Investor Protection and International Investment Positions: An Empirical Analysis*

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Abstract

Given the recent revival of interest in the institutional determinants of global capital flows, we investigate the relationship between investor protection and international investment positions, using data on 40 countries for the period 1970–98. We find that strong shareholder protection is an important predictor of gross foreign direct investment liabilities, while countries with strong creditor protection tend to have positive stocks of net foreign assets. We conclude that the global pattern of investor protection is a significant determinant of international investment positions.

I. Introduction

While the merits of unfettered global capital flows are still hotly debated, there is considerable consensus that foreign capital can benefit the receiving

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countries both in the short run and in the long run. In the short run, investing abroad enables countries and individuals to diversify their portfolios and better smooth consumption. In the long run, international capital flows increase income levels by closing the domestic saving gap and by mediating technology transfers in the form of foreign direct investment (FDI), and also improve allocative efficiency by equalizing rates of return across borders.

However, capital flows remain remarkably low and concentrated within certain regions of the world. For instance, (i) current levels of capital flows, measured as a percentage of country incomes, have failed to reach pre-WWI levels (Taylor 2002; Eichengreen 2003, Chapter 2); (ii) net foreign asset positions as a share of wealth are small in absolute value (Kraay et al. 2000); (iii) there is a strong correlation between domestic saving and investment rates (Feldstein and Horioka 1980); and (iv) poor countries are thought to be receiving too little capital from the rich (Lucas 1990).

The explanation for such apparently low international capital market integration, even after the widespread dismantling of capital account controls since the 1980s and despite perceived globalization of capital markets, remains an important outstanding question in international finance. One possible reason is that ‘structural’ factors, such as financial and economic development and international trade connectedness, matter significantly for cross-border capital flows; that is, a combination of rapid economic growth, domestic financial liberalization and trade liberalization may be complementary to the liberalization of the capital account. While a number of empirical studies have found a significant contribution of such structural factors to international investment positions, much of the cross-country variation in international assets remains unexplained.

Another possible reason, which we examine closely in this paper, is that institutions are also significant determinants of international investment positions. To the extent that they influence the risks associated with cross-border transactions, two aspects of the legal institutional framework are particularly relevant for international capital flows: corporate governance and political governance. Strong protection of shareholders and creditors, which we consider within the domain of corporate governance, offers guaranteed

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1See Obstfeld (1998) and Rodrik (1997) on the consequences of the globalization of capital markets.

2Our focus on institutions in general and the shareholder and creditor protection measures in particular is driven by the renewed interest in institutional determinants of economic outcomes. North (1990) makes a particularly strong case for the study of institutions in understanding economic performance. Rodrik et al. (2002) also stress the key role of institutions in the context of economic development.
legal rights to international investors that reduce the risks and transaction costs of contracting and ultimately attract foreign investment (La Porta et al. 1998). The rule of law, which we consider within the domain of political governance, reduces risk to international investors by providing safeguards for international investors against arbitrary treatment in foreign countries.

In this paper, we investigate the role of investor protection in determining net foreign asset positions and gross FDI liabilities in a sample of 40 countries for the period 1970–98. We use a multivariate cross-national framework to test the hypothesis that investor protection is a significant determinant of international portfolio decisions. Our empirical results suggest that certain characteristics correspond closely to countries’ net asset positions and stocks of FDI liabilities. Countries with high stocks of net foreign assets tend to have strong creditor protection, while countries with high levels of FDI liabilities tend to have strong shareholder protection and a strong rule of law. These findings suggest that the quality of legal institutions, as measured by investor protection and the rule of law, is a significant determinant of international investment positions.

The rest of this paper is organized as follows. Section II reviews the relevant literature. Section III uses economic theory to identify variables that can influence international investment patterns. Section IV describes the specific measures of net and gross international investments. Sections V and VI report the empirical results. Section VII concludes.

II. Relevant Literature

Although research concerning international capital flows has a long tradition, until recently research on stocks of international capital (assets and liabilities) has been limited due to a lack of data. For example, Lane (2000) finds that foreign assets and liabilities tend to be concentrated in countries with large domestic financial markets and a high degree of international trade connectedness, but his sample is limited to 19 OECD countries. A new data set constructed by Lane and Milesi-Ferretti (2001), however, provides estimates of foreign asset and liability stocks and their subcomponents (debt, equity and FDI) for 67 countries.3 Using this data set, Lane and Milesi-Ferretti find that economic development (GDP per capita), trade connectedness and country size are all positively and significantly associated with net foreign assets.

While our main focus in this paper is the impact of investor protection on international investment positions (stock variables), there is already some evidence of the significance of the legal environment and the quality of

3Kraay et al. (2000) construct an alternative data set.
institutions on capital markets and capital flows. La Porta et al. (1997) provide cross-country evidence suggesting that the size and breadth of domestic capital markets may increase with the strength of the legal environment (in terms of investor protection and law enforcement). However, they do not examine the impact of the legal environment on international assets and liabilities, or on how foreign investment may help increase the size and breadth of domestic capital markets. Alfaro et al. (2005) examine the link between institutional quality and net capital inflows (averaged between 1971 and 1998), and find that high-quality institutions have been associated with larger inflows. They also consider the legal environment in their analysis, but use only legal origin as an instrument for their measure of institutional quality.4

Our primary contributions to this literature are therefore twofold. First, we study stock variables (either liabilities or net foreign assets) as opposed to flow variables. Second, we focus on investor protection as a specific and important form of institutional design.

III. Determinants of International Investment Positions

Much of the earlier literature on the determinants of international capital flows emphasized the primary role of consumption smoothing in accounting for short-term capital movements.5 We instead analyse stock variables, which are relatively less susceptible to short-run shocks, focusing on determinants that include structural variables as well as measures of investor protection and the legal environment.

Because many of the countries in our sample experience both capital inflows and outflows, we also find it useful to distinguish between the determinants of gross and net asset positions. Indeed, there is already some empirical evidence to suggest that net and gross assets respond to different incentives. For instance, Obstfeld and Taylor (2003) find that historical gross and net flow data are, for the most part, unrelated. In order to capture the potentially distinct influences of structural and institutional variables on gross and net stock data, we use measures of both net foreign assets and gross FDI liabilities, and analyse them separately in our empirical work.6

4Albuquerque (2003) is another important study that investigates the determinants of foreign direct investment and finds that the rule of law and order is a significant determinant.

5For an excellent survey of the determinants of the current account within an optimizing framework, see Obstfeld and Rogoff (1996).

6Lane (2000) also distinguishes between net and gross stocks. For the 19 OECD countries in his sample, he finds that terms of trade volatility has a significantly negative association, and inflation volatility a positive association, with gross investment positions.
We think of gross investment positions as driven in part by an individual country’s desire to benefit from local comparative advantage and to diversify its portfolio, thereby smoothing consumption across states of nature (the ‘intra-temporal motive’). Thus, gross investment positions are a good way to measure an individual country’s propensity to engage in intra-temporal trade. By contrast, net investment positions are largely driven by an individual country’s desire to ‘save for a rainy day’ and smooth consumption over time (the ‘inter-temporal motive’). Flows that respond to domestic versus foreign rate-of-return differentials, as emphasized by neoclassical growth theory, would consequently be grouped under this latter category. Thus, net investment positions are a good way to measure individual countries’ propensity to engage in inter-temporal trade. With these interpretations in mind, we find it useful to discuss some of the institutional determinants of international capital allocation decisions by paying particular attention to how each relates to external asset and liability positions. (We discuss the economic and structural factors that determine these international positions in Section III. C.).

As actual foreign asset and liability positions are determined within financial markets, it is particularly instructive to link these international investment positions to several key institutional variables. Here, these institutional variables should be viewed as factors that contribute to the most fundamental determinant of foreign asset choice, which is the risk-adjusted return to foreign investment relative to domestic asset holdings (see e.g. Kraay and Ventura 2000).

In particular, a strong legal environment and investor protection with legal recourse gives foreign investors the right to lay claim to their investments and associated returns, and protects them from the risk of foreign private sector expropriation. As international investors typically lack access to social networks that local investors substitute for legal safeguards, international investors tend to depend on legal safeguards for protection. In this sense, strong investor protection reduces risks faced by international investors. This suggests that countries would face an upward-sloping supply of foreign liabilities–level of investor protection schedule.

We also think that the demand for foreign liabilities by domestic firms (and households) is decreasing in the level of domestic investor protection, largely because stronger protection of investors may lessen managerial control, causing managers to reduce their demand for external funds and switch to internal funds. Thus, these straightforward supply and demand considerations (given the relevant economic and structural factors) determine the actual level of foreign liabilities.

Investor protection plays a similar role in the supply of and demand for foreign assets. While stronger measures of domestic investor protection are
unlikely to have a strong effect on the supply of foreign assets faced by domestic investors (that is, a relatively inelastic supply curve), they would reduce the demand for foreign assets, because strong investor protection would lead domestic investors to substitute away from foreign assets. These supply and demand schedules (again, given the relevant economic and structural factors) determine the actual level of foreign assets, and jointly with foreign liabilities they determine the level of net foreign assets.

In our empirical work, we use several distinct measures of a country’s institutional environment that we think influence expected returns to investment. In particular, our objective is to control for (i) the legal protections offered to investors to ensure protection of private property and protection from the expropriation of foreign private property; and (ii) the judicial commitment to enforce these legal protections. In what follows, we discuss the empirical measures used to control for both of these factors.

A. Investor Protection

Different laws govern the unique interests of shareholders and creditors, and shareholder and creditor protection measures are not perfectly correlated across countries. To capture these distinct aspects of investor protection, we use individual shareholder and creditor protection indices based on measures first compiled by La Porta et al. (1998).7

The shareholder protection measure focuses on one-share–one-vote rules, a series of anti-director rights and mandatory dividends. The one-share–one-vote principle ensures that individual shareholders cannot have extraordinary influence over the company without a corresponding interest in its financial performance. Anti-director rights measure the legal protection afforded to minority shareholders against the interests of other influential stakeholders, including managers, creditors and large shareholders. The measure of anti-director rights used here brings together information regarding proxy voting by mail, the blocking of share sales before shareholder meetings, cumulative voting/proportional representation on the board, the pre-emptive right of current shareholders to new issues of shares (that is, protection against dilution) and the percentage of share capital necessary to call an extraordinary shareholder meeting (La Porta et al. 1998). Finally, mandatory dividend laws are a remedial measure designed to compensate minority shareholders in the event that their aforementioned rights are weak or non-existent (La Porta et al. 1998).

7The sample of countries used in the analysis is contained in Appendix A. Detailed information on all of our data sources and variables is provided in Appendix B.
The creditor protection measure considers creditor rights and legal reserve requirements. Creditor rights refer to the legal rights of senior secured creditors to reorganize or liquidate businesses that have defaulted. The measure of creditor rights used here brings together information on five types of regulations, including the presence of an automatic stay on assets, the payment priority of secured creditors, restrictions for going into reorganization and creditor influence over the appointment of management in reorganizations (La Porta et al. 1998). The existence of a legal reserve requirement is a remedial measure to protect secured creditors from automatic liquidation of the firm in the event of failure of their creditor rights (La Porta et al. 1998).

**B. Rule of Law**

Each country’s legal environment provides creditors and debtors with a certain level of investor protection, the value of which greatly depends on the ability of investors to rely on effective enforcement by the domestic legal system. Laws are inadequate if investors do not possess effective means of legally enforcing them. A country with a strong tradition of rule of law possesses an efficient and impartial judicial system to support its legislation, which serves as an indication of the country’s commitment to fulfil its legal obligations. In countries with weak legal traditions, active courts of law can, alternatively, serve to offset the feeble investor protection offered in legislation (La Porta et al. 1998). Regardless of whether rule of law is a complement to or a substitute for legal investor protection, one would expect it to be positively associated with foreign investment. We use the International Country Risk Agency’s ‘rule of law’ index, which encompasses the key aspects of legal enforcement associated with the strength and impartiality of the legal system and with public obedience of laws.

**C. Additional Controls**

We also use measures of economic development, financial development and international trade connectedness to control for other economic and structural determinants of international investment positions. As these controls are standard in the empirical literature on capital flows, we discuss them only briefly here (see also Appendix B).8

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8See, for example, Arteta et al. (2003), Alfaro et al. (2005) and Lane (2000).
per-capita income should be positively correlated with net foreign assets.\(^9\)
We thus expect a positive relationship between economic development (real GDP per capita) and net investment positions.

The relationship between economic development and gross investment positions depends on whether diversification opportunities differ systematically across developing and industrial countries. On one hand, rich countries may have more diversified domestic economies and thus may rely less on international portfolio diversification. On the other hand, because business cycles are more correlated among industrial countries than across industrial and developing countries, there may be an opportunity for both rich and poor countries to benefit from diversification (see e.g. Obstfeld and Rogoff 1996, Chapter 5). We therefore do not have a strong prior about the perceived risks and market correlations that ultimately drive these diversification decisions.

Financial development
The existence of a well-developed financial sector infrastructure increases the accessibility of local investment opportunities for foreign investors interested in international portfolio diversification. We thus expect a positive relationship between financial development and gross investment liabilities. Given the strong correlation between economic and financial development, we also expect a positive relationship between financial development and net foreign asset positions.\(^10\) We measure financial development as the average of two indicators of liquidity: financial depth in 1970 (M3, which is itself a measure of liquid liabilities, divided by GDP in 1970) and domestic credit provided by banks divided by GDP in 1970.

International trade connectedness
Trade connectedness is also a potential determinant of international investment decisions, due to the close relationship between trade in goods and services and trade in financial assets. We thus expect a concentration of international investment in those countries with greater international trade

\(^9\)This motive should, of course, be weighed against the desire to smooth consumption over time (the inter-temporal motive). For instance, developing countries may hold positive net foreign asset positions, even in the long run, to the extent that they face higher-income volatility and rely on domestic savings for growth (e.g. Lewis 1977; Nurkse 1953). While we do not control for income volatility in our analysis, we conduct sensitivity analysis by dividing the sample into developing and industrial countries.

\(^10\)Di Giovanni (2005) finds a correlation between domestic financial development and investment abroad.
connectedness. Our measure of trade connectedness is the sum of exports and imports as a share of GDP in 1998.

D. Reverse Causality

While our objective is to isolate the influence of several institutional and structural variables on international investment positions, it is possible that these same institutional and structural variables may themselves be influenced by the past decisions of international investors. Consider the case of economic development. While our maintained hypothesis is broadly consistent with neoclassical open-economy models of economic growth and development, we recognize the potential significance of current investment positions for future growth. Opportunities for international investment may enhance a country’s ability to take advantage of international specialization (intra-temporal motives) and to cope with highly persistent output fluctuations (inter-temporal motives). However, as we discuss below, this does not have a consequential impact on the interpretation of our empirical results.

The endogeneity of financial development is another concern. In order to better judge the direction of causality from financial development to future net asset positions and FDI in our empirical work, we use beginning-of-period measures of financial development (as in Barro 1991 and King and Levine 1993) to explain international investment positions at the end of the sample period.

Similarly, there is ongoing debate as to whether capital inflows increase domestic and international pressures on policy makers to improve information transparency and availability, investor protection and the enforcement of these initiatives. As an economy becomes dependent on foreign capital, one can argue that the domestic government is increasingly at the mercy of foreign financiers and their demands for increased investor protection and institutional change. While there is no direct control for institutional

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11The exception may be foreign direct investment, which is sometimes considered a cost-effective alternative to exporting. According to this reasoning, foreign direct investment would flow to those countries with high tariffs and low trade.

12An alternative approach would be to use instrumental variables. Mauro (1995) and Acemoglu et al. (2001) use this approach to relate economic growth to corruption and risk of expropriation, respectively. However, we lack good instruments for financial development. While others have used legal origin as an instrument, we note that the causality between these two variables could run in either direction; that is, it is possible that countries with a highly developed financial sector also had politically influential elite that in turn adopted legal institutions giving investors more protection. In our sample, rule of law is highly correlated with our indicators of economic and financial development. See Appendix C.
endogeneity in the results we report in the main text, findings of Acemoglu et al. (2001) and Mauro (1995) are consistent with the premise that high-quality institutions tend to precede rather than follow investment and growth.

IV. Data on International Investment

Our primary data source is Lane and Milesi-Ferretti (2001), which includes accumulated stocks of foreign assets and liabilities and their subcomponents (portfolio debt, portfolio equity and FDI). We divide each country’s international investment stock data by its GDP in order to account for diminishing returns in capital-importing countries as well as adjustment costs, which we think are more closely related to the capital stock than to the labour force. In Section V, we also discuss the empirical results based on stock data divided by population. We construct our final international investment data by averaging the data from 1995 to 1998 (1994–97 for Greece, Malaysia and Pakistan). By using four-year averages, we attempt to reduce the possible influence of business-cycle effects in our measures of investment.

While we considered a range of gross and net stock variables, here we focus on our empirical results that pertain to both a broad measure of net foreign assets and a narrower gross FDI liability measure. We now discuss these choices in more detail.

A. Net Foreign Assets

Recent theoretical and empirical research has emphasized the significance of net foreign asset positions in accounting for global current account and exchange-rate adjustments (see e.g. Blanchard et al. 2005; Gourinchas and Rey 2006). Given the central importance of this variable for the current policy debates, we include it in our analysis. Our measure of net foreign assets is the cumulative current account (adjusted for relative price movements), which gives us the largest possible country coverage; as mentioned earlier, we divide net foreign assets by GDP.14

13When we use legal origin as an instrument, along with continent dummies, our results are virtually unchanged.

14According to this measure, the United States, while the world’s largest net debtor in absolute terms, has a relatively low foreign debt-to-GDP ratio. In our sample, Sri Lanka has the lowest stock of net foreign assets as a share of GDP (−68%), followed by Peru (−62%). The US share of net foreign assets in GDP is −22%.
B. FDI Liabilities

FDI has also been the focal point of a large theoretical and empirical literature. In the last two decades, FDI flows have grown rapidly, becoming an important topic in policy design. Much of the literature on FDI has focused on gross measures of foreign investment (either stock or flow); hence, we include gross FDI liabilities in our analysis separately. Similar to our measure of net foreign assets, we use the cumulative FDI inflows adjusted for relative price variations, divided by GDP.

V. Empirical Results

Tables 1 and 2 contain the regression results of the baseline specification for net foreign assets and FDI liabilities, respectively. In each case, we include the results for the entire sample, as well as for sub-samples of developing and industrial countries. Data availability allows us to consider 40 countries: 18 developing countries and 22 industrial countries (see Appendix A for the list of countries included).

A. Net Foreign Assets

Table 1 presents the results when our dependent variable is net foreign assets as a share of GDP. The first column presents the results for the full sample of 40 countries; the second and third columns present the results for developing and industrial countries, respectively. The coefficient on shareholder protection is not significant in any of the samples. The coefficient on the rule of law variable is negative, but is also not statistically significant, in all three samples. Creditor protection, however, has a positive coefficient in all three samples and is economically significant and highly statistically significant in the full sample, although it becomes less statistically significant in the smaller sub-samples. In the full sample, countries with strong creditor protection rights also tend to be net creditors.

As we discussed in Section III, the relationship between net foreign assets and creditor protection is mediated through both the foreign asset and foreign liability schedules. An increase in creditor protection raises the attractiveness of domestic investment relative to foreign investment by both domestic and foreign investors, and therefore influences the demand for both foreign assets and foreign liabilities. As net foreign assets are determined through the interplay between the foreign asset and foreign liability schedules, the link between creditor protection and net foreign assets depends on the relative magnitudes of the demand and supply elasticities of funds, which is ultimately an empirical matter. Our results
show that a country that increases its creditor protection by adding one of the five regulations previously mentioned (and listed in Appendix B) can expect its future net foreign assets as a percent of GDP to increase by 5.3 points.
The coefficient on the economic development variable is significant in both the full sample of countries and the sub-sample of developing countries, but the significance level drops for industrial countries. In all samples, economic development is positively associated with net foreign assets, implying that higher-income countries tend to be net capital exporters. While our framework cannot determine whether the magnitude of capital exports is consistent with the predictions of the neoclassical growth theory, we conclude with considerable confidence that capital tends to flow from rich to poor in our sample. This finding is consistent with a view of international capital flows whereby net foreign assets are primarily determined by inter-temporal motives, such as consumption smoothing and borrowing against future economic growth.

Given the evidence of a positive relationship between economic and financial development, the empirical results pertaining to financial development provide additional support for the idea that rich countries tend to become net exporters of capital. After controlling for economic development, the coefficient on financial development is highly statistically significant (at the 1% level) for the full and industrial countries samples, but is marginally insignificant for developing countries. Based on the full sample results, an increase in financial development of one standard deviation (SD) produces an increase in the country’s net assets to GDP ratio of about 2.5 points at the end of the sample period. The robust nature of this variable suggests that financial development is a strong complement to domestic investment abroad (domestic saving), at least for industrial countries. Moreover, given that the measure of financial development used here is intended to capture the level of financial development in 1970, there is some support for the notion that causality runs from financial development to holdings of foreign investments. The sample sizes are too small, however, to be definitive about these estimates.

International trade connectedness is the only variable that is a significant determinant of net foreign assets in all samples. Because the coefficient on international trade connectedness is positive in the sample of industrial countries and negative in the sample of developing countries, trade can be viewed as a complement to foreign investment for industrial countries and as a substitute for developing countries.

B. FDI Liabilities

Table 2 presents the estimation results using gross FDI liabilities as a share of GDP as the dependent variable. As anticipated in our theoretical discussion, there are important differences between the determinants of net and gross investment positions, some of which may be accounted for by
institutional factors. Specifically, the coefficient on the shareholder protection variable is statistically significant in explaining gross FDI liabilities (for the full and industrial country samples) – whereas it was insignificant in the net foreign asset regressions. By contrast, the creditor protection variable is statistically insignificant in all the samples – whereas it was significant in the net foreign asset regressions. This suggests that shareholder protection, and the specific institutional factors correlated with it, are relatively more important considerations for (potentially large) investors investing directly in a foreign country.\footnote{Unfortunately we do not have detailed data on the decomposition of gross direct investment, which is a mixture of fully foreign-owned subsidiaries and equity-like investments, and therefore cannot separately test the hypothesis that investment flows from fully foreign-owned subsidiaries are determined by rule of law only.}

Another institutional variable, the rule of law, has a coefficient that is positive and statistically significant for the full sample and for industrial countries. In contrast, in the net foreign asset regressions, rule of law was not a significant factor once we controlled for other variables. We attribute these findings to the organizational structure of the vast majority of FDIs, whereby foreign investors team up with local firms and form affiliates rather than invest in wholly owned subsidiaries. Such affiliations endow foreign investors with the requisite local expertise, but also expose them to third-party risks (which are partly hedged by strong legal protections).

Economic development is a significant determinant of FDI liabilities only for industrial countries, and enters with a negative coefficient. In contrast to the net foreign asset results, we find that financial development is a statistically insignificant predictor of FDI. Thus, our sample contains no evidence that rich countries tend to attract more capital than poor countries, once we condition upon institutional and other economic variables. We interpret this as evidence for a modified neoclassical theory: differences in returns to physical capital among rich and poor countries largely reflect country-specific risk factors that are captured by our measures of institutional quality. As well, we think these results are consistent with the view that gross international capital flows are driven by intra-temporal motives (such as international portfolio diversification) and by the existence of local comparative advantages that are otherwise orthogonal to the country’s level of economic development.

We also find financial development to be a poor predictor of gross FDI liabilities. Our results are consistent with earlier findings, which lead us to view FDI and domestic financial development as substitutes. Specifically, Di Giovanni (2005) finds that countries with highly developed domestic financial markets tend to have larger direct investments abroad, and
Albuquerque (2003) finds that countries with underdeveloped domestic financial markets tend to attract relatively more FDI. As discussed above, our results also indicate that both financial development and shareholder protection are good predictors of positive net foreign assets. Taken together, these results raise the possibility that countries with well-developed financial markets in 1970 and corporate governance laws that protect creditors have relied primarily on domestic savings to become net savers by the end of the 1990s, and as such these findings present a counterpoint to development theories that place a strong emphasis on the priority of financial development as a means to attract foreign capital.

Consistent with our net foreign asset results, we find that the coefficient on trade connectedness is highly significant. In all three samples, a higher share of trade in GDP is very strongly related to higher FDI. The significance of institutional variables and trade connectedness as determinants of gross flows leads us to conclude that international capital flows primarily respond to international trade and country-specific risk factors, and that investors might be discounting the return differentials in poor countries by applying a higher risk premium.  

Overall, our results suggest that (i) net and gross asset positions respond to different institutional incentives and are affected differently by the initial level of economic and financial development, (ii) there is no clear empirical link between economic development and gross liabilities once other institutional variables are taken into account and (iii) there is a significant link between international trade connectedness and international investment positions, but the economic factors underlying these correlations tend to vary across developed and developing countries. Next, we demonstrate that these conclusions are robust to alternative empirical specifications.

VI. Sensitivity Analysis

To ensure the robustness of our results, we perform several sensitivity tests. First, we examine whether a few influential observations are driving our results. Figure 1 shows the results of regressing net foreign assets on creditor protection, controlling for the other explanatory variables in the baseline specification (Table 1, full sample). Removing the Philippines, which has the lowest creditor protection and lowest net foreign assets, from the sample reduces the coefficient on creditor protection only slightly, from 5.30 to 4.24;

16We have also used gross foreign assets as a dependent variable, but found that none of the governance variables – shareholder protection, creditor protection, or rule of law – was significant in explaining variation in this measure. We therefore do not report these results, which are available from the authors upon request.
the strong effect of creditor protection on net foreign assets is thus not highly sensitive to this observation. Similarly, Figure 2 compares FDI liabilities to shareholder protection, after removing the effects of the other variables included in the baseline specification. When we control for other variables, and remove Chile and New Zealand (the countries with the highest shareholder protection and highest FDI liabilities, respectively) from the sample, the coefficient on shareholder protection of 2.32 falls slightly to 1.72; the strong impact of shareholder protection on FDI liabilities is thus not due to a small number of influential observations in our sample.

Second, we include several other explanatory variables in our regressions to ensure that the legal environment variables are not erroneously capturing the effects of other variables that may affect investment positions. The additional variables we consider include: (i) a measure of capital account controls, constructed using the IMF *Annual Report on Exchange Arrangements and Exchange Restrictions* (1998, 1999); (ii) a measure of bureaucratic efficiency, from Mauro (1995); (iii) a measure of accounting opacity, from La Porta et al. (1998); (iv) a measure of economic stability, calculated as the SD divided by the mean of the growth rate of GDP from 1970 to 2000; and (v) a
measure of protection against the risk of expropriation, also from La Porta et al. (1998). In addition, we substitute the average tariff rate for the trade share of GDP as an alternative measure of trade connectedness and a more direct indicator of trade policy. The estimation results with these additional control variables are presented in Tables 3 and 4. Note that only one of these variables is significantly different from zero, and only in one specification: bureaucratic efficiency increases FDI liabilities, but only for developing countries. Because of their general lack of significance, we exclude these variables from our baseline specification.17

Next, we exclude several of the explanatory variables from our baseline specification to determine whether the significance of the core institutional variables is affected. (These results are not reported to conserve space, but

17We also considered including the ‘constraints on executive’ variable from Polity IV. In the net foreign asset regression, the coefficient on creditor protection remained statistically significant (as in our baseline regression), but the coefficient on the constraints on executive variable was insignificant. In the gross foreign direct investment regression, the coefficient on the shareholder protection remained statistically significant, as was the coefficient on executive constraint variable.
are available from the authors upon request.) In the net foreign asset regressions, we exclude the rule of law and shareholder protection variables (both of which tend to be statistically insignificant) from the baseline specification and find that creditor protection is still significant for the full sample and becomes significant for the industrial country sample. (Recall that, in the net foreign asset regression results reported in Table 1, creditor protection was significant only for the full sample.) In the FDI liabilities regressions, we exclude the rule of law and creditor protection variables from the baseline specification. We find that shareholder protection is significant for the full sample and industrial country sample, which is entirely consistent with the baseline regression results. Our findings concerning the relevance of investor protection measures for international investment positions are therefore robust to the exclusion of various statistically insignificant explanatory variables from our baseline specification.

In another series of sensitivity tests, we measure economic development by per-capita GDP at the beginning of our sample period (1970) rather than in 1998 in order to mitigate reverse causality. However, we find that this

<table>
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<tr>
<th>Variable</th>
<th>(1) Full sample</th>
<th>(2) Developing countries</th>
<th>(3) Industrial countries</th>
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<td>Shareholder protection</td>
<td>3.10 (2.06)</td>
<td>0.75 (2.83)</td>
<td>3.18 (2.84)</td>
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<td>Creditor protection</td>
<td>1.39 (2.67)</td>
<td>1.66 (2.31)</td>
<td>3.39 (4.00)</td>
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<td>Rule of law</td>
<td>−0.16 (2.63)</td>
<td>−2.87 (2.29)</td>
<td>7.01 (7.20)</td>
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<td>Economic development</td>
<td>−1.89* (1.00)</td>
<td>−2.55 (1.49)</td>
<td>−0.97 (1.96)</td>
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<td>Financial development</td>
<td>−0.10 (0.13)</td>
<td>−0.087 (0.25)</td>
<td>−0.28 (0.20)</td>
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<td>Tariffs</td>
<td>−1.27** (0.48)</td>
<td>−1.69** (0.70)</td>
<td>−5.84 (4.57)</td>
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<td>Capital account restrictions</td>
<td>−1.19 (0.81)</td>
<td>1.00 (1.53)</td>
<td>−1.23 (1.81)</td>
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<td>Bureaucratic efficiency</td>
<td>5.19 (3.19)</td>
<td>12.55** (4.15)</td>
<td>−8.89 (12.67)</td>
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<td>Accounting opacity</td>
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<td>−0.049 (0.28)</td>
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</tr>
<tr>
<td>Economic stability</td>
<td>−0.39 (0.30)</td>
<td>0.24 (0.52)</td>
<td>4.85 (11.48)</td>
</tr>
<tr>
<td>Protection against risk of expropriation</td>
<td>−1.98 (3.14)</td>
<td>−7.72 (5.02)</td>
<td>6.14 (6.19)</td>
</tr>
<tr>
<td>Constant</td>
<td>47.19 (34.44)</td>
<td>40.37 (38.20)</td>
<td>35.33 (68.49)</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.42</td>
<td>0.80</td>
<td>0.53</td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>0.17</td>
<td>0.24</td>
<td>0.013</td>
</tr>
<tr>
<td>$N$</td>
<td>38</td>
<td>16</td>
<td>22</td>
</tr>
</tbody>
</table>

Notes: The dependent variable is an average of the stock of direct investment liabilities (based on the cumulative flow adjusted for relative price variations) for the 1995–98 period. The estimation technique is OLS, with White standard errors in parentheses.

* 90% significance.
** 95% significance.
measure of economic development is insignificant and its inclusion causes the coefficient on the creditor protection variable to become insignificant in the net foreign asset results (although the significance levels of the variables in the FDI results remain unchanged).

Our next sensitivity check involves the division of the sample into net debtors and net creditors, as opposed to developing and industrial countries. Given that 31 of the 40 countries in our sample are net debtors, this net debtor/net creditor distinction is relatively less informative than the developing/industrial grouping. The results for net debtors, which are similar to those for the full sample, are not reported in the paper.\(^\text{18}\)

In addition, we allow for an interaction between capital account controls and measures of investor protection. While the elimination of barriers to international financial capital flows is a crucial step in encouraging foreign investment, it falls short of actually attracting foreign capital in the absence of secure property rights (Castro et al. 2004). The results, which are not reported, show that a high degree of creditor protection accompanied by limited capital controls increases net foreign assets, and shareholder protection significantly raises FDI liabilities even in the presence of strong capital controls.

Finally, we use population instead of GDP to scale the net foreign assets and FDI liabilities variables. The results, which are not reported here, show that very few of the coefficients on the variables of interest are statistically significant; creditor protection is significantly related to net foreign assets and shareholder protection is significantly associated with FDI liabilities only in the developing-country sample. Given that our conditioning variables have better explanatory power for income-adjusted rather than population-adjusted stock investment measures, we think that GDP tends to better control for size and scale effects that are unrelated to our investor protection measures.

VII. Conclusion

We consider the role of legal institutions, in the form of shareholder protection, creditor protection and the rule of law, as determinants of international investment positions. Our results suggest that strong investor protection is conducive to global financial integration. As countries improve their creditor and shareholder rights and foreign investors learn of these institutional changes, financial openness may well reach the levels observed

\(^{18}\text{Financial development and trade connectedness are exceptions. Both are strongly significant in the full sample, but are insignificant for net debtors in the net foreign asset regression results.}\)
in the early 20th century. However, recent research suggests that, while
corporate governance laws protecting shareholders are similar in economic-
ally interdependent countries, globalization causes no such institutional
convergence (Khanna et al. 2006).

Our analysis emphasizes the significance of institutions in general, and
investor protection in particular, in accounting for the differences in foreign
assets and liabilities across nations. Understanding the ultimate determin-
ants of net and gross foreign assets remains a challenging task; however, we
think our findings should impart substantial confidence to those policy
makers who wish to use the legal environment as an additional instrument to
influence foreign asset and liability positions. One avenue that we have not
explored (and leave for future research) is whether the same institutional
variables also have similar (and stabilizing) influences on the volatility of
international capital flows.

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Appendix A

Table A1: Countries Included

<table>
<thead>
<tr>
<th>Developing</th>
<th>Industrial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>Australia</td>
</tr>
<tr>
<td>Brazil</td>
<td>Austria</td>
</tr>
<tr>
<td>Chile</td>
<td>Canada</td>
</tr>
<tr>
<td>Colombia</td>
<td>Denmark</td>
</tr>
<tr>
<td>Ecuador</td>
<td>Finland</td>
</tr>
<tr>
<td>Egypt</td>
<td>France</td>
</tr>
<tr>
<td>India</td>
<td>Greece</td>
</tr>
<tr>
<td>Indonesia</td>
<td>Ireland</td>
</tr>
<tr>
<td>Malaysia</td>
<td>Israel</td>
</tr>
<tr>
<td>Mexico</td>
<td>Italy</td>
</tr>
<tr>
<td>Pakistan</td>
<td>Japan</td>
</tr>
<tr>
<td>Peru</td>
<td>Korea</td>
</tr>
<tr>
<td>Philippines</td>
<td>Netherlands</td>
</tr>
<tr>
<td>South Africa</td>
<td>New Zealand</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>Norway</td>
</tr>
<tr>
<td>Thailand</td>
<td>Portugal</td>
</tr>
<tr>
<td>Turkey</td>
<td>Singapore</td>
</tr>
<tr>
<td>Uruguay</td>
<td>Spain</td>
</tr>
<tr>
<td></td>
<td>Sweden</td>
</tr>
<tr>
<td></td>
<td>Switzerland</td>
</tr>
<tr>
<td></td>
<td>United Kingdom</td>
</tr>
<tr>
<td></td>
<td>United States</td>
</tr>
</tbody>
</table>

Note: Countries are classified as either developing or industrial based on the World Bank’s income classification system. Countries with gross national income below $9,206 per capita in 2001 (calculated using the World Bank Atlas method) are considered developing, while those with per-capita income in excess of $9,206 are considered industrial.

Appendix B: Data Description and Sources

Shareholder Protection

The index is formed by adding 1 when (1) the country allows shareholders to mail their proxy vote to the firm; (2) shareholders are not required to deposit their shares before the general shareholders’ meeting; (3) cumulative voting or proportional representation of minorities in the board of directors is allowed; (4) an oppressed minorities 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%; (6) shareholders have pre-emptive rights that can be waived only by a shareholders’ vote; (7) the country requires that ordinary shares carry one vote.
per share and (8) a mandatory dividend is required. The scale is from 0 to 8, with a higher score indicating greater shareholder protection. Source: La Porta et al. (1998).

**Creditor Protection**

The index is formed by adding 1 when (1) the country imposes restrictions, such as creditors’ consent or minimum dividends to file for reorganization; (2) secured creditors are able to gain possession of their security once the reorganization petition has been approved (no automatic stay); (3) secured creditors are ranked first in the distribution of the proceeds that result from the disposition of the assets of a bankrupt firm; (4) the debtor does not retain the administration of its property pending the resolution of the reorganization and (5) the country requires a minimum percentage of total share capital as a legal reserve. The scale is from 0 to 5, with a higher score indicating greater creditor protection. Source: La Porta et al. (1998).

**Rule of Law**

This variable is calculated as the average of the International Country Risk Agency’s monthly rule of law index for April and October between 1982 and 1995. The scale is from 0 to 10, with a higher score indicating both a stronger and more impartial legal system as well as greater obedience of the law. Source: International Country Risk Agency, reported in La Porta et al. (1998).

**Economic Development**

While economic development has many dimensions in theory, it is conventionally represented using GDP per capita in practice. This paper is no exception. We use chain-weighted real GDP per capita in international prices in 1998. Source: Heston et al. (2002).

**Financial Development**

Measures of financial development have shifted in recent years towards the quality rather than the quantity of functionality provided. As both arguments have merits, the financial development measure used here combines aspects of both financial market size and functionality. The metric is based on equally weighted measures of financial depth (size) and of the quantity of domestic credit provided by banks (functionality). The functionality aspect of the latter measure rests on the assumption that credit extended by private
sector banks is more efficiently distributed than public sector financing (King and Levine 1993). This variable is calculated as the average of financial depth in 1970 (M3 divided by GDP in 1970) and domestic credit provided by banks divided by GDP in 1970. Source: World Bank (2002).

Trade Connectedness

To evaluate connectedness in international trade, we follow Lane (2000) and Lane and Milesi-Ferretti (2001) in using a volume-based measure. Specifically, we use the trade share of GDP in 1998, calculated as exports plus imports as a share of GDP. We emphasize that this is (at best) an indirect measure of trade connectedness, and is not intended to measure trade policy (see Section VI). Source: Heston et al. (2002).

Appendix C

Table C1: Correlation Matrix for Independent Variables

<table>
<thead>
<tr>
<th>Shareholder protection</th>
<th>Creditor protection</th>
<th>Rule of law</th>
<th>Economic development</th>
<th>Financial development</th>
<th>Trade connectedness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shareholder protection</td>
<td>1.0000</td>
<td>– 0.0300</td>
<td>– 0.0469</td>
<td>– 0.0169</td>
<td>– 0.1136</td>
</tr>
<tr>
<td>Creditor protection</td>
<td>1.0000</td>
<td>– 0.0876</td>
<td>– 0.2106</td>
<td>– 0.0891</td>
<td>0.1488</td>
</tr>
<tr>
<td>Rule of law</td>
<td>1.0000</td>
<td>0.8904</td>
<td>0.5557</td>
<td>0.1551</td>
<td></td>
</tr>
<tr>
<td>Economic development</td>
<td>1.0000</td>
<td>0.6465</td>
<td>0.1788</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial development</td>
<td>1.0000</td>
<td></td>
<td></td>
<td>– 0.0661</td>
<td></td>
</tr>
<tr>
<td>Trade connectedness</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>