

Do Democracies Attract Portfolio Investment?

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Abstract: For many, transnational capital is an important driving force of economic globalization. However, we know little about the political determinants for cross-border portfolio investments. Recent economic literature focuses upon information asymmetries. We move beyond this and introduce an explicitly political element into the study of international asset flows. Democratic institutions attract portfolio investments because they reduce the chances of predatory practices. Applying a dynamic latent space model on the bilateral portfolio investment data from 2001 to 2005, we empirically examine the effects of important country-level characteristics of both net exporters and importers of portfolio investments. The empirical findings suggest that democracies are often associated with higher levels of inward portfolio investments. Interestingly, we also find that portfolio investments are associated with business communities' subjective estimate of property rights protection, but not with more comprehensive, index-based aggregate measures from international think tanks.

INTRODUCTION

Unlike research in trade and foreign direct investment, prior research on portfolio investments provides scant systematic explanation for the ebb and flow of transnational short-term capital. Part of the reason is that the financial markets are thought to be highly unpredictable, leaving little regularity or pattern for researchers to uncover. As Portes and Rey put it, “There are very few well-established results on the determinants of international trade in assets, especially securities. Such work has been impeded by data problems, and there is little theory behind it.” Recent research on transnational portfolio investments finds that trade in assets is not “weightless” as economic intuitions suggest, but rather can be seen as a negative function of the distance between source and target.¹ Because distance might be considered a proxy for information friction in international context, such finding suggests the poverty of the frictionless intuition and points toward the importance of information asymmetries in affecting international trade in assets. However, missing from the state-of-the-art economic research on international trade in assets are variables that often intrigue political scientists. Examples of such missing variables include levels of government consumption, deficits, corporate taxation, regime type, and a partisan measure of the government, to name but a few. Many ideas about interdependencies and even conspiracies at the transnational level characterize the popular as well as policy-oriented press.

Transnational flows of capital are considered one of the most important economic forces of globalization. Recent international and comparative political economy research often focuses on the effects of short-term capital on domestic economic policies. The starting point of this research tradition is that competition among states for transnational capital results in a “race to the bottom” in domestic economic and social policies.² This is often considered evidence for the power of the capital market to constrain governmental autonomy by rewarding some policy choices and punishing others (Andrews 1994). The assumption for the structural power of transnational capital is that capital is more likely to move toward

¹A list of recent economic research on information asymmetries and investment includes Portes, Rey, and Oh (2001), Portes and Rey (2005), Aviat and Coeurdacier (2007), Hooper and Kim (2007), and Daude and Fratzscher (2007). Leblang (2007) studies diaspora and cross-border investment is a recent example in political science.

²See, for example, Cerney (1995) and Rodrik (1997).

economies that are business-friendly and oriented to the expanding world economy. Adhering to this pattern of movements, transnational capital rewards (by entering) and punishes (by exiting) certain countries. However, recent research has shown that there is still room for government to maneuver in various dimensions of domestic policies (Mosley 2000). Especially for wealthy developed countries whose default risk is often considered low, marginal changes in government economic and social policies might not even be noticed by investors who often rely on informational shortcuts to get around the problem of costly information gathering (Calvo & Mendoza 2000). Although as we (re)write this in the fall of 2012, the fragility of previously solid foundations seems more prominent.

Building off previous research on the political economy of international trade in assets, this study considers the effects of more fundamental domestic political conditions on transnational portfolio investment. Our theory posits that democratic institutions attract foreign portfolio investments mainly because in general democracy is thought to strengthen property rights protections. This idea is a fairly simple example of how domestic politics directly affect the market for investments, both internally and globally. This idea is not that democracies are more stable and therefore less risky places for new investment.³ Rather, the same underlying conditions — individual voice and rights, constraints on the executive, and rule of law — that make an established democracy also guarantee a credible property rights protection from the government (Olson 1993, Li & Resnick 2003). Therefore, one causal mechanism connecting democracies to increased inward portfolio investments would be that portfolio investors are more likely to invest in countries with better property rights protection and democratic countries often provide better property rights protection. We suspect that another causal mechanism also matters for the democracy and portfolio investment connection: under real-world time constraints, investors are likely to use democratic institutions as an information short-cut for credible property rights protection.

We test our theory by modeling transnational portfolio investments as a function of domestic political institutions and other conditions while controlling for forces at both

³We conducted analysis testing whether there are connections between inward portfolio investments and a number of domestic institutional and governance variables in addition to those directly implied by our theory (i.e., democracy and property rights protection). We found that political stability of the target country has no effect on investments. These results are not reported but available upon request.

domestic and international levels that might affect cross-border investments. We found that often, portfolio investments are more likely to flow to democratic countries. Moreover, portfolio investments are also found to be driven by market actors' subjective estimates of property rights protection, but not by more complex and objective aggregate index measures from international think tanks. Our tentative interpretation of this finding is that under time constraints, investors do not thoroughly study every country's property rights system (as international think tanks do), but rather rely on their subjective estimates. Note that this does not lend direct support to the democracy as information short-cut mechanism. But it suggests the existence of bounded rational behaviors of investors when they make transnational portfolio investment decisions.

To our knowledge this is a new thread of research on portfolio investments. We undertake this analysis in the context of a hierarchical framework that permits network effects, interdependencies among investors and investment locale, as well as the characteristics of countries which are the source, as well as target of these transnational flows. Our methodological contribution is the application of a dynamic latent space model on the bilateral portfolio investment data which incorporates higher-order dependencies among dyadic data and reveals the underlying structure of transnational portfolio investments over time. In the rest of this article, we review theoretical priors on determinants for international trade in assets and the theoretical link between domestic political institutions and foreign portfolio investments. We describe the landscape of cross-border portfolio investments from 2001 to 2005. We then model the bilateral portfolio investments as a function of domestic characteristics of sending and receiving countries of investment while controlling for dyadic covariates. The final section concludes and discusses the policy implications.

DEMOCRATIC INSTITUTIONS AND TRANSNATIONAL PORTFOLIO INVESTMENTS

Most recent empirical studies on international trade in assets are conducted in the field of economics. This is a relatively new literature that still faces challenges in its ability to improve our understanding of cross-border investments. The paucity of data is an impediment for empirical analysis. But a more serious problem, as Portes and Rey point out, is that "... there is little theory...": scholars are still shuffling lists of potentially relevant variables

in empirical models in order to find key determinants of transnational flows of capital in a particular analysis (Portes & Rey 2005). What we do know is that despite the benefits of the diversification in portfolio investments, “home bias” is the predominant empirical pattern (French & Poterba 1991, Cooper & Kaplanis 1994, Frankel 1994, Tesar & Werner 1995, Kang & Stulz 1997, Tesar 1999). This seems counter-intuitive to many, because economic theory suggests that it makes sense to invest in countries in which the rate of return to investment is weakly correlated with that of the home market.⁴ Even though the theoretical benefits of international diversification have been recognized for decades (French & Poterba 1991), what has been observed empirically is often a home bias in asset holdings: people and institutions tend to invest in countries that are geographically closer to their home country.

Information asymmetry has become the most recent focus in the literature to explain the puzzle of home bias (Portes, Rey & Oh 2001, Portes & Rey 2005, Aviat & Coeurdacier 2007, Hooper & Kim 2007, Daude & Fratzscher 2007). Information asymmetry is present whenever one party in a transaction has more and/or better information than the other. It is reasonable to believe that information asymmetries ARE a serious problem for cross-border investments, especially because domestic considerations, both economic and political, in the target market are often invisible or at least occluded to the investors. Moreover, in the financial market, information that is required to evaluate financial assets is not equally available to all market participants.⁵ The insiders (managers) are able to continually observe changes in investment productivity on an individual asset basis; while the outsiders are only able to obtain highly aggregate information at discrete points of time (Aboody & Lev 2000). In international financial markets, such an unequal distribution of information between national and foreign investors can create serious asymmetries that affect

⁴These target countries are often geographically distant from the home country, but because of the weak correlation, this approach not only geographically diversifies, but it also diversifies the basic portfolio and thereby reduces investment risk. In turn this is thought to maximize return to investment. Portes and Rey (2005) explain why we expect the correlation of business cycles to decay with geographic distance, Frankel and Rose (1994) show that trade between country pairs is positively related to the correlation of their business cycles; since trade decreases with distance, business cycle correlation does as well. Imbs (1999) provides direct evidence that correlations of business cycles decrease with distance.

⁵For instance, corporate investments often create information asymmetries between insiders and outsiders.

perceptions of risk, and more importantly, of expected returns. Information contained in accounting practices, corporate cultures, and political institutions, for example, is required for investors to evaluate financial assets. Local investors have more complete local knowledge than their foreign counterparts. Foreign investors often face high barriers of information friction when they operate in foreign countries. Latest empirical studies have started to look at the potential role of transparency within the business operating environment as a means of influencing investment decisions (Wei 2000, Gelos & Wei 2005, Hooper & Kim 2007).

The aforementioned economic studies on transnational portfolio investments focus on fundamental economic factors that influence the potential future returns of the investment. These are important efforts to improve our understandings in transnational capital flows. However, these economic models are generally missing critical variables; namely, the domestic political context to include various dimensions of domestic economic and social policies, regime type, and partisan orientation of the government. For instance, domestic economic policies are important to political scientists because they reflect political choices made by national governments. This is especially relevant in terms of fiscal policies that characterize the ways governments collect and spend money. These policies have profound redistributive effects for a society and have become the essence of the so-called embedded liberalism since the end of the Second World War (Cameron 1978, Ruggie 1982). However, recent research has shown that there is still room for government to maneuver in various dimensions of domestic policies (Mosley 2000, Mosley 2003). Previous research further demonstrates that transnational portfolio investments are only sensitive to a few fiscal policy indicators and only within the OECD countries (Author 2009). Ahlquist (2006), however, finds that portfolio investors are sensitive to past government behavior and fiscal policy outcomes. His analysis focuses on net flows at the country level and is based on developing countries.

In this research, instead of focusing on the changing policies within countries, we choose to examine the fundamental political characteristics of a country. We explore the effects of political institutions on the inflows of capital. Political science and economic literatures have made several efforts to understand the role of political institutions, such as democracy, free press, veto players, and federalism, on international flows of capital. For example, recent research in political science has studied how democratic institutions

affect the inflow of foreign direct investment (FDI) (Oneal 1994, Li & Resnick 2003, Jensen 2006). Studies of democracy and trade are by now legion. The link between democracy and transnational portfolio investment, however, has not undergone very much systematic theoretical and/or empirical analysis.⁶ The theoretical insights from the democracy-FDI literature do provide a convenient, and hopefully, appropriate starting point.

Li and Resnick (2003), focusing on the relationship between democratic institutions and foreign direct investment, argue that there are three main hindering effects of democracy on FDI. First, elected politicians, facing democratic constraints, cannot provide the same level of oligopolistic or monopolistic positions to foreign multinational corporations (MNCs). Second, these constraints can further prevent these politicians from providing generous fiscal and financial incentives to MNCs. Finally, indigenous industries can better seek protection through institutionalized avenues provided by democratic institutions.⁷ However, democracy also promotes the inflows of FDI by strengthening property rights protection. The net effect of democracy on foreign direct investment, they argue, is therefore contingent on the relative strength of the two competing effects.

It is reasonable to believe that the three hindering effects of democratic institutions are less relevant for the inflows of portfolio investments because portfolio investments, as short-term investments, often do not involve direct operations of foreign multinational corporations on the ground. Portfolio investors do not need favors from the host government to secure market share, to provide fiscal and financial incentives, or to shield them from the pressures from domestic industries. What matters the most for foreign portfolio investors is a guarantee of property rights, which is often perceived to be more credible in democratic

⁶Most recently, Pepinsky (2012) finds that countries with more democratic, more constrained, or more accountable political systems were no less vulnerable to portfolio outflows than countries with “worse institutions.” Instead, countries that are rated as having better governance (e.g., better regulatory apparatuses, rule of law, property rights, and political stability) prior to the crisis experienced a lower volume of net portfolio capital outflows after Lehman. Note Pepinsky (2012) focuses on capital flight after financial crisis while this paper models the distribution of short-term investments over space and time.

⁷Tuman and Emmert (2004), Al Nasser (2007) and Tuman (2009), in the context of Latin American countries, provide statistical evidence that more restrictive regimes have received higher levels of US FDI: unlike democracies, these regimes are more capable of restricting the ability of labor to demand higher income from profits. Montero (2008) also found that rights abuse was associated with higher levels of FDI in some model specifications.

countries. Note that there are significant differences between FDI and portfolio investments; the latter often refers to investments in equity and bond markets which do not involve ownership of or controlling stakes in invested enterprises. Portfolio investments are often much more volatile than FDI. It is also commonly believed that it is often easier and faster for portfolio investors to exit; however, there is also evidence showing that portfolio investments are on the whole easier to expropriate than FDI (Albuquerque 2003): compared to portfolio investments, a typical characteristic of FDI into developing countries is that recipient countries are generally unable to operate these investments without the intangible assets of the multinational cooperation. Therefore, portfolio investors often care about property rights protection because high expropriation risks imply low expected future profits. We expect that democracies do have an advantage in attracting foreign portfolio investments and one of the key reasons is more credible property rights protection in democratic countries.

Why are democracies associated with more credible private property rights protection? In other words, what are the domestic conditions for property rights protection and are these conditions also often found in non-democracies? Olson (1993) argues that the representation of common citizens in the legislature combined with institutional constraints over elected officials generate credible property rights protection, because these conditions ultimately lower the chances for state predatory behaviors. Individuals need their property and their contract rights protected from violation not only by other individuals in the private sector but also by the government itself. The conditions that prevent state predatory behaviors, according to Olson, first include individual voice and rights, that is, individuals, including the leading rivals of the administration in power, are guaranteed the rights to free speech and to security for their property and contracts. They also include limited executives and the rule of law. Higher levels of institutional constraints on the executive are more likely to prevent the government from engaging in short-sighted predatory behaviors. The rule of law also matters because it helps individuals to protect themselves not only from other individuals, but also against the government: in extreme cases, the rule of law is followed even when it calls for the incumbent to leave office in mature democracies. Indeed, Olson (1993) and Li and Resnick (2003) both emphasize the fact that the same factors that often

contribute to long-lasting democracies — individual voice and rights, constraints on the executive, and rule of law — also contribute to secure property rights protection. The fact that the same underlying conditions often account for both the democratic nature of a country and its protection over private property can help to explain the democratic advantage in raising capital in international markets.

Therefore, a simple causal mechanism connecting democracies to increased inward portfolio investments via better property rights protection would be that all else equal, portfolio investors are more likely to invest in countries with better property rights protection and democratic countries often provide better property rights protection. This causal mechanism assumes that investors have a good knowledge of the characteristics of property rights protection systems of foreign countries and they make investment decisions based on such knowledge. However, it is likely that acquiring such knowledge for many foreign countries is costly and time-consuming. Therefore, we suspect that there is a second causal mechanism at work and it also explains the democracy-investment connection: we call this the democracy as information short-cut mechanism.

More specifically, the fact that democracies often associate with credible property rights protection might affect the ways by which international investors make their portfolio investment decisions. Investors in the real world face many constraints when it comes to collect relevant information before making investment decisions. Information collection is often costly and time-consuming. For portfolio investors, this is a serious challenge because they need information on tens and hundreds of countries and firms. What makes this situation even worse is the fact that they often have to make decisions quickly. Collecting all necessary information on all potential foreign countries is almost impossible. Therefore, portfolio investors, according to Mosley, rely on information “short-cuts” (Mosley 2000 and 2003). Mosley (2000) convincingly shows that for rich and democratic countries, investors only look at a narrow set of indicators such as inflation rates and government deficits and debts: this makes sense because for these countries, default risks are low (at least compared to many developing countries) and property rights protection is almost a given fact. But when investors have to move out this “comfort-zone” of rich-developed-democratic countries, more indicators, especially those about the nature of the economy and the government

are needed. Here, we suspect that democracy might serve as an important short-cut for portfolio investors who care about the property rights protection in especially developing countries, because the same underlying conditions (individual voice and rights, constraints on the executive, and rule of law) that make an established democracy also guarantee a credible property rights protection from the government.

The democracy as short-cut for property rights protection mechanism assumes that it is often difficult and time consuming to figure out each foreign country's detailed property rights protection system, but their democratic institutions (or the lack thereof) are much easier to observe. This is a reasonable assumption because lots of media (and academic) reports exist and are fairly accessible to the public on foreign countries' political system such as citizens' voice and representation and the fairness of elections. The nature of private property rights protection systems of foreign countries, on the other hand, is much more difficult to gauge. Property rights protection, on the surface, is a straightforward and often abstract concept. It assesses the ability of individuals to accumulate private property, secured by clear laws that are fully enforced by the state. However, many countries have good property rights protection on the paper, even though governments might not always enforce those laws. The enforcement side is hard to fully comprehend, especially for foreigners. Moreover, understanding property rights protection might also include assessing the likelihood that private property will be expropriated and analyzing the independence of the judiciary, the existence of corruption within the judiciary, and the ability of individuals and businesses to enforce contracts. In sum, property rights protection in the real world is a much more multifaceted concept and fully estimating it for many countries presents great challenges for investors who have to make fast decisions. Because the same underlying conditions that make an established democracy also often guarantee a credible property rights protection, it is likely that investors use democracy as an information short-cut.

An additional and yet probably more important reason for investors to use democracy as information short-cut for property rights protection is the fact that domestic conditions that create long-lasting democracies also contribute to a "long-term" guarantee of property rights protection. Indeed, the consistency of property rights protection is hard to predict in non-democratic settings. Dictators, under certain circumstances, can provide property rights

protection, for example, to attract private investments in the economy (Olson 1993). But there is no institutional guarantee that he/she won't engage in predatory behaviour when circumstances change. Even though portfolio investments are often short-term investments, sudden changes in policies and regulations can still significantly affect expected returns. This potential time-inconsistency issue of property rights protection also raises the possibility that investors might not only care about today's property rights protection per se: in many countries, regulations and laws and their enforcement can be changed from time to time. Investors have reasons to look for more fundamental conditions that can guarantee not only property rights protection today, but also for the foreseeable future. These conditions, as we discussed earlier, often include individual voice and rights, constraints on the executive, and rule of law.

Therefore, we expect that democratic countries have an advantage in attracting portfolio investments. Moreover, two causal mechanisms are discussed: first, portfolio investors are more likely to invest in countries with better property rights protection which is often found in democratic countries; second, foreign investors can use democracy as an information short-cut for private property rights protection given that the same domestic conditions often guarantee both lasting democracies and property rights protection. With the data available for the empirical analysis, we cannot properly distinguish these two causal mechanisms, partly because the test of democracy as information short-cut mechanism will require survey data that capture portfolio investors' thought processes. The empirical implication of the first causal mechanism is that there should be a positive relationship between measures of property rights protection and inflows of portfolio investments. In the empirical analysis, in addition to a positive association between democracy and investment, interestingly, we find that portfolio inflows are associated with investors' subject estimates of receiving countries' property rights protection (based on survey questions from business communities), but not with more objective and comprehensive estimates of property rights protection from international institutions.⁸ This finding seems to suggest that investors do make decisions based on property rights protection of recipient countries, but their estimates of property right

⁸We use two such aggregate index measures, one from the Heritage Foundation and the other the Fraser Institute.

protection of foreign countries do not completely agree with those from international think tanks.⁹

DATA

Networks of Transnational Portfolio Investments. The International Monetary Fund's (IMF) recent *Coordinated Portfolio Investment Survey* (CPIS) provides detailed information for bilateral portfolio investments in 2001-2005.¹⁰ The CPIS provides data on bilateral portfolio investments from 72 countries to the rest of the world. These are end of year stock data.¹¹ The original data are in current dollars (in million). We updated the data using constant 2000 dollars.¹² Total portfolio investments are disaggregated into three categories: equity securities and long-term and short-term debt securities. It is likely that factors affecting one category of portfolio investment might not have the same effect on another type of investment. However, we think democratic institutions should affect all types of portfolio investment because of the property rights protection mechanism. Therefore, it is justifiable on the theoretical ground for us to look at the aggregate level of portfolio investment.¹³ Previous research has discussed CPIS' limitations, including incomplete country coverage, under-reporting of assets by participants, and problems with collection methods (Lane & Milesi-Ferreti 2004, Eichengreen & Luengnaruemitchai 2006, Aviat & Coeurdacier 2007, Leblang 2007).¹⁴ Despite these limitations, the CPIS data remain the most comprehensive database on transnational portfolio investments currently available.

⁹Given the multifaceted nature of property rights protection systems across countries and over time, investors might choose to focus on only a few dimensions; they might base their estimates from those of the peer investors; they might also use information short-cuts such as democratic institutions. These are questions that need to be answered in future research.

¹⁰See <http://www.imf.org/external/np/sta/pi/datars1.htm>; new update of the data has included 2006-2008.

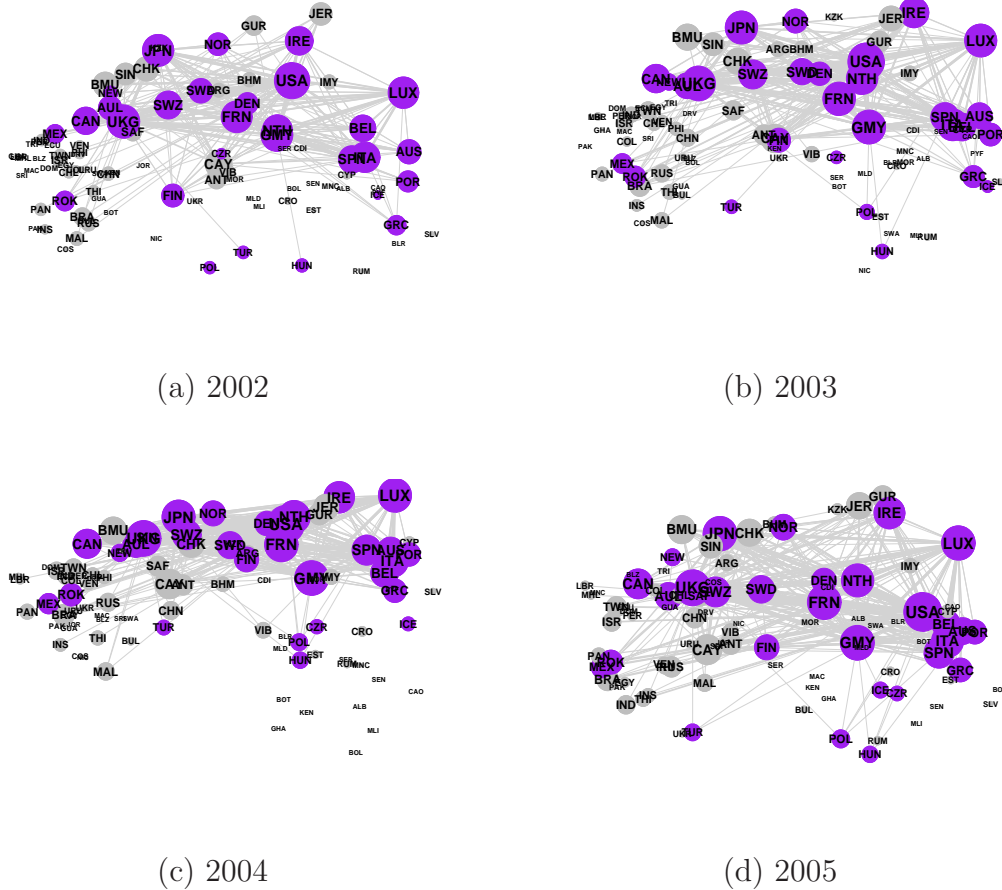
¹¹As far as we know, within-year variation data are not available for a large enough set of countries and years. With big within-year variations, our dependent variable might not be able to capture what has happened within a single year.

¹²Among all observations that enter the latent space model analysis, there are 3 negative values: Belgium to Estonia, 2003, with a value of -2 (million); Mauritius to Australia, 2003, -17; and Norway to Bulgaria, 2005, -4. (These are values before we transformed them to constant 2000 dollars.) We treat them as 0. 1 is added to all observations before log transformation of the dependent variable.

¹³Another reason for us to focus on total portfolio investment is that there are much more missing values when one uses data at the disaggregate level of portfolio investment.

¹⁴China, Saudi Arabia, and United Arab Emirates are not covered by the survey.

FIGURE 1. Network of Portfolio Investment, 2002-2005.



Note: The proximity between countries indicates the extent to which they send and receive similar amounts of portfolio investments from a similar set of countries. The size of each node is proportional to the overall stock of portfolio investments it invested in and received from all the other countries by the end of the year. The width of the gray line connecting two countries is proportional to the sum of existing bilateral portfolio investments. To display an otherwise messy network, a value of 5 billion constant 2000 US dollars is used as a threshold to draw a line. OECD countries are highlighted in purple.

We display the descriptive network of total portfolio investments in Figure 1. These are visualizations for 96 countries. Fifty-four countries enter the data analysis in the latent space model because of missing values in some covariates. In each plot, the underlying network position of each country, represented by its three-letter acronym, is determined by the ways it connects to the rest of the network: proximity between two countries indicates the extent to which they send and receive similar amounts of portfolio investments from a

similar set of other countries.¹⁵ Moreover, the size of each country is proportional to the overall stock of portfolio investments a country has invested in and received from all the other countries by the end of that year; the width of the gray line connecting two countries is proportional to the total volume of bilateral portfolio investments at the end of the year. Finally, we use 5 billion constant 2000 US dollars as the threshold to decide whether to draw a line between two countries to better display the networks.

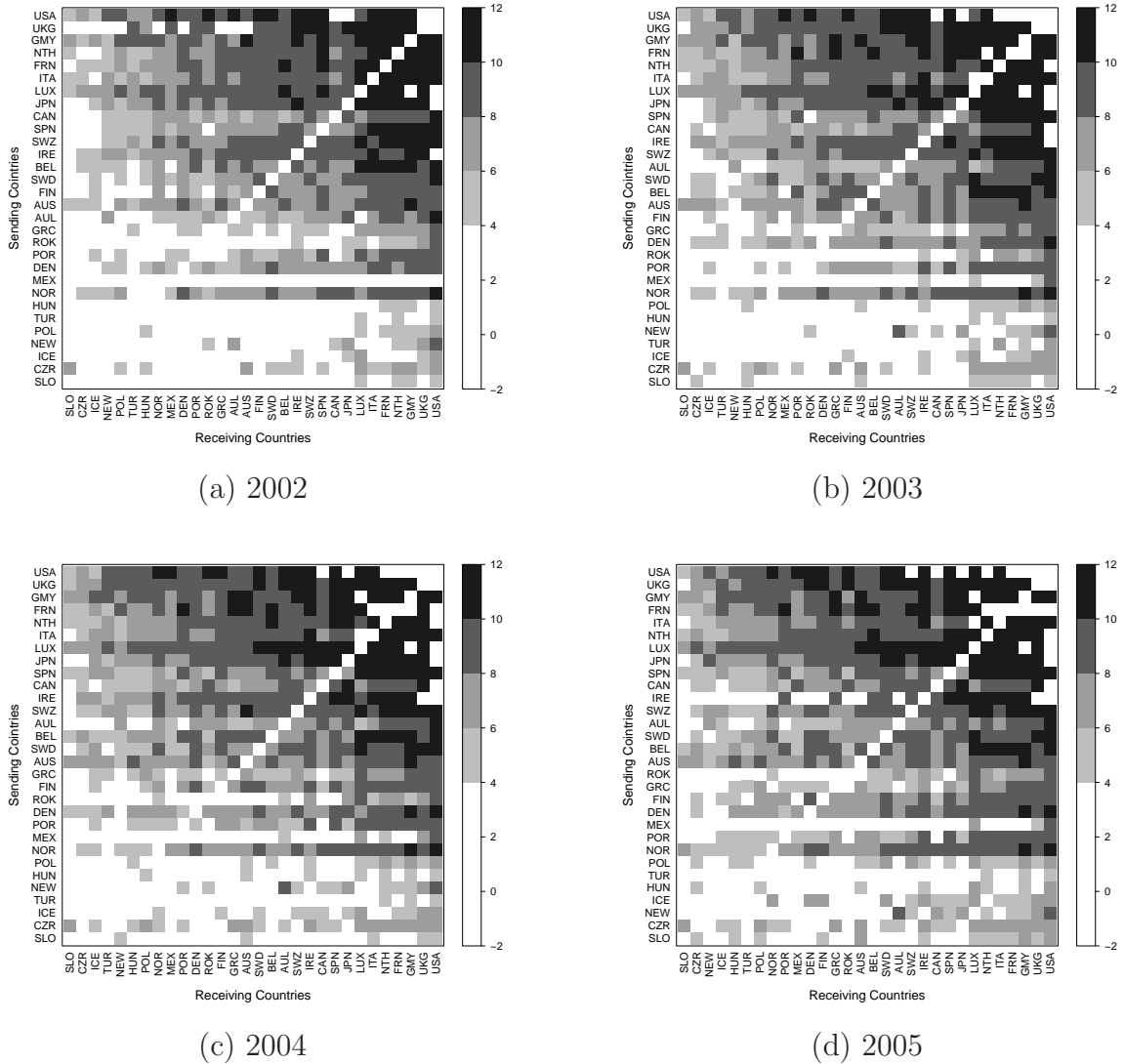
A first impression of the networks on transnational portfolio investments is that the global market is dominated by some twenty “purple dots” (the OECD countries), which are big and connected by dense, thick ties of portfolio investments. This is most readily apparent in 2004 where the OECD group is closely connected by large amounts of bilateral investments. The Netherlands, the United States, the United Kingdom, Germany, Japan, and even Luxembourg are distinguished from the rest of the group by the total stock of portfolio investments they sent and received. On the other hand, some developing countries (e.g., Jordan, Cameroon, Nicaragua, Pakistan, and Sri Lanka) seem to disappear in the network of portfolio investment: their size/overall importance in the network is small and they are located far away from the OECD center with only weak ties connecting them to other countries. Moreover, the sizes of nodes (the total amount of investments sent and received by each country) do not change very much, especially for most of the OECD countries. However, the bilateral distribution of relatively stable portfolio stock sent and received for each country changes on a yearly basis. For instance, the OECD countries are much more clustered in 2004 than in the other years.

Figure 2 further illustrates portfolio investments among the OECD countries using four level-plots. Each square cell in the yearly panel is colored proportional to the level of portfolio investments from the sending (vertical axis) country to the receiving (horizontal axis) country: the darker the color, the higher the level of investment.¹⁶ In 2002, the darkest area is in the upper right corner of the level-plot where we find sending countries mainly include Switzerland (SWZ), Spain (SPN), Canada (CAN), Japan (JPN), Luxembourg (LUX),

¹⁵The positions of countries in Figure 1 are determined by using classical multidimensional scaling in a n by n matrix of structural equivalence matrix (where n is the number of countries). See the list of countries names and corresponding acronyms in the appendix.

¹⁶The legend in each level-plot shows the color scheme, which is in logged millions of constant 2000 US dollars.

FIGURE 2. Bilateral Portfolio Investments among the OECD Countries, 2002-2005.



Note: Each square cell in the yearly panel is colored proportional to the level of portfolio investments from the sending (vertical axis) to the receiving (horizontal axis) country. Portfolio investment from a sending to a receiving country is on log scale of constant 2000 US dollars (million).

Italy (ITA), the Netherlands (NTH), France (FRN), Germany (GMY), Britain (UKG), and the United States (USA), and the receiving countries are Luxembourg (LUX), Italy (ITA), the Netherlands (NTH), France (FRN), Germany (GMY), Britain (UKG), and the United States (USA)—the bilateral investments among these countries account for over 71% of the total bilateral investments among the 30 OECD countries by the end of that year. In the following 3 years, the absolute amount of investments among these countries continued growing. Yet, their overall importance in the network declines slowly: the percentage of their

in-group investments to total bilateral portfolio investments among all the 30 OECD countries drops from over 71% in 2002 to 70% in 2003, and 68% in 2004 and 2005. On the other hand, investments outside this upper-right corner of the panel grow at larger rate, especially investments in countries such as Czech Republic (CZR), Iceland (ICE), Poland (POL), and Turkey (TUR).

Democracies, Property Rights, and other Domestic Conditions. Our theory predicts that all else equal, democracies receive more portfolio investments than non-democratic countries. In order to test this argument, we use the polity score (-10 for highly authoritarian states to $+10$ for highly democratic societies) to measure domestic institutions.¹⁷ Moreover, we have argued that one of the key reasons is that democracies are associated with better and more credible property rights protection. In order to test this, we need measures on countries' property rights protection. We use three different measures of property rights protection: one is a subjective measure based on survey question, the other two are aggregate measures based on estimates on multiple dimensions of domestic property rights protection. We have argued that because of the time constraints, investors might use democracy as an information short-cut for property rights protection. They might not have the luxury to learn details of property protection system of each country as the academia and other research institutions do. The implication is that portfolio investments might not be associated with more objective and index-based measures of property rights protection that systematically capture multiple dimensions of countries' rights protection; but they are more likely to be sensitive to investors' subjective estimate of property rights protection.

For the subjective estimate of rights protection, we use Fraser Economic Freedom's variable Protection of Property Rights: this component is from the Global Competitiveness Report question for business decision-makers: "property rights, including over financial assets, are poorly defined and not protected by law (= 1) or are clearly defined and well protected by law (= 7)."¹⁸ We call this variable Property Rights_{Fraser}^{Survey}. For the more objective and index-based measures of property rights protection, we use the variable Legal System & Property Rights (Property Rights_{Fraser}^{Aggregate}) from Fraser Economic Freedom

¹⁷See <http://www.cidcm.umd.edu/inscr/polity/>.

¹⁸World Economic Forum, Global Competitiveness Report (various issues), <http://www.weforum.org/en/initiatives/gcp/index.htm>.

as well as the property rights protection variable from the Heritage Foundation (Property Rights^{Aggregate}_{Heritage}). Legal System & Property Rights is an aggregate measure of nine components (including Property Rights^{Survey}_{Fraser}): judicial independence, impartial courts, protection of property rights, military interference in rule of law and politics, integrity of the legal system, legal enforcement of contracts, regulatory restrictions on the sale of real property, reliability of police, and business costs of crime.

Property Rights^{Aggregate}_{Heritage} from the Heritage Foundation is an assessment of the ability of individuals to accumulate private property, secured by clear laws that are fully enforced by the state. It measures the degree to which a country's laws protect private property rights and the degree to which its government enforces those laws. It also assesses the likelihood that private property will be expropriated and analyzes the independence of the judiciary, the existence of corruption within the judiciary, and the ability of individuals and businesses to enforce contracts. It is a 0-100 index measure with higher values representing better protection of property rights. For example, a country is graded as 100 if private property is guaranteed by the government; the court system enforces contracts efficiently and quickly; the justice system punishes those who unlawfully confiscate private property; and there is no corruption or expropriation.¹⁹

We have argued that the same underlying conditions — individual voice and rights, constraints on the executive, and rule of law — that make an established democracy also guarantee a credible property rights protection from the government. Interested to see whether investors pay attention to these underlying conditions for both democratic institutions and property rights protection, we also include variables to measure these concepts. Variables for voice and accountability as well as rule of law are both from the World Bank's Governance Indicators (WBGIs).²⁰ Voice and Accountability taps into the extent to which citizens of a state are able to participate in the selection of governments. It also includes

¹⁹The Index relies on the following sources, in order of priority: Economist Intelligence Unit, Country Report and Country Commerce, 2008-2011; U.S. Department of Commerce, Country Commercial Guide, 2008-2011; U.S. Department of State, Country Reports on Human Rights Practices, 2008-2011; and various news and magazine articles. For more details, see <http://www.heritage.org/index/property-rights>, accessed November 16, 2012.

²⁰For more information on these measures see Kaufmann et al (2010). These indicators are accessible at: <http://www.govindicators.org>.

factors measuring the independence of the media, which plays an important function of overseeing and monitoring the selection, establishment and maintenance of the government and those in authority ultimately holding officials accountable for their actions. Rule of Law assesses the extent to which agents have confidence in and abide by the laws of society. These include perceptions related to the incidence of crime, the effectiveness and predictability of the judiciary, and the enforceability of contracts. It measures the success of a society in developing an environment in which fair and predictable rules form the basis for economic and social interactions and the extent to which property rights are protected. Finally, the variable Executive Constraints is from also from the Polity data project. This variable refers to the extent of institutionalized constraints on the decision-making powers of chief executives, whether individuals or collectivities.

Information Asymmetries and other Dyadic and Sender-receiver Covariates. In addition to test the theory on democratic institutions, we also address other theoretical priors. First, we include two variables to test the information asymmetry argument that is often used in the economics literature to account for the “home bias” in transnational portfolio investments. No direct measurement of the information asymmetries exist. We use distance as a proxy for this idea, and therefore include a variable of distance in geography as a proxy for information frictions.²¹ One implication of the information-asymmetry story is that at the country level, improving transparency could lead to an increase in investment inflows. For example, transparency regarding accounting standards that address disclosure and access to information about publicly traded companies. Moreover, it is reasonable to suspect that international investors might also be deterred by a country’s overall degree of opacity. Transparency will reduce the asymmetries and allow the markets to function more efficiently. Indeed, recent studies have demonstrated the importance of transparency for the inflows of foreign investments (Wei 2000, Gelos & Wei 2005, Hooper & Kim 2007, Kirkpatrick 2009). One problem with this is that data for market transparency often used in the literature are only a cross-section of 35 countries for 2000.²² But this measure is highly correlated with other general measures of corruption, for example, the Corruption Perception Index of the

²¹Distance is calculated in logged 1000s of Kilometers.

²²Data are from Price Waterhouse Coopers.

Transparency International. Therefore, we can use a general corruption measure instead to accommodate more countries and years into the study. The Corruption Perceptions Index (CPI) ranges from 1 (most corrupted) to 10 (least corrupted).²³ Since higher values indicate a higher degree of transparency, we call this variable Transparency in the empirical analysis.

Moreover, portfolio theory argues that in order to reduce the risk of the entire portfolio, investors should hold foreign portfolios that have negatively correlated returns with domestic portfolios. Therefore, we include a variable of correlation of growth that measures the correlation in growth rates between the sending and receiving countries to account for risk diversification. This variable is calculated as the correlation between two countries' previous 5 years' GDP growth rates. We also control for financial openness of the country. We use the Chinn-Ito Financial Openness variable that is constructed based on IMF's Annual Report on Exchange Arrangements and Exchange Restrictions. See Chinn and Ito (2006). This measurement augments Quinn's capital openness measurement by including information regarding whether the country in question has entered into international agreements with international organizations such as the OECD and the EU.²⁴ Another reason to choose this variable is because it provides data for most of the countries until 2004. We use data of 2004 for year 2005. Finally, we also control for sender and receiver countries' GDP and GDP per capita (in constant 2000 dollars).²⁵

A DYNAMIC LATENT FACTOR MODEL

Our intention is to examine the network flows of portfolio investments among countries, taking into account the interdependent nature of these flows as well as the relevant covariates for dyads and countries. Standard regression is not up to this task, and we turn instead to a generalized version of the latent space model from Hoff to model the network portfolio investment (Hoff 2005). For any given year, $y_{i,j}$ is the response variable, that is, the stock of portfolio investments from sender country i to receiver country j , and the basic model can be written as follows:

²³http://transparency.org/policy_research/surveys_indices/cpi.

²⁴See http://www.ssc.wisc.edu/~mchinn/Readme_kaopen2004.pdf for a detailed description of the variable.

²⁵Data are from IMF's World Economic Outlook.

$$(1) \quad y_{i,j} = \beta'_d x_{i,j} + \beta'_s x_i + \beta'_r x_j + a_i + b_j + \gamma_{i,j} + u'_i v_j,$$

where

$\beta'_d x_{i,j}$ = dyadic effects: distance, correlation in GDP growth

$\beta'_s x_i$ = sender effects: GDP, GDP per cap, capital openness, transparency, institutions

$\beta'_r x_j$ = receiver effects, here the same as : x_i

a_i = random effect of sender

b_j = random effect of receiver

$\gamma_{i,j}$ = dyadic error term

$u'_i v_j$ = separate latent positions for sender and receiver

In addition to the effects of the dyadic covariates ($\beta'_d x_{i,j}$: correlation of growth rate and geographic distance), this model setup adds covariates that are specific to sender ($\beta'_s x_i$) and receiver ($\beta'_r x_j$) countries of investment. These covariates include GDP, GDP per capita, capital market openness, transparency, and domestic institutions — Polity, Property Rights^{Survey}_{Fraser}, Property Rights^{Aggregate}_{Fraser}, Property Rights^{Aggregate}_{Heritage}, Voice and Accountability, Political Constraints, and Rule of Law. Note that these domestic institutional variables are highly correlated: Table 1 presents the correlation statistics. Therefore, in the empirical analysis, we only include one variable at a time to avoid high collinearity problem.

TABLE 1. Correlation statistics for domestic institution variables.

	1	2	3	4	5	6	7
1: Polity	1.00	0.31	0.38	0.43	0.78	0.96	0.45
2: Property Rights ^{Survey} _{Fraser}	0.31	1.00	0.90	0.79	0.69	0.33	0.84
3: Property Rights ^{Aggregate} _{Fraser}	0.38	0.90	1.00	0.87	0.79	0.42	0.93
4: Property Rights ^{Aggregate} _{Heritage}	0.43	0.79	0.87	1.00	0.81	0.47	0.94
5: Voice and Accountability	0.78	0.69	0.79	0.81	1.00	0.79	0.87
6: Executive Constraints	0.96	0.33	0.42	0.47	0.79	1.00	0.49
7: Rule of Law	0.45	0.84	0.93	0.94	0.87	0.49	1.00

The model also includes random effects of sender (a_i) and receiver (b_j) countries. The rationale is that in addition to the sender and receiver specific covariates already included in the model, other variables characterizing sender and receiver countries might also affect investment. Random effects are able to capture country-specific variables that are potentially important but not included in our model. Moreover, random effects of sender (a_i) and receiver (b_j) countries can account for the heterogeneity among countries as senders and receivers of investment. Chances are some countries are special even after controlling for all the possible variables that we can name.²⁶

Considering $\gamma_{i,j}$ as the residual error term, $y_{i,j} = \beta'_d x_{i,j} + \beta'_s x_i + \beta'_r x_j + a_i + b_j + \gamma_{i,j}$ is a typical regression model setup with random effects. Employing such a model assumes observational independence. However, this assumption is often violated in network data by the existence of higher-order dependencies. Social network literature makes clear that second- and third-order dependencies are prevalent in most network environments. In the context of directed relationships, second order dependence refers to what is often described as reciprocity. This means that we expect $y_{i,j}$ and $y_{j,i}$ to be positively correlated. In the study of international relations, strong reciprocity often exists among a large number of dyads. Previous research on trade shows that imports from country i to j are more likely to go up as the movement of commodities in the opposite direction within the same dyad increases (Authors 2007a). It is also revealed that strong reciprocity exists in interstate conflict: if country i initiates a conflict with j , one expects j to reciprocate (Authors 2007). Moderate level of reciprocity in the world of global migration has also been reported (Authors forthcoming). We lack empirical evidence from previous research on the reciprocal nature of investment stocks. The latent model further parameterizes the covariance of the errors across dyads, that is, the covariance of the errors between $\gamma_{i,j}$ and $\gamma_{j,i}$, as $\rho\sigma_\gamma^2$, which allows a specific measure of reciprocity to be estimated by ρ .

Third-order dependence is also commonly recognized in the literature. Aspects of this higher order dependence include transitivity, balance, and clusterability. For example,

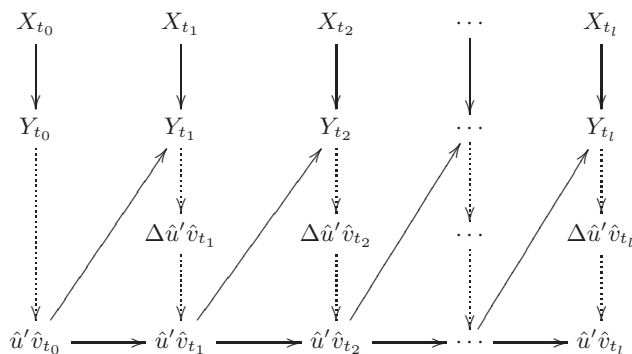
²⁶We model the random effects as being multivariate normal. In this way, we can estimate their covariance structure: σ_a^2 is the variance of the sender random effects and σ_b^2 the variance of the receiver random effects. Additionally, the covariance between these two components is given by σ_{ab} .

transitivity follows the logic of “a friend of a friend is a friend.” An often used example in the literature on third-order dependence considers the following relationships among a triad $\{i, j, k\}$. If we know that i considers j as a friend and j is a friend with k , then the probability that k will also be a friend with i is likely to be higher than for a random person outside of this triad, since i and k are at least indirectly connected in the friendship network by virtue of their separate linkages to j . In other words, knowing something about the relationships in the first two dyads in a triad often tells us something about the relations in the third dyad. As we think about the nature of the third-order dependence in some network data sets, a conceptualization of an “unobserved” or latent “social space” in which every network actor is embedded is very fruitful. Thus, for example, the observation of two links, $i \rightarrow j$ and $j \rightarrow k$, suggests that i and k are not too far away from each other in this social space (which is often unobservable) and therefore are also likely to have a link between them.

The third-order dependence is an expression of the underlying probability of a link between two actors. We do not observe the complete set of all of these network characteristics, but we can infer them from the pattern of dyadic linkages. If we can map out the latent positions of each actor in the “social space”, we can then assume that the ties in the network are conditionally independent. A series of latent models have been recently developed by Hoff, Raftery, and Handcock and Hoff where latent vectors, say u_i and v_j , for any two actors i and j are used to locate the actors in the “social space” in order to account for third-order dependence (Hoff, Raftery & Handcock 2002, Hoff 2005). The latent model includes an estimate of the latent positions of each country in the investment network (u_i and v_j). These latent positions (u_i and v_j) index the propensities for country pairs to have similar interaction patterns toward other countries. More simply, if two countries share similar positions in the latent space, they have a higher probability of interacting with each other. In the context of transnational investment, this means a high level of bilateral investment.

In short, we estimated the underlying latent network to capture the higher order dependencies. Conditional on these positions, we can treat the rest of the model as independent. This approach combines a network analysis with a standard-looking regression to permit us to assess the importance of our explanatory factors without having them biased by the interdependencies in the network we are studying. One limitation of the latent factor

FIGURE 3. Modeling dynamic networks with lagged latent positions



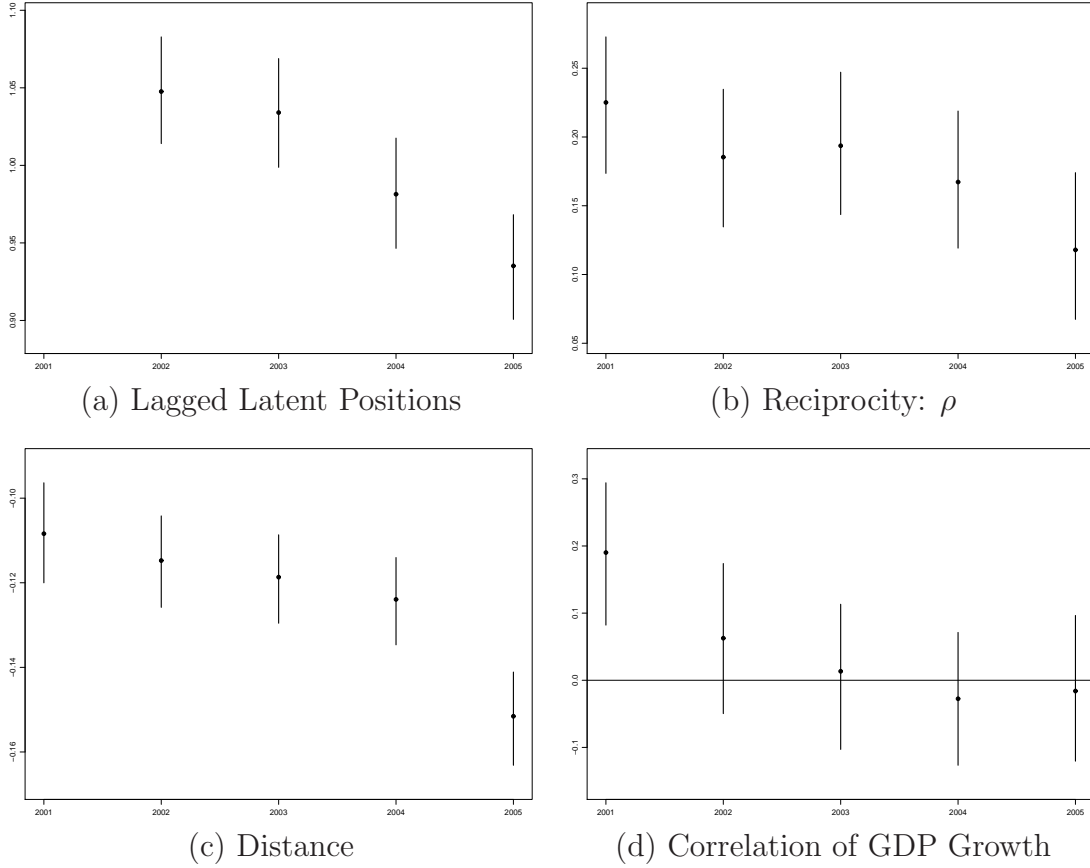
model above is that it is not a dynamic model. The model basically deals with the network one slice at a time. Herein, we undertake an additional step to incorporate time dynamics to the latent space model. Our empirical examination in this article includes the bilinear/latent factors from prior years as lagged dyadic variables in a very simple dynamic model of bilateral investment. These model changes are portrayed in Figure 3. This is similar to adding a lagged variable, the variable being countries' levels of interactions in latent space from the previous year. This is treated as an additional dyadic covariate, additional to distance and correlation in GDP growth.²⁷

EMPIRICAL FINDINGS

We model bilateral portfolio investment as a function of dyadic covariates including distance in geography, correlation of growth rate, and the lagged latent positions of countries, sender and receiver country characteristics such as GDP, GDP per capita, capital market openness, transparency, and domestic institutions. Because we are interested in whether democratic institutions attract transnational portfolio investments — and if such an effect does exist, we further test whether better and more credible property rights protection helps to explain this democratic advantage — we first include the variable Polity in the sender and receiver country characteristics: we do not include all domestic institution variables in the same model specification because of high correlations between these variables (Table 1).

²⁷Author and Colleagues (Forthcoming) have recently developed a model that treats zeros differently than non-zeros in such a model, while at the same time allowing the dynamics to be estimated. We do not use that approach herein.

FIGURE 4. The 90 Percent Credible Intervals of Posterior Distributions on Estimated Coefficients for Dyadic Covariates and Reciprocity.



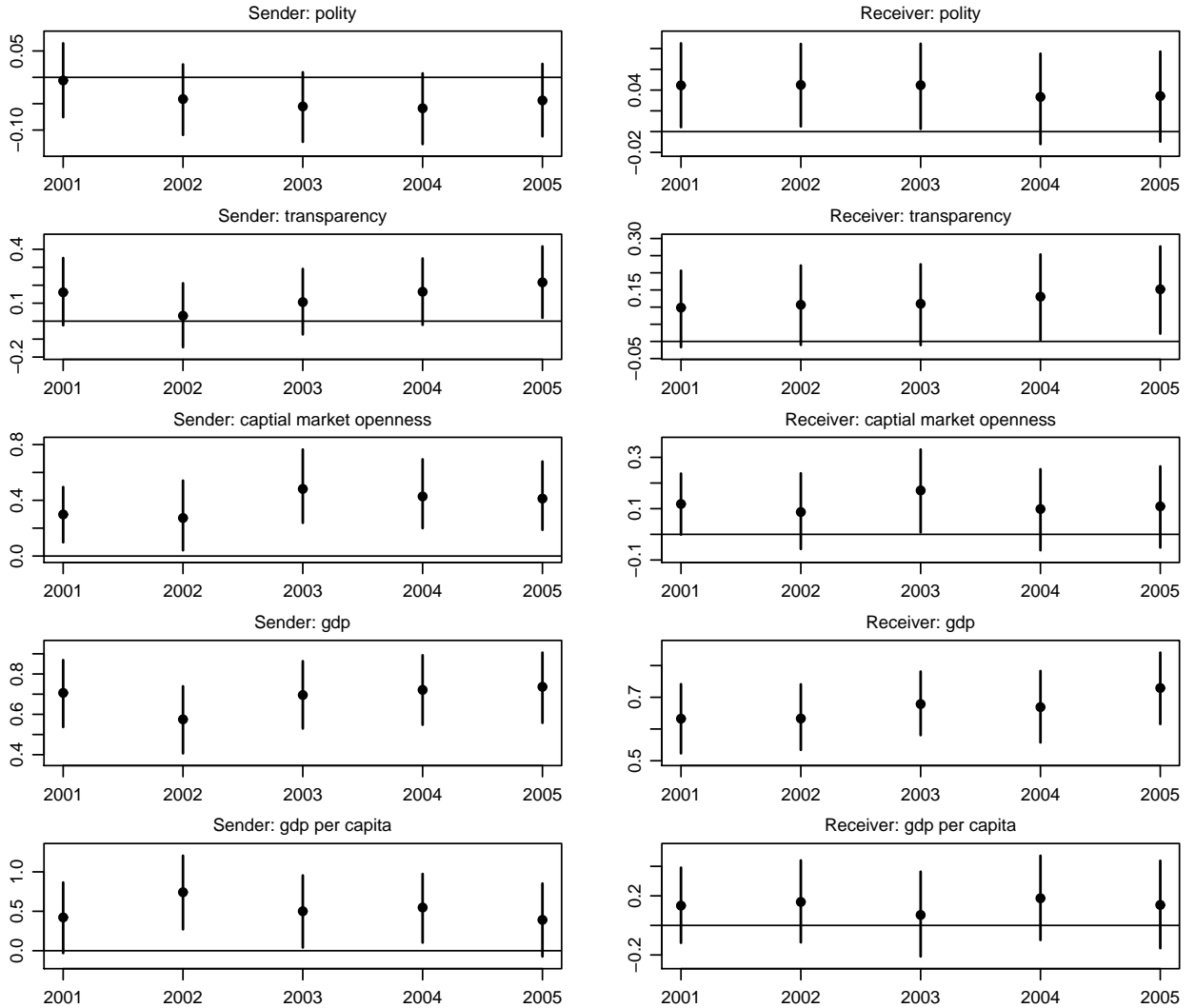
Democracies and Inflows of Portfolio Investments. Table 2 presents the detailed summary of the quantile-based empirical credible 90% intervals for year 2002. Because of space constraints, we do not include tables for other 4 years. For each of the 5 years, 54 countries entered the analysis, resulting in 2862 dyadic observations. We use coefficient plots to show the estimated effects over time. Figure 4 summarizes the empirical findings by plotting the 90% credible intervals of the estimated effects for dyadic covariates and the reciprocity (ρ) over time. Note that we use the cross-product of sender and receiver countries’ latent positions from the previous year as a covariate (“Lagged Latent Positions”) to capture the time dynamics. The idea is that if latent positions of countries are relatively stable over time, these latent positions can be used to predict future bilateral investments. By looking at Figure 4, we can see the effects of lagged latent space is important, even though the effects are declining over time. This justifies the use of lagged latent space and the dynamic model setup.

TABLE 2. Bayesian estimates for 2002: quantile-based, empirical credible intervals of 90% are presented.

		5%	Mean	95%
Constant		-6.987	-5.503	-3.968
Dyadic Effects:	Lagged latent positions	1.014	1.048	1.083
	Distance	-0.126	-0.115	-0.104
	Correlation of GDP growth	-0.050	0.063	0.174
Sender Effects:	Polity	-0.109	-0.041	0.025
	Transparency	-0.145	0.030	0.211
	Capital market openness	0.041	0.273	0.541
	GDP	0.406	0.575	0.739
	GDP per capita	0.271	0.742	1.205
Receiver Effects:	Polity	0.005	0.045	0.084
	Transparency	-0.010	0.107	0.221
	Capital market openness	-0.057	0.087	0.238
	GDP	0.534	0.633	0.741
	GDP per capita	-0.115	0.159	0.440
Random Effects:	Common Sender (σ_a^2)	0.720	1.005	1.380
	Sender-Receiver ($\sigma_{a,b}$)	0.225	0.372	0.552
	Common Receiver (σ_b^2)	0.239	0.344	0.480
Dependencies:	Reciprocity (ρ)	0.135	0.185	0.235
	Error Variance (σ_ϵ^2)		0.933	
Sender Latent:	Dimension 1 (σ_{u1}^2)		0.451	
	Dimension 2 (σ_{u2}^2)		0.426	
	Dimension 3 (σ_{u3}^2)		0.390	
Receiver Latent:	Dimension 1 (σ_{v1}^2)		0.470	
	Dimension 2 (σ_{v2}^2)		0.384	
	Dimension 3 (σ_{v3}^2)		0.378	

We also present the estimates of the reciprocity parameter, ρ , which measures the level of reciprocity in the data. Here, we find a relatively moderate level of reciprocity, between 0.15 and 0.25, indicating the existence of second-order dependence in the data: the fact that investment flows from country i to j would in itself induce flows from j to i . Moreover, the negative effects estimated for distance suggest that people tend to invest in countries that are close rather than distant, which is counter-intuitive according to the economic theory of risk diversification (but consistent with previous findings of home bias), because countries nearby often share similar business cycles and therefore are not good investment destinations if investors want to diversify risks. The growth in GDP initially has positive effect on investment—this is true for 2001; note this is also against the prediction of

FIGURE 5. The 90 Percent Credible Intervals of Posterior Distributions on Estimated Coefficients for Sender and Receiver Effects: note that corruption is actually a transparency measure, so a positive relationship means that more transparency is associated with more investment.



the risk diversification theory, because if people want to diversify the risk of investment, they should invest in countries with different business cycles (i.e., countries with different growth rate). However, this effect disappears after 2001—this is largely a function of the inclusion of the lagged latent space variable for years 2002-2005: 2001 is the initial year and has no “lagged” latent space included in the analysis.

Figure 5 shows sender and receiver country effects. Receiving countries’ capital market openness, except in 2003, does not seem to affect investment inflows, suggesting that by merely changing policies and regulations that are directly related to market openness is

unlikely to attract more investment; capital market openness matters, however, for the outflows of capital as indicated by the positive effects associated with variable “Sender: capital market openness,” suggesting that countries’ capital market openness encourages outflows of portfolio investments. Moreover, we find that GDP of sender and receiver countries are both positively associated with investment. Finally, GDP per capita of the country is often positively associated with outflows but not the inflows of capital.

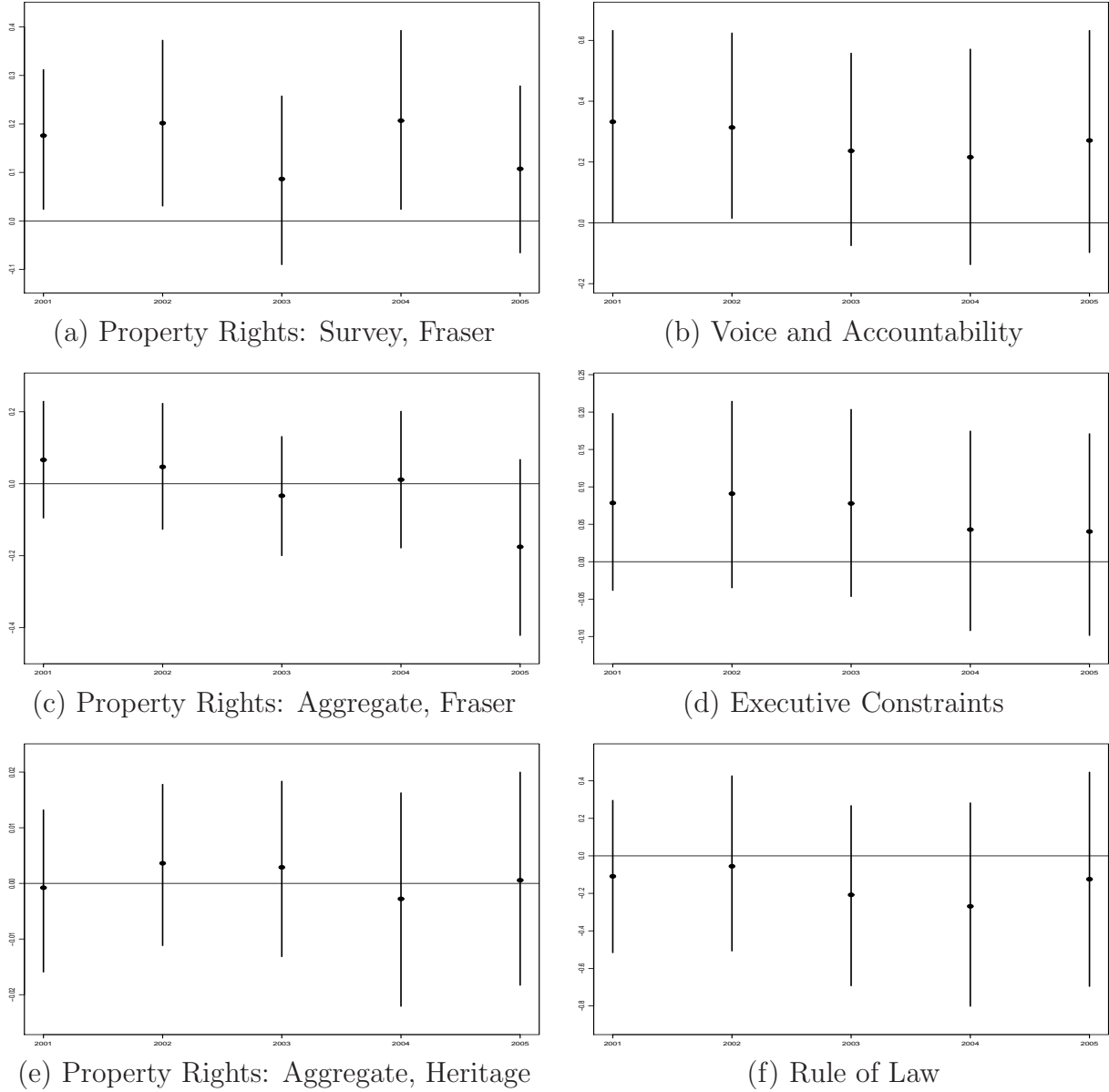
In Figure 5, what interests us the most is the effect of democratic institutions. Here, for most of the years, “Receiver: polity” are positive and statistically significant, suggesting that democracies are associated with higher levels of inward investments. “Sender: polity,” on the other hand, are often negative but not significant as indicated by the confidence intervals. It seems that democracies do not particularly send more or less investments compared to less democratic countries; but they do often attract more investment. We also find that transparency affects investment. Most of the estimates of the receiver effects of transparency are positive, indicating that investments do tend to flow to countries with more transparency. Here, after controlling the effect of transparency, democracies are still associated with higher level of investment.

Effects of Property Rights Protection. We have argued that one of the key reasons for this democratic advantage in attracting investments is that democracies are associated with better and more credible property rights protection. To test this, we repeat the dynamic latent space model exercise, replacing the variable Polity with one of the three different measures of property rights protection — a subjective, survey-based measure (Property Rights_{Fraser}^{Survey}) and two objective and index-based measures (Property Rights_{Fraser}^{Aggregate} and Property Rights_{Heritage}^{Aggregate}). Because of space limit, we only report the coefficient estimates for the sender effect of property rights protection in the left column figures of Figure 6.²⁸

Figure 7(a) displays the results when we use the survey-based measure of property rights, Property Rights_{Fraser}^{Survey}. Here, we found that portfolio investments are often sensitive to business communities’ subjective estimate of recipient countries’ property rights protection. Only in 2003 and 2005, the 90 percent credible intervals include zero; but the mean estimates are still positive. On the other hand, Figure 7(c) and Figure 7(e) suggest that inflows of

²⁸Results on the dyadic and other sender-receiver effects are available upon request.

FIGURE 6. The 90 Percent Confidence Intervals of Posterior Distributions on Estimated Coefficients for Additional Receiver Effects.



portfolio investments are not associated with the more objective and index-based measures of property rights protection (Property Rights_{Fraser}^{Aggregate} and Property Rights_{Heritage}^{Aggregate}). We need to be cautious when making interpretation of this finding. It seems that investors do make decisions based on property rights protection, but their estimates of property right protection do not completely overlap with those from international think tanks: given the multifaceted nature of property rights protection systems, investors might choose to focus on only a few dimensions; they might base their estimates from those of the peer investors; they might also use information short-cuts such as democratic institutions.

Moreover, we have also argued that the reason why democracy might serve as an important short-cut for portfolio investors is because the same underlying conditions that make an established democracy also guarantee a credible property rights protection from the government. Do investors also pay attention to these underlying conditions? To answer this question, we run more dynamic latent space models, each time replacing Polity with one of the following three variables: Voice and Accountability, Executive Constraints, and Rule of Law. The right column figures of Figure 6 reports our findings. What we find is that investors seem to care about some of these underlying conditions for democracy and property rights protection: more voice and accountability brings in more investments as suggested by Figure 7(b); but portfolio inflows are not responsive to the level of executive constraints (Figure 7(d)) and rule of law (Figure 7(f)).

Model Predictive Power and Latent Positions. One way to test whether our model outperforms an OLS regression is to look at their predictive power. Figure 7 plots the predicted values of bilateral portfolio investments (y-axis) on the actual values (x-axis), separately for an OLS and a latent space model for year 2005: the results of 2002-2004 are very similar to that of 2005; for a better visual effect, we choose to only display the results of 2005.²⁹ Also note we choose not to display the results for the year 2001, because this is the starting year of our analysis in which no lagged latent positions are added into the analysis as a covariate.³⁰ A 45 degree line is drawn for each plot on which perfect predictions would fall: therefore, the closer the points are to this 45 degree line, the better the prediction. The latent model provides a better prediction as the points on the plot are much closer to the 45 degree line. This is indeed the case when we look at the root mean squared error (RMSE) for both OLS and latent models in Table 3: $RMSE = \sqrt{\frac{1}{n} \sum (y_i - \hat{y}_i)^2}$, where \hat{y}_i is the predicted value, y_i the actual value, and n is the number of observations. The latent model has a much smaller root mean squared error (around 1.1) than the OLS model (around 1.6) for all four years.

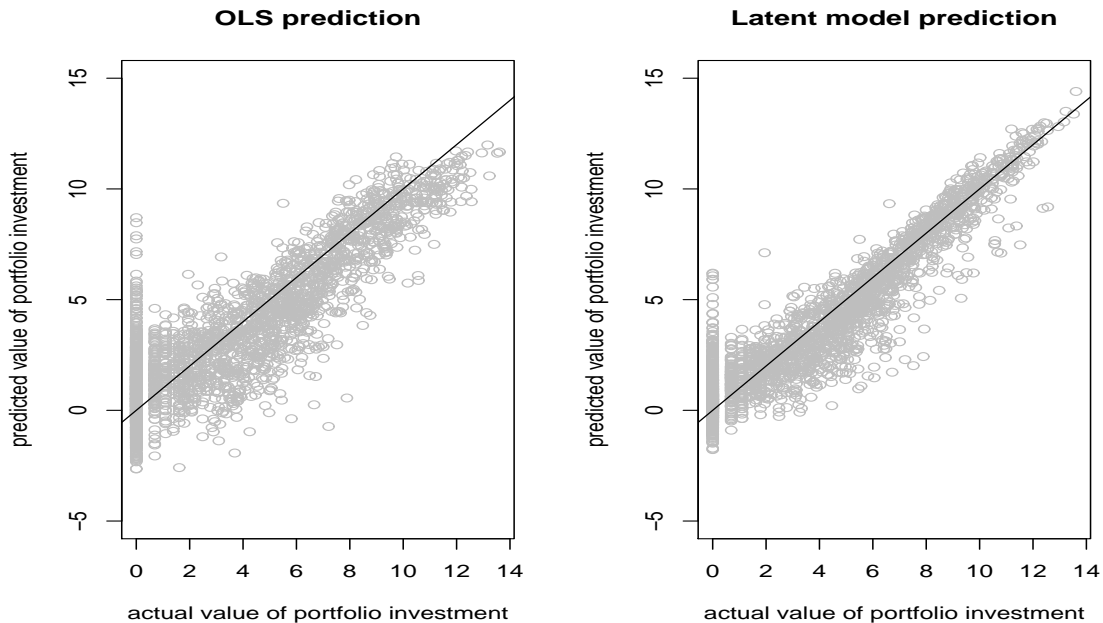
²⁹Figures for years 2002-2004 are available from the authors upon request.

³⁰In other words, the dynamic latent space model actually starts in 2002. However the results of in-sample prediction are similar to those for year 2002-2005. Results are available from the authors upon request.

TABLE 3. *In-sample predictions: OLS vs. latent space model.*

year	Average Investment	RMSE: OLS	RMSE: Latent Space
2002	2.638	1.577	1.123
2003	2.956	1.534	1.089
2004	3.148	1.531	1.036
2005	3.263	1.639	1.155

FIGURE 7. In-sample predictions, OLS models and latent space models, 2005.



(a) 2005

Finally, we display the sender and receiver country latent positions one for every two years, that is, 2001, 2003, and 2005, in Figure 8, for the dynamic model for which we include Polity as the domestic institution variable. Note that latent positions (u_i and v_j) index the propensities for country pairs to have similar interaction patterns toward other countries. What we observe here is that first, countries are not randomly distributed in latent space; they form clusters. For example, for sender latent positions (u_i), developed countries are close to each other and clustered at the right hand side of the space: here we see countries such as Germany (GMY), Denmark (DEN), Japan (JPN), USA (USA), Canada (CAN), and United Kingdom (UKG). Other less developed countries are on the other side of the latent space. Similar patterns can be observed for the receiver latent space as well.³¹

³¹Note this is after geography and GDP per capita and other relevant variables have been controlled. It seems that other factors such as cultural similarity, connections in IGOs,

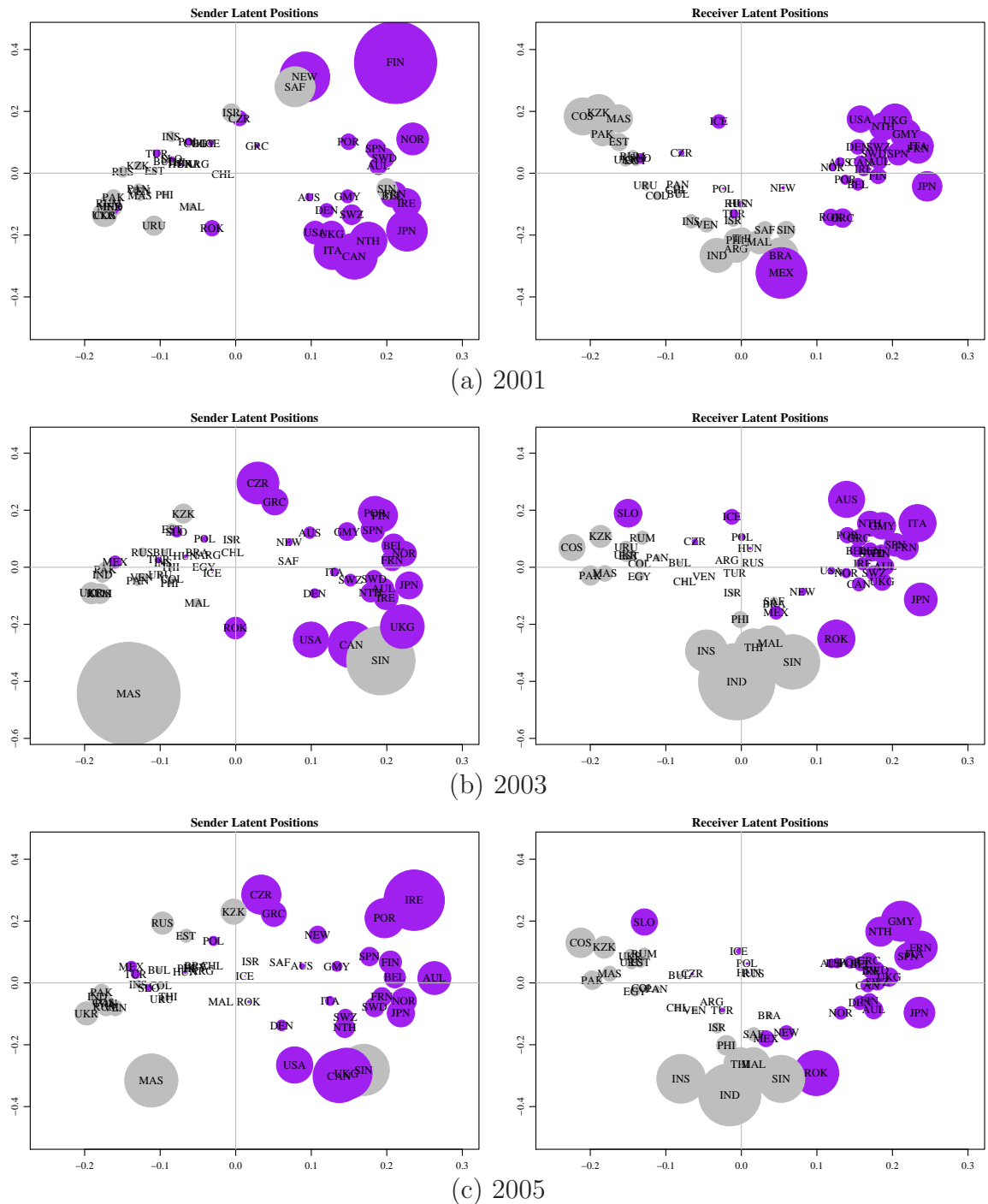
Second, countries' relative positions in latent positions do not change much over the five year period. This can be evidence for the underlying persistent pattern of international portfolio investments: note that the latent positions pick up the unexplained factors after we take into account the dyadic, sender- and receiver- specific covariates, as well as sender and receiver country random effects. In Figure 8 OECD countries are shown in purple with the size of the symbol proportional to the length of the latent vector. Beyond the fact that, in general, the largest receivers and senders are in the OECD, though decreasingly so over time, what is clear is that the OECD countries cluster together fairly tightly, Slovenia being a salient exception. But in general these countries form a visible, but virtual community as well as an institutional one. These patterns revealed here suggest that there are some unobserved factors that consistently affect the transnational flows of investments.

CONCLUSION

Many consider transnational capital to be one of the most important driving forces of the globalization of economic liberalization (Rodrik 1997, Simmons & Elkins 2004); and yet, we know little about what determines cross-border investments, especially portfolio investments. Recent research in economics on transnational portfolio investments reveals a pattern of home bias in portfolio investments, suggesting that information asymmetries between domestic and foreign investors limit overseas investments (Portes & Rey 2005, Aviat & Coeurdacier 2007, Hooper & Kim 2007). One implication is that improving transparency at the national level could reduce information asymmetries and increase the inflows of investments. Our analysis indeed finds empirical support for this as more transparent countries are associated with higher levels of portfolio investment inflows.

The political determinants of portfolio investments are often missing from current research. This research incorporates the political aspect of transnational portfolio investments. We focus on the variables that capture important dimensions of domestic political institutions. Borrowing from the theoretical insights of the democracy-FDI literature, we posit that democracies are better at attracting portfolio investments because they provide more credible protection against predatory banditry (Li & Resnick 2003, Jensen 2006). The same and other unobservable similarity among developed countries could explain the pattern of clustering in the latent space.

FIGURE 8. Sender and receiver latent positions.



underlying domestic conditions — individual voice and rights, constraints on the executive, and rule of law — that make an established democracy also guarantee a credible property rights protection from the government (Olson 1993). Moreover, property rights protection is more credible beyond the short run when democratic institutions and the aforementioned domestic conditions associated with democracies are in place. We have also suggested two

potential causal mechanisms that connect democratic institutions to more inward portfolio investments via better and more credible property rights protection: first, portfolio investors are more likely to invest in countries with better property rights protection and democratic countries often provide better property rights protection; second, under real-world time constraints, investors are likely to use democratic institutions as an information short-cut for credible property rights protection.

Using IMF's Coordinated Portfolio Investment Survey data, we model bilateral portfolio investments using a dynamic latent space model. We found that often, portfolio investments are more likely to flow to democratic countries. Moreover, portfolio investments are found to be driven by market actors' subjective estimates of property rights protection, but not by more complex and objective aggregate index measures from international think tanks. Our tentative interpretation of this finding is that under time constraints, investors do not thoroughly study every country's property rights system (as international think tanks do). They rather rely on their subjective estimates. This does not lend direct support to the democracy as information short-cut causal mechanism. But it suggests the existence of investors' bounded rational behaviors when making transnational portfolio investment decisions. We have also tested whether investors pay attention to the common conditions for democracy and property rights protection. We found that portfolio inflows are responsive to voice and accountability, but not to the level of executive constraints and rule of law.

We believe that this paper contributes to our understanding of transnational capital flows by showing the connection between democratic institutions and inward portfolio investments. However, in order to fully understand the connections between democracies, property rights protection, and transnational portfolio investments, we simply need better data. For instance, surveys on portfolio investors as those applied in early research on domestic economic policies and investment decisions are needed to fully uncover the decision-making processes of investors (Mosley 2000): do investors acquire detailed knowledge on foreign countries' property rights protection systems? Or they (or some of them) simply use democracy as information short-cut for credible property rights protection? Furthermore, more research is needed to understand why investors pay attention to some underlying conditions (voice and accountability) for democracies and credible property rights protection, but not

others (executive constraints and rule of law).³² Finally, we hope this paper can bring both the domestic institution-portfolio investment connection and the network approach to the attention of students of international and domestic politics and encourage more research in this direction.

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APPENDIX A. LIST OF COUNTRIES AND CORRESPONDING ACRONYMS USED IN FIGURES

Albania (ALB), Finland (FIN), Norway (NOR), Antilles (ANT), France (FRN), Netherlands (NTH), Argentina (ARG), Ghana (GHA), Pakistan (PAK), Australia (AUL), Germany (GMY), Panama (PAN), Austria (AUS), Greece (GRC), Peru (PER), Belgium

(BEL), Guatemala (GUA), Philippines (PHI), Bahamas (BHM), Guernsey (GUR), Poland (POL), Belarus (BLR), Hungary (HUN), Portugal (POR), Belize (BLZ), Iceland (ICE), French Polynesia (PYF), Bermuda (BMU), Isle of Man (IMY), Korea (ROK), Bolivia (BOL), India (IND), Romania (RUM), Botswana (BOT), Indonesia (INS), Russian Federation (RUS), Brazil (BRA), Ireland (IRE), South Africa (SAF), Bulgaria (BUL), Israel (ISR), Senegal (SEN), Canada (CAN), Italy (ITA), Serbia & Montenegro (SER), Cameroon (CAO), Jersey (JER), Singapore (SIN), Cayman Islands (CAY), Jordan (JOR), Slovenia (SLV), Cote d'Ivoire (CDI), Japan (JPN), Spain (SPN), Hong Kong (CHK), Kenya (KEN), Sri Lanka (SRI), Chile (CHL), Kazakhstan (KZK), Swaziland (SWA), China (CHN), Liberia (LBR), Sweden (SWD), Colombia (COL), Luxembourg (LUX), Switzerland (SWZ), Costa Rica (COS), Macedonia (MAC), Thailand (THI), Croatia (CRO), Malaysia (MAL), Trinidad & Tobago (TRI), Cyprus (CYP), Mexico (MEX), Turkey (TUR), Czech Rep. (CZR), Marshall Islands (MHL), Taiwan (TWN), Denmark (DEN), Moldova (MLD), United Kingdom (UKG), Dominican Rep. (DOM), Mali (MLI), Ukraine (UKR), Vietnam (DRV), Monaco (MNC), Uruguay (URU), Ecuador (ECU), Morocco (MOR), United States (USA), Egypt (EGY), New Zealand (NEW), Venezuela (VEN), Estonia (EST), Nicaragua (NIC), and Virgin Islands (VIB).