measured as the ratio of all checking, savings, and time deposits in financial institutions to economic activity. Source: Beck *et al*. (2010) available at http://data.worldbank.org/data-catalog/global-financial-development
Growth	Real per capita growth. Source: WDI (2010). Available online at http://data.worldbank.org/topic/economic-policy-and-external-debt
Inflation	Measured by the GDP deflator. Source: WDI, 2010. Available at http://data.worldbank.org/topic/economic-policy-and-external-debt
Real lending rate	Lending interest rate adjusted for inflation as measured by the GDP deflator. Source: WDI (2010) Available online at http://data.worldbank.org/topic/financial-sector
Macro volatility	Proxied by the relative standard deviation of money growth. Source: WDI (2010). Underlying data on money growth available online at http://data.worldbank.org/topic/financial-sector
Overvaluation	Measured by the degree to which the domestic currency deviates from PPP. Source: Easterly-Yu dataset available online at http://www.macrorules.com/mhopkins/datasets.html.
Economic openness	Measured by actual flows of trade and investment and their restrictions. Source: Dreher (2006). Available online at http://globalization.kof.ethz.ch/