Geopolitical Distance and the Sensitivity of Bilateral Capital Flows to Global Risk

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Abstract: This paper examines whether bilateral geopolitical distance (GPD) modulates portfolio capital flow sensitivity to global risk. Extending Albuquerque (2003), I argue that distant country pairs face tighter participation constraints, attenuating their responsiveness to global volatility. Estimating a gravity model with two-way fixed effects on a 2001–2018 panel of bilateral portfolio flows, using UNGA voting divergence as a GPD proxy, confirms this prediction. Higher GPD significantly reduces flow sensitivity to VIX movements and increases the FDI-to-portfolio ratio. These findings demonstrate that geopolitical alignment shapes both the level and the risk-transmission capacity of cross-border financial linkages.

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1 Introduction

Does the geopolitical distance between two countries reduce the sensitivity of their bilateral capital flows to changes in global risk conditions? This paper argues that it does, and develops both a theoretical mechanism and an empirical test for this hypothesis. Specifically, I test the prediction that country pairs with greater geopolitical distance, measured as divergence in United Nations General Assembly (UNGA) voting ideal points, exhibit a weaker portfolio flow response to increases in the VIX, the primary empirical proxy for global risk aversion.

This question sits at the intersection of three established literatures that have not previously been united. The gravity model of international finance, building on Portes and Rey (2005), treats bilateral frictions such as physical distance and information asymmetries as structural determinants of cross-border capital allocation. The push-pull framework, following Calvo, Leiderman, and Reinhart (1993) and Fratzscher (2012), partitions the drivers of capital flows into global factors and domestic fundamentals. More recently, work by Catalán, Fendoglu, and Tsuruga (2024) and Pradhan et al. (2025) has begun examining how geopolitical fragmentation shapes financial transmission. Yet no existing paper tests whether the structural level of bilateral geopolitical distance functions as a screening mechanism that alters the sensitivity of total portfolio flows to global risk, which is a gap this paper fills.

The question matters for at least two reasons. First, the empirical finding that physical distance attenuates VIX sensitivity of bilateral flows (Mercado, 2023) has been interpreted through an information friction lens, but this channel cannot easily explain why more distant pairs would be *less* responsive to global shocks, as information frictions ought to amplify uncertainty during volatility episodes. A competing mechanism grounded in expropriation risk, adapted from Albuquerque (2003), offers a cleaner theoretical account and generates additional testable predictions about the composition of investment. Adjudicating between these channels has direct implications for how policymakers understand the transmission of financial shocks across geopolitical structures. Second, if geopolitical distance attenuates flow sensitivity, this implies that a country's diplomatic alignment, the set of relationships it maintains or abandons, has consequences for its financial conditions which go beyond the level of foreign investment it attracts, extending to the volatility of that investment in response to global shocks.

My contribution is threefold. First, I extend the Albuquerque (2003) model of cross-border investment under imperfect contract enforcement by introducing an alliance network benefit that makes the cost of default dependent on bilateral geopolitical proximity. This modification generates the prediction that geopolitically distant pairs face tighter participation constraints on alienable portfolio capital, reducing both the level and the VIX sensitivity of their bilateral flows, while simultaneously tilting the composition of bilateral investment toward the less expropriable FDI. Second, I test this prediction empirically using bilateral portfolio flow data from the FINFLOWS database (Pagano et al., 2020) covering an unbalanced panel of country pairs from 2001 to 2018, estimating a gravity specification with source-time and destination-time fixed effects and directional dyad-clustered standard errors, instrumenting geopolitical distance with the minimum democracy score in the dyad following Catalán et al. (2024) and with pre-sample mean GPD as a robustness check. Third, I exploit the conceptual distinction between physical distance and geopolitical distance to test the competing predictions of the Albuquerque (2003) expropriation channel and the

Goldstein and Razin (2006) information friction channel regarding the composition of bilateral investment.

The results support the central hypothesis. The interaction of log VIX with log geopolitical distance is positive and statistically significant across OLS and IV specifications, indicating that higher geopolitical distance attenuates the negative effect of VIX increases on bilateral portfolio flows. The quantitative magnitude is meaningful: evaluated at the OLS estimates, VIX sensitivity at the 25th percentile of the GPD distribution is roughly four times larger than at the 75th percentile. Under the lower democracy score IV, this ratio widens to approximately eight. IV estimates are consistently larger than OLS throughout, a pattern consistent with measurement error in the UNGA-based GPD variable attenuating OLS coefficients toward zero. The composition analysis provides further support for the expropriation-risk mechanism: a one standard deviation increase in geopolitical distance is associated with approximately a 32 percent increase in the ratio of FDI to portfolio investment stock, while a one standard deviation increase in physical distance is associated with approximately a 35 percent decrease in the same ratio. This divergence of geopolitical distance tilting the portfolio toward the less expropriable instrument while physical distance tilts it toward the more liquid one is difficult to reconcile with a single information-friction channel and lends credence to the Albuquerque framework's prediction that expropriation risk, not information asymmetry alone, drives the compositional patterns observed in bilateral investment to developing countries.

The remainder of the paper proceeds as follows: Section 2 reviews the relevant literature. Section 3 develops the theoretical framework. Section 4 describes the data. Section 5 presents the econometric model and identification strategy. Section 6 reports and discusses the results. Section 7 concludes.

2. Literature Review

2.1 Previous Research

The literature on the determinants of international capital flows has historically been organized around two distinct frameworks. The first, the push and pull framework, partitions the drivers of capital flows into two categories: global "push" factors beyond the reach of domestic policymakers, such as global risk aversion and interest rates (Calvo et al., 1993; Fernandez-Arias, 1996), and domestic "pull" factors subject to policy influence, such as institutional quality and macroeconomic fundamentals (Fratzscher, 2012). The second, the gravity model of international finance, is adapted from trade theory. Under this paradigm, bilateral frictions such as physical distance and information asymmetries are treated as the dominant structural determinants of cross-border asset holdings and transactions (Portes & Rey, 2005; Portes, Rey, & Oh, 2001). More recently, a third strand of research has emerged at the intersection of these two traditions, investigating how geopolitical fragmentation shapes financial transmission. This review synthesizes all three areas to motivate the central question of this paper: does geopolitical distance between two countries reduce the sensitivity of their bilateral capital flows to global push factors, and if so, through what mechanism?

2.1.1 Gravity Factors and Information Frictions

Mercado (2023) provides the most direct methodological precedent for this paper. Using bilateral capital flows data from 10 advanced economies covering 186 country pairs between

2000 and 2016, he demonstrates that gravity factors such as physical distance and trade ties are statistically significant determinants of the magnitude of bilateral capital flows, even after controlling for standard push and pull factors. The identification strategy employs sender and destination fixed effects alongside an OLS estimator with dyad-clustered standard errors, an approach this paper adapts directly. Crucially for the present research, Mercado (2023) extends this baseline model by interacting bilateral physical distance with the VIX, finding that an increase in the VIX has a significant negative impact on bilateral capital flows but that said negative impact of a rise in global risk aversion decreases with physical distance. He interprets this as evidence of regional contagion: investors are more exposed to information-rich, nearby markets and retrench from them more sharply during global volatility episodes. This finding establishes the empirical baseline that this paper seeks to test with geopolitical, rather than physical, distance. Anderson and van Wincoop (2003) provide the theoretical foundation for the fixed effects structure utilized here, showing that accurate gravity estimation requires controlling for multilateral resistance terms through source-time and destination-time specific fixed effects.

2.1.2 The Composition of Capital Flows

The theoretical mechanism through which a bilateral friction might alter the sensitivity of capital flows, rather than just their level, depends critically on the composition of those flows between Foreign Direct Investment (FDI) and Foreign Portfolio Investment (FPI). Understanding this mechanism requires engaging with the model of Albuquerque (2003) in some detail, as this paper's theoretical framework is a direct extension of it.

Albuquerque (2003) develops a model of international capital flows under two institutional assumptions that jointly explain why FDI is empirically less volatile than other forms of cross-border investment. The first assumption is that international financial contracts are imperfectly enforced: the host country can at any point choose to expropriate installed capital and revert to autarky, and the investor cannot fully litigate against this. Enforcement is therefore maintained not by courts but by the structure of the contract itself, specifically by ensuring that the host country's expected utility from remaining in the contract always exceeds its autarky value. This is the “participation constraint,” and it is the central friction generating endogenous limits on the volume of capital that can be invested. The second assumption is that FDI and non-FDI capital differ in their expropriability. FDI is bundled with firm-specific knowledge, management, and technology, which are intangible and inalienable assets in the sense that the host country can capture only a fraction of the FDI project's value if it expropriates, because it cannot operate the investment effectively without the investor's continued involvement. Portfolio and other non-FDI flows, by contrast, are fully appropriable. This asymmetry is the key: because FDI is harder to expropriate, it carries a lower default premium and is less constrained by the participation constraint than portfolio capital.

The model's central prediction follows directly from these two features. Because non-FDI capital is fully appropriable, an additional unit of it raises the host country's temptation to default more than an equivalent unit of FDI does. The participation constraint therefore binds more tightly on portfolio flows, implying that non-FDI capital is farther below its unconstrained optimum and responds more sharply to changes in the country's financing environment. This translates into greater volatility of non-FDI flows relative to FDI, a result Albuquerque (2003) confirms both analytically for the case of iid shocks and quantitatively through numerical simulations calibrated to match the differential volatility of FDI documented across crisis episodes and in aggregate data. Importantly, the model also generates the prediction that financially constrained countries, those for which the participation constraint is binding, should receive a higher share of total inflows in the form of FDI, since constrained borrowers must rely disproportionately on the capital type that expropriation makes least attractive. Albuquerque (2003) provides empirical support for this prediction using sovereign credit ratings as a proxy for financing constraints, finding a robust negative association between a country's credit rating and its FDI share of gross private inflows that survives conditioning on GDP per capita, trade openness, financial development, and law and order.

The model is built on the framework of Thomas and Worrall (1994), which characterizes optimal dynamic contracts under the threat of unilateral default, extended to accommodate two heterogeneous capital types and the possibility of exogenous contract termination. The host country's autarky value, the outside option that disciplines the participation constraint, depends on how much of the installed capital stock is usable without the investor, making it an increasing function of both capital types but a more steeply increasing function of portfolio capital. The optimal contract balances the investor's interest in advancing capital against the host country's incentive to default, resulting in an investment cap that limits total capital flows below the unconstrained optimum whenever the participation constraint is binding.

This paper's theoretical contribution is to extend the Albuquerque framework by making the cost of default dependent on the bilateral geopolitical relationship between the two countries. In the original model, the host country's autarky value is determined solely by the physical capital stock and aggregate productivity, with no role for the political or diplomatic consequences of expropriation. The framework developed in Section 3 augments this by introducing an alliance network benefit that represents the political and strategic value of the relationship the host country would destroy by defaulting on a foreign investor, a benefit that is increasing in bilateral geopolitical alignment and therefore decreasing in geopolitical distance.

This single modification lowers the effective autarky value for close allies and raises it for geopolitically distant pairs, tightening the investment cap for high-GPD dyads without altering the first-order conditions or propositions of the original model. All else equal, this generates the prediction that high-GPD pairs are more likely to be in the participation-constrained regime, and therefore less responsive to changes in global investment conditions that shift the unconstrained optimum.

The empirical record on investment composition introduces an important complication for interpreting the channel through which bilateral frictions operate. Goldstein and Razin (2006) develop a model in which FDI investors acquire superior "hands-on" information about a firm at the cost of lower resale liquidity, since outside buyers lack the insider investor's knowledge. This classic lemons problem makes FDI unattractive to high-liquidity-preference investors who instead opt for FPI, leaving the FDI pool composed of low-liquidity-preference investors. The key implication is that if bilateral frictions raise information barriers, the informational premium on direct investment rises, tilting the composition of flows toward the stickier, less volatile FDI. Under this view, both physical distance and geopolitical distance should increase the FDI share, operating through the same information asymmetry channel.

However, Daude and Fratzscher (2008) document a "pecking order" of cross-border investment using bilateral capital stocks for 77 countries, finding that physical distance reduces FDI stocks substantially more than it reduces portfolio equity or debt securities. This directly contradicts the Goldstein-Razin prediction and implies that information barriers drive away deep, committed capital first. The Albuquerque (2003) framework offers the competing explanation via the expropriation risk channel: FDI's inalienability makes it the less constrained form of capital in high-risk environments, not the more constrained. The tension between these predictions is an empirical question that geopolitical distance is particularly well suited to adjudicate. Because geopolitical distance proxies for both information frictions and expropriation risk, as physically close adversaries may still face high contracting risk, divergence between how physical distance and geopolitical distance affect the FDI-to-portfolio ratio would lend credence to the Albuquerque expropriation mechanism over the Goldstein-Razin information channel as the operative driver of investment composition in high-barrier dyads. This distinction is examined directly in the composition analysis in Section 6.

2.1.3 Geopolitics and Financial Fragmentation

The application of gravity frameworks to geopolitical distance is relatively recent. Catalán et al. (2024) examine the cross-border portfolio allocation of investment funds using a gravity model with bilateral geopolitical distance (GPD) measured by dissimilarity in UN General Assembly voting ideal points, as estimated by Bailey et al. (2017). They find that funds significantly reduce their equity and bond portfolio shares allocated to geopolitically distant recipient countries, with the effect mitigated in countries with stronger institutional quality. Catalán et al.'s findings that GPD reduces bilateral portfolio allocation potentially support the prediction that high-GPD relationships are characterized by a smaller FPI share, though this is obviously dependent on the extent to which GPD reduces FDI allocation as well.

Research on the sensitivity of flows to shocks in high-geopolitical-risk environments points in a different direction, and the contrast is instructive. Pradhan et al. (2025) find that spikes in geopolitical tension amplify the transmission of monetary policy shocks to cross-border bank lending, making flows more reactive to global conditions during episodes of acute tension. This result is not in conflict with the hypothesis advanced here, but it addresses a different phenomenon: the effect of a temporary shock to geopolitical risk rather than the structural effect of the chronic, bilateral level of GPD. The distinction matters because a sudden deterioration in relations triggers a risk-aversion response and hot-money flight, while a persistently high level of GPD may have already screened out sensitive portfolio investors, leaving a residual stock of capital that is less prone to flight.

2.2 Contribution

This paper occupies a specific gap at the intersection of the three literatures reviewed above. Mercado (2023) establishes that distance dampens the sensitivity of bilateral capital flows to the VIX, but uses physical distance and does not examine whether this effect operates through a shift in flow composition. Catalán et al. (2024) show that GPD reduces bilateral portfolio allocations, but do not examine total flows, the FDI-FPI compositional split, or the interaction of GPD with global risk shocks. Pradhan et al. (2025) find that acute geopolitical tensions amplify monetary policy transmission in bank lending, but study the short-run effect of shocks rather than the structural effect of bilateral GPD levels. No existing paper tests whether the chronic level of bilateral geopolitical distance functions as a screening mechanism that alters the sensitivity of total capital flows to global risk conditions, which is the central question of this paper.

The paper's theoretical contribution is to extend the Albuquerque (2003) model of imperfect contract enforcement to the geopolitical domain. Low structural GPD in a dyad is hypothesized to function as a benefit to the recipient country for remaining within the contract, increasing the amount of capital that sender country investors can send it without pushing the utility of breaking the contract above the benefit of remaining within it, leaving higher GPD dyads with capital allocations lower than the optimal level, thereby reducing the flows triggered by changes in that optimal level. The empirical strategy tests this mechanism directly by interacting GPD with the VIX in a panel gravity framework.

The paper differentiates itself from prior work in two respects. First, whereas Mercado (2023) uses physical distance as a friction proxy, this paper isolates political alignment as a distinct and theoretically motivated dimension of bilateral friction. It is an open empirical question whether political distance generates the same dampening of flow sensitivity that geographic distance does, or whether its different informational and institutional channels produce distinct effect patterns. Second, because this paper uses a measure of friction, geopolitical distance, conceptually distinct from the physical distance used by Daude and Fratzscher (2008), it tests the conflict between the predictions of Goldstein and Razin (2006) and Albuquerque (2003) about what drives the larger ratio of FDI to FPI inflows in capital flows to developing countries. Divergence between Daude and Fratzscher (2008)'s finding that physical distance decreases FDI more than FPI and this paper's findings about the effect of geopolitical distance on the FDI share would lend credence to Albuquerque (2003)'s prediction about the expropriation risk channel being the main reason for developing countries receiving a higher FDI share, contrary to Goldstein and Razin (2006)'s prediction that it is information asymmetries, as geopolitical distance is a source of both information frictions and expropriation risk.

3. Theory

3.1 Theoretical Framework

To motivate the empirical strategy, I adapt the international capital flows model of Albuquerque (2003), which was developed specifically to explain why some forms of cross-border investment are structurally less volatile than others. The core logic of that model rests on two institutional features of international contracting: financial contracts between foreign investors and host countries are imperfectly enforced, and not all capital is equally easy to expropriate. I extend this framework by introducing bilateral geopolitical distance as a determinant of default costs, which generates testable predictions about how sensitivity to global risk conditions varies across country pairs.

3.1.1 Behavioral and Institutional Assumptions

The model considers a foreign investor from country i who deploys capital in country j under a long-term financial contract. The host country (country j) is assumed to be rational and self-interested: at any point, it weighs the value of honoring the contract against the value of defaulting; that is, expropriating the installed capital and reverting to autarky. The investor, anticipating this incentive, designs the contract so that country j always prefers to stay in. This is the "participation constraint," and it is the central friction in the model: it limits how much capital can be invested, because more capital means more temptation to expropriate.

The key informational assumption is that the investor cannot perfectly monitor or litigate against expropriation, as enforcement is costly and incomplete. This is standard in the sovereign risk literature and is well-suited to the cross-border setting, where legal recourse across jurisdictions is limited. The host country's decision to default is therefore disciplined not by courts but by reputational and relational costs.

3.1.2 Two Types of Capital

The model distinguishes between two types of investment. The first, representing FDI, is inalienable: it is bundled with firm-specific knowledge, management, and technology that the host country cannot effectively use without the investor's continued involvement. If the host country expropriates, it captures only a fraction $u \in (0,1)$ of the FDI project's value. The second type, representing portfolio or non-FDI investment, is fully appropriable: the host country can seize and exploit it entirely. This asymmetry in expropriability drives Albuquerque's core result that FDI is less constrained by the participation constraint and therefore less volatile, and it plays a secondary role in the present extension.

3.2 The Modification: Geopolitical Distance and Default Costs

The paper's contribution is to introduce bilateral geopolitical distance as a determinant of the cost of default. In the baseline model, the participation constraint requires that the value of honoring the contract exceeds the autarky value, which is what the host country can achieve by expropriating. I augment this by recognizing that defaulting on a foreign investor carries not only financial consequences but also political ones: it damages the bilateral relationship between the two countries.

Formally, I define an *alliance network benefit* $\gamma_{ij} \geq 0$ which represents the political and strategic value of the bilateral relationship to country j. This encompasses trade relationships, diplomatic goodwill, and security cooperation—the broader set of benefits that flow from maintaining a cooperative stance toward country i's investors. Defaulting on those investors destroys γ_{ij}. The participation constraint is therefore modified to require that the contract beats autarky net of this loss: $\ln(c) + \frac{1}{1+r} V(s') \geq U(k_f, k_o, s') - \gamma_{ij}$.

The right-hand side, the effective value of autarky, is decreasing in γ_{ij}. A close ally (low geopolitical distance, high γ_{ij}) faces a severe political penalty for defaulting; a geopolitically distant or adversarial pair (high geopolitical distance, low γ_{ij}) faces little penalty. This single modification is the only change to the Albuquerque framework, while all first-order conditions, propositions, and proofs carry through unchanged. The entire effect of geopolitical distance operates through this one channel.

The mechanism relies on γ_{ij} being a relatively stable, structural characteristic of the bilateral relationship rather than a variable that fluctuates with financial conditions. This is consistent with how geopolitical alignment evolves: UNGA voting patterns and alliance configurations change slowly, driven by long-run foreign policy considerations rather than short-run capital market dynamics. The empirical identification strategy exploits this directly by instrumenting current GPD with its pre-sample mean as a robustness check (see Section 5).

3.3 The Investment Cap and the Two Regimes

The participation constraint imposes a ceiling on the total amount of investment a bilateral pair can sustain. Because autarky value is increasing in the capital installed, as more capital makes expropriation more tempting, there is a maximum level of investment beyond which the host country would prefer to default. I call this the *investment cap*, $Z_{max}(\gamma_{ij})$.

The key result follows directly: the investment cap is increasing in γ_{ij} and therefore decreasing in geopolitical distance. Pairs with a close political relationship can sustain more investment because the political cost of default is high, making it credible for country j to commit to honoring the contract even when capital stocks are large. Pairs with high geopolitical distance can sustain very little investment before the participation constraint binds, because there is little political relationship to destroy by defaulting.

Separately, there is an *unconstrained optimum* Z*, the level of investment that would prevail in the absence of any enforcement frictions, determined solely by expected returns relative to the world interest rate. Changes in global risk conditions, such as a spike in the VIX, compress expected returns and reduce Z*. Actual investment is the minimum of Z* and $Z_{max}(\gamma_{ij})$:

$$Z_{actual} = \min\left(Z^{*}, Z_{max}(\gamma_{ij})\right)$$

This creates two distinct regimes. For pairs with strong political ties (low GPD, high Z_{max}, the unconstrained optimum typically falls below the cap: actual investment equals Z*, and it responds normally to changes in investment conditions. A VIX spike lowers Z* and actual investment falls correspondingly. For pairs with weak political ties (high GPD, low Z_{max}), the cap is the binding constraint: actual investment equals Z_{max}, which is independent of VIX or expected returns. A VIX spike lowers Z* but does not change actual investment, so long as Z* remains above the cap.

The model therefore predicts that high-GPD pairs display attenuated sensitivity to global risk conditions. This is not because they are insulated from shocks, but because they are already constrained below the level that conditions would call for, and shocks move the unconstrained optimum without reaching the binding ceiling.

3.4 Sensitivity to Model Assumptions

Several assumptions merit discussion. First, the result depends on γ_{ij} being non-trivially large for close allies. If all pairs had negligible alliance benefits, all would be constrained and the cross-sectional variation in VIX sensitivity would disappear. The empirical relevance of the mechanism thus requires meaningful dispersion in γ_{ij}, which the UNGA voting-based measure of geopolitical distance is intended to capture.

Second, the prediction that constrained pairs are fully unresponsive to VIX holds only for moderate shocks. If a VIX spike is sufficiently large, it could push Z* below the cap even for high-GPD pairs, generating a nonlinear response at extreme values. The empirical specification implicitly assumes that the shocks observed in the sample are moderate enough that high-GPD pairs remain in the constrained regime throughout, which is an assumption that warrants checking at the tails of the VIX distribution.

Third, the asymmetry between FDI and portfolio flows, predicted to be stronger for portfolio flows because the cap bites appropriable capital first, depends on the inalienability parameter u being meaningfully below one. The FDI versus portfolio decomposition in the robustness checks provides an indirect test of this notion.

4. Data

The primary dependent variable in this study is the bilateral portfolio capital flow from country i to country j in year t, expressed as a share of the source country's GDP in year t. Flow data are drawn from the FINFLOWS database (Pagano et al., 2020), a European Commission Joint Research Centre dataset providing yearly bilateral financial investment stocks and flows between OECD, EU, and offshore countries from 2000 onward, covering more than 80 countries. Flows are imputed by taking the change in reported bilateral portfolio investment stocks from year t to year t+1, with an adjustment for valuation effects. GDP data used to normalize these flows are obtained from the World Bank Development Indicators (World Bank, 2026). Because raw portfolio capital flows are highly skewed, given that the maximum observation is approximately 98,000 percent larger than the mean, and because flows can be negative, a simple logarithmic transformation is not applicable. Instead, all flow values are transformed using the inverse hyperbolic sine (IHS), which accommodates negative values and compresses extreme outliers. After transformation, the maximum value is approximately 20,300 percent above the mean, a substantial but considerably improved range.

The primary explanatory variable is geopolitical distance (GPD), measured as the natural logarithm of the absolute difference between country i and country j's ideal points on the broad "Western/US alignment" axis derived from United Nations General Assembly (UNGA) voting patterns in year t. These ideal points are estimated using a dynamic ordinal spatial model applied to UNGA roll-call votes from 1946 onward (Bailey et al., 2017), and the dataset has been extended by Voeten through the full sample period (Voeten, 2009). A secondary key variable is the annual average of the CBOE Volatility Index (VIX), drawn from the Federal Reserve Bank of St. Louis FRED database (Chicago Board Options Exchange, n.d.). The VIX represents the expected annualized standard deviation of S&P 500 returns over the next 30 days, implied from SPX option prices. Because observations in this series are daily while flows are annual, the annual average of daily VIX values is used for each year; this variable is also entered in natural log form. The interaction between log GPD and log VIX is the central quantity of interest in the empirical specification. Control variables follow the standard gravity model approach and include the natural log of physical distance, time zone difference, an indicator for common colonial origin, and an indicator for a common official language; all controls are sourced from the CEPII Gravity Database (Conte et al., 2022). An additional variable, the lower of the two countries' liberal democracy index scores within a dyad, drawn from the Varieties of Democracy (V-Dem) dataset (Coppedge et al., 2026), is included to serve as an instrumental variable for geopolitical distance in the robustness checks described in Section 5. The full dataset was merged into year-sender-receiver rows before analysis.

The panel spans from 2001 to 2018, with 2008 and 2009 omitted due to the atypical financial flows that accompanied the Global Financial Crisis. Milesi-Ferretti and Tille (2011) document the extreme global financial retrenchment and liquidity panic of this period, which would introduce a structural break into the sample that is not representative of the long-run relationship between geopolitical distance and capital flows. Additionally, observations involving established offshore financial passthrough hubs are excluded from the sample. Rather than applying a fixed list of jurisdictions, this study employs a mechanical screening rule: any country for which more than five percent of its sender-role observations record a portfolio flow share exceeding one, meaning that country is observed sending more than its entire annual GDP to a single destination in a single year, is classified as a financial conduit and dropped. A portfolio outflow of this magnitude from a single source country to a single destination with such frequency almost certainly reflects third-country capital being routed through the sender rather than genuine domestic investment, which would distort the relationship of interest since the relevant geopolitical distance is that between the destination and the true origin of funds, not the conduit. The countries identified by this filter are Bahrain, the Bahamas, Bermuda, Barbados, the Cayman Islands, Cyprus, Hong Kong, the Isle of Man, Ireland, Luxembourg, Malta, Mauritius, and Singapore, all of which are small, predominantly island jurisdictions well-recognized in the financial geography literature as conduit or sink nodes in the global corporate ownership network (Garcia-Bernardo et al., 2017). The final dataset is an unbalanced panel of sender-receiver-year observations with 41,984 total observations used in the baseline analysis.

The dataset has several notable limitations. Only 55.3 percent of all possible sender-receiver-year rows contain data for every variable included in the model, with missingness driven primarily by non-overlapping coverage in the GPD and portfolio flow series. In the raw, unfiltered sample, this non-overlap creates a meaningful selection problem: observations missing GPD data have a mean IHS-transformed flow of 0.118 and a standard deviation of 1.34, whereas observations with GPD data have a mean of 0.037 and a standard deviation of 0.491, suggesting that portfolio flows were considerably larger and more variable for country-pairs lacking geopolitical distance information. However, this discrepancy largely disappears once financial hubs are removed from the sample; in the hub-excluded dataset the means (0.018 with GPD vs. 0.022 without GPD) and standard deviations (0.300 vs. 0.282) are effectively comparable, indicating that the raw selection problem was driven primarily by hub countries, particularly the Cayman Islands and Bermuda, which carry high and volatile flows but lack UNGA voting records. A residual concern is that observations missing portfolio flow data tend to come from country-pairs with a log GPD approximately 0.5 lower than pairs with flow data in both specifications, which could modestly bias the estimated effect of GPD toward zero if lower-distance pairs are systematically underrepresented. The ideal dataset would include direct observations, rather than stock-change imputation, of bilateral portfolio flows for every country-pair-year combination, alongside complete UNGA voting records. The use of imputed flows from stock changes introduces measurement error, particularly in years with large valuation shifts, and this limitation should be kept in mind when interpreting the results.

Table F presents the summary statistics for the 41,984 observations used in the baseline analysis. The raw portfolio capital flow share as a percent of GDP exhibits considerable volatility, ranging from −29.654 to 19.644, with a mean of just 0.020 relative to its standard deviation of 0.422. This dispersion illustrates why direct regression on the raw flow variable would be sensitive to extreme observations. Applying the IHS transformation successfully compresses this variance: the transformed dependent variable has a mean of 0.018 and a standard deviation of 0.223, with its range reduced to values far more tractable for linear regression. The primary explanatory variable of geopolitical distance, prior to the log transformation, has a mean of 0.965, a standard deviation of 0.825, a minimum near zero, and a maximum of 4.291, indicating that there is a cluster of country pairs relatively close to one another geopolitically, with a long right tail. The logged VIX has a mean of 2.851 across sample years, corresponding to an average annual VIX level of approximately 17.3 percentage points. Gravity controls are roughly in line with the broader bilateral literature: physical distance averages approximately 8,700 kilometers in the sample, common official language pairs comprise a minority of dyads, and colonial ties are relatively rare. The lower liberal democracy index score within a dyad has a mean of 0.493 and a standard deviation of 0.270, indicating meaningful variation across dyads in the degree of democratic governance of the less democratic partner.

The five dyads with the highest mean IHS-transformed portfolio flows are Norway–United States, Canada–United States, Denmark–United States, Iceland–United States, and Sweden–United States, while the five lowest are Turkey–Thailand, Iceland–Panama, Chile–Bulgaria, Colombia–Turkey, and Thailand–Argentina. This is consistent with expectations: Norway, Canada, Denmark, Iceland, and Sweden all have relatively deep pools of investable assets relative to GDP, maintain close political alignment with the United States, and direct substantial savings toward the world's largest and most liquid capital market. The bottom five dyads, by contrast, share no significant political or economic relationship with one another.

Figure 1 provides a preliminary visual characterization of the bivariate relationship between global risk sentiment and bilateral portfolio flows. The binscatter plot, with bins representing the mean portfolio flow value for each year-level VIX value, shows IHS-transformed portfolio flow share on the vertical axis and log VIX on the horizontal axis. A clear negative relationship emerges: higher expected volatility is associated with meaningfully lower bilateral portfolio flows, confirming that the VIX functions as the kind of global push factor that motivates its inclusion as the primary moderating variable in this study.

Figure 2 turns to the paper's central hypothesis by examining whether this sensitivity varies systematically with the level of geopolitical distance between partners. The same binscatter is presented separately for country-pairs in the top and bottom five percent of the GPD distribution. At first glance, the result appears to undercut the paper's argument: the two slopes are nearly identical, suggesting that high-GPD pairs pull back their portfolio flows no less sharply than low-GPD pairs when volatility rises. This, however, turns out to be an artifact of a single structural outlier in the data rather than genuine evidence against the hypothesis.

Figure 3 makes this clear. Replicating Figure 2 after dropping the United States as a receiver country produces a strikingly different picture: the slope for the top five percent GPD group collapses entirely to flat, while the slope for the bottom five percent group remains steep. The pattern is about as clean a visual confirmation of the reduced-sensitivity hypothesis as the data could offer. The sensitivity to United States inclusion is not incidental. The United States accounts for 32.3 percent of observations above the 95th percentile of GPD while comprising only 4.28 percent of all observations and zero percent of the bottom five percent, a dramatic overrepresentation driven by the mechanics of the Bailey-Voeten ideal point estimates, which roughly situate countries along an axis of alignment with the US-led liberal order and therefore mechanically place the United States at one extreme of the GPD distribution for nearly every partner. Compounding this, the VIX is itself a product of US financial market conditions, and the United States is a well-documented driver of the global financial cycle (Miranda-Agrippino and Rey, 2020). Its simultaneous structural relationship to both GPD and the VIX makes it an outlier in a way that cannot be addressed by fixed effects alone.

Figure 4 presents the time-series of the annual average VIX over the sample period. The series exhibits substantial variation across years, including pronounced spikes around the early-2000s recession, the run-up to the Global Financial Crisis in 2007, and the European sovereign debt crisis in 2011–2012. It is this variation, sharp, plausibly exogenous shifts in global risk sentiment, that provides the identifying variation for the VIX coefficient and its interaction with GPD in the baseline specification.

5. Econometric Model

5.1 Model Specification

My primary estimating equation is specified as follows:

$$(1)\ IHS\left(\frac{Flow_{ijt}}{GDP_{it}}\right) = \alpha + \beta_1 \log(VIX_t) + \beta_2 \log\left(GPD_{ijt}\right) + \beta_3\left[\log(VIX_t) \times \log\left(GPD_{ijt}\right)\right] + \mathbf{\Gamma}\boldsymbol{X_{ijt}} + \theta_{it} + \theta_{jt} + \epsilon_{ijt}$$

Where i indexes the source country, j indexes the destination country, and t indexes the year. The empirical analysis is built around a gravity-equation framework, following the foundational work of Portes and Rey (2005) in applying gravity models to cross-border capital flows, and drawing on Catalán, Fendoglu, and Tsuruga (2024) and Mercado (2023) for more recent specifications that incorporate geopolitical distance and interaction terms with push factors.

- Dependent Variable: $Flow_{ijt}$ represents gross capital flows from country i to country j from period t-1 to period t, normalized by source country GDP in year t. Normalizing by source-country GDP ensures that the outflows of large economies do not exert disproportionate influence on the estimates. The resulting flow share is then transformed by the Inverse Hyperbolic Sine (IHS) function, following Mercado (2023), to compress the influence of the extreme outliers present in the flow data. For observations concentrated near zero, which describes the majority of country pairs, the IHS transformation approximates a level; for large observations it approximates a logarithm. As shown by Bellemare and Wichman (2020), interpretation of regression coefficients under the IHS transformation with logged regressors accordingly shifts between a semi-elasticity (linear-log) and a standard log-log elasticity depending on the magnitude of the underlying flow share.
- Global volatility: $log(VIX_t)$ is the natural log of the annual mean of the CBOE Volatility Index in year t, following Mercado (2023) as an established push-side driver of bilateral capital flows. Because the VIX varies only by year and not across country pairs, it will in practice be absorbed by the time component of the fixed effects described below, and β_1 will not be separately identified. It is nonetheless included to illustrate that the marginal effects of the interaction term is well-identified.
- Geopolitical distance: $log\left(GPD_{ijt}\right)$ is the natural log of the geopolitical distance between countries I and j in year t, measured as the absolute difference in ideal points estimated

from UN General Assembly voting patterns following Catalán et al. (2024). Greater values indicate greater political distance between the pair.

- Interaction term: The term $log(VIX_t) \times log\left(GPD_{ijt}\right)$ interacts global volatility with bilateral geopolitical distance. This is the central variable of interest for testing the hypothesis.
- Control variables: $\mathbf{X}_{ijt}$ is a vector of time-invariant bilateral controls capturing the degree of access to a recipient country's local information, again following Catalán et al. (2024). These include: the log of physical distance between countries (logdist), an indicator for a common official language (comlang_off), and an indicator for a shared colonial history (comcol). These controls are essential because the same dyadic characteristics that generate information frictions, thus inhibiting capital flows, also shape geopolitical alignment. Physical distance increases information costs for cross-border investment while simultaneously reducing the probability that two countries share regional interests, affecting both their bilateral flows and their geopolitical distance measure. A common language reduces those information frictions and proxies for shared cultural ties relevant to both channels. Shared colonial history implies pre-existing institutional and financial linkages as well as some convergence of political culture, which likely affects both the magnitude of bilateral flows and the degree of geopolitical alignment. Omitting these controls would risk attributing to geopolitical distance what is in fact driven by correlated geographic or cultural factors.
- Fixed Effects: θ_{it} and θ_{jt} are source-country-time and destination-country-time fixed effects, respectively. Their inclusion follows Anderson and van Wincoop (2003) and addresses the problem of multilateral resistance in gravity models: how much country I

invests in country j in year t depends not only on the bilateral cost of that investment but also on the relative attractiveness of all other possible destinations in that year. Source-time fixed effects absorb all time-varying characteristics of the source country, including its total savings, its risk appetite, and its overall propensity to invest abroad. Destination-time fixed effects absorb all time-varying characteristics of the destination country, including its macroeconomic conditions, institutional quality, and general attractiveness to foreign investors in each year. Importantly, it also accounts for the *relative* value of source and destination countries compared to other possible sources and destinations across all of these factors in any given year. Failing to account for this multilateral resistance could severely bias the coefficient estimates, given that these factors determine a substantial amount of bilateral capital flows.

- Error term: ϵ_{ijt} is the error term. Standard errors will be clustered at the dyad level, following Mercado (2023), because unobservable bilateral factors that affect capital flows between a given pair of countries are likely to be correlated across time.

5.2 Identification and Coefficient Interpretation

The primary coefficient of interest is β_3. A statistically significant positive estimate for β_3 would indicate that capital flows between geopolitically distant dyads are *less* responsive to global volatility shocks, consistent with the hypothesis. Specifically, β_3 captures how the marginal sensitivity of bilateral capital flows to a one-percent change in the VIX changes in response to a one-percent increase in geopolitical distance. For the majority of observations, those where the flow share is close to zero, this can be interpreted as a change in the semi-elasticity of capital flows with respect to global volatility. For observations in the tails of the distribution, the interpretation converges toward a standard elasticity. In all cases, the complete marginal effect of geopolitical distance in a given year must be evaluated as $\beta_2 + \beta_3 \log(\mathrm{VIX}_t)$, scaled by the exact derivative of the IHS function at the observation of interest, following Bellemare and Wichman (2020).

The coefficient β_2 captures the baseline effect of geopolitical distance on capital flows evaluated at the theoretical lower bound where $\log(\mathrm{VIX}_t) = 0$ (i.e., VIX $= 1$), and is interpreted analogously as a semi-elasticity for median observations.

5.3 Endogeneity and Instrumental Variables

A potential threat to identification is reverse causality between bilateral capital flows and geopolitical distance. Countries with larger bilateral financial linkages may develop more shared financial interests, inducing them to vote more similarly at the UN, and thus mechanically reducing their measured geopolitical distance. This would bias OLS estimates of the coefficients on GPD terms, affecting the estimated effects of geopolitical distance on both the level and the VIX-sensitivity of flows. An additional concern is classical measurement error: the annual UNGA voting measure is a noisy proxy for the underlying structural alignment of bilateral relationships, which would similarly attenuate OLS estimates.

To address both concerns, all specifications involving $\log(\mathrm{GPD})$ as a regressor are estimated alongside IV columns in which $\log(\mathrm{GPD}_{\mathrm{ijt}})$ and all corresponding interaction terms is instrumented by the minimum democracy score in the dyad (lower_dem), following Catalán et al. (2024), who draw the instrument from the conflict literature (Oneal, Russett, and Berbaum, 2003). The relevance of the instrument rests on the finding that the bilateral risk of diplomatic dispute depends primarily on the degree of political freedom in the less democratic state of the pair, since disputes can be initiated unilaterally. More democratic dyads tend to exhibit closer geopolitical alignment, giving the minimum democracy score predictive power over GPD in the first stage.

The exclusion restriction requires that the minimum democracy score in a dyad affects bilateral capital flows only through its effect on geopolitical alignment, and not through independent channels. This is supported by the fixed effects structure: source- and destination-time fixed effects absorb any relationship between a country's democratic institutions and its overall investment attractiveness or outward investment propensity in each year, leaving only the dyad-specific variation in the minimum score to be explained. As an informal test of the restriction, the main full-model specification is re-estimated with lower_dem included directly as an additional regressor, along with interactions with all terms with which log GPD is interacted. In this specification, neither lower_dem nor any of its interaction terms are statistically significant, indicating that the instrument's relationship with flows operates through the geopolitical distance channel rather than independently.

As an alternative instrument, and to further assess robustness, I also instrument $\log(\mathrm{GPD}_{ijt})$ with the bilateral pair's mean geopolitical distance over the pre-sample period 1990–2000. This instrument exploits the slow-moving, structural nature of bilateral geopolitical alignment: the historical baseline of the relationship is plausibly predetermined relative to capital flows observed in the 2001–2018 panel, while remaining a strong predictor of GPD during the sample period. Consistency of results across both instruments provides reassurance that the findings are not sensitive to any particular instrumentation strategy.

6. Results

6.1 Baseline Relationship: Portfolio Flows and Global Risk

The dependent variable throughout is the inverse hyperbolic sine (IHS)-transformed portfolio flow from country i to country j in year t, scaled by origin country GDP, estimated via OLS with origin- and destination-country, or origin- and destination-time, fixed effects and standard errors clustered by directional country pair. Columns 1 and 2 of Table A present two stripped-down specifications isolating the relationship between global risk conditions and bilateral portfolio flows. Column 1 regresses IHS portfolio flows on log VIX alone; Column 2 adds the full set of gravity controls. In both, the coefficient on log VIX is −0.028 and significant at the 1% level.

The stability of the coefficient across columns is notable: the introduction of gravity controls leaves the point estimate and significance entirely unchanged, suggesting that the negative VIX-flow relationship is unrelated to the bilateral structural factors captured by physical distance, time zone differences, colonial ties, and common language. This baseline negative relationship will remain negative and statistically significant across all subsequent specifications.

This finding connects to a well-established strand of the international capital flows literature. Rey (2013) documents a global financial cycle in which gross capital flows are highly pro-cyclical and strongly negatively correlated with the VIX, driven by the transmission of US monetary conditions through the leverage constraints of global financial intermediaries. Forbes and Warnock (2012) complement this aggregate picture at the episode level, showing that global risk is the single most consistent predictor of extreme capital flow movements, with VIX increases significantly raising the probability of sudden stops in foreign investment and domestic retrenchment from abroad. Because the observations here are directional, both the stop and retrenchment mechanisms operate to push the dependent variable downward when the VIX rises:

investors in country i reduce new portfolio purchases in country j and liquidate existing positions there, both of which reduce flows from i to j. Mercado (2023) confirms this relationship specifically at the bilateral level, finding that VIX increases reduce directional capital flows across advanced economy pairs, which is the most direct analogue to the specification used here.

6.2 GPD as a Structural Friction

Columns 3 and 4 of Table A present the baseline relationship between geopolitical distance and bilateral portfolio flows, without and with gravity controls respectively. The coefficient on log GPD is negative and significant at the 1% level in both: −0.008 in Column 3 and −0.005 in Column 4. The modest attenuation upon adding controls is expected, as physical distance and geopolitical distance are correlated, and physical distance absorbs some of the bilateral variation. This negative relationship is robust across subsequent specifications, with the exception of the full interaction model in Column 5, which omits both the US receiver dummy and time-varying fixed effects issues addressed in the following two sections.

The finding is consistent with treating geopolitical distance as a structural friction on cross-border investment, analogous to but conceptually distinct from physical distance. The gravity literature, following Portes and Rey (2005), interprets physical distance as a proxy for information costs that impede bilateral capital allocation. The proposed channels of denser business networks, more frequent cross-border travel, greater mutual media coverage, and greater language familiarity, all plausibly operate through geopolitical proximity as well. Countries that are geopolitically aligned share institutional frameworks and diplomatic ties that generate precisely these informational spillovers, while geopolitically distant pairs face heightened uncertainty about one another's policy environments, legal systems, and counterparty reliability. Under this reading, the coefficient on log GPD captures a persistent, structural barrier to investment operating through the same information asymmetry mechanisms attributed to physical distance, rather than through any time-varying geopolitical shock.

This interpretation is directly supported by Catalán, Fendoglu, and Tsuruga (2024), who apply a gravity framework to cross-border investment fund allocations and find that funds systematically underweight recipient countries that are geopolitically distant from the fund's origin, across both equity and bond portfolios. Their result in combination with these findings establishes that the negative relationship between geopolitical distance and portfolio investment is not idiosyncratic to any particular sample or flow measure, but reflects a general feature of how geopolitical alignment shapes the geography of cross-border capital.

6.3 The Interaction: Does Geopolitical Distance Attenuate VIX Sensitivity?

Column 5 of Table A presents the full model specification, regressing IHS portfolio flows on log VIX, log GPD, their interaction, and the complete set of gravity controls, under the baseline origin- and destination-country fixed effects. The coefficient on log VIX remains negative, of similar magnitude to the baseline, and highly significant. However, the coefficients on log GPD and the log VIX × log GPD interaction term are not significant at conventional levels. Taken in isolation, this would appear to undercut the central hypothesis. The subsequent specifications reveal that this is an artifact of a structural confounding introduced by the United States' unique position in the global financial architecture rather than a genuine null result.

6.4 The US Receiver Dummy: Isolating a Structural Anomaly

Table B augments the Table A specifications with interactions between a US-receiver dummy and the key regressors of log VIX, log GPD, and their product across all eight columns.

This section motivates that inclusion, connects it to the failure of Column 5 in Table A, and discusses the resulting estimates.

The baseline model treats the VIX as an exogenous global risk shock that uniformly perturbs the bilateral investment environment. This is a reasonable approximation for most country pairs, but it breaks down when the destination country is the United States. Rey (2013) and Miranda-Agrippino and Rey (2020) establish that the VIX is not truly exogenous to US conditions: the global financial cycle, of which the VIX is the primary empirical proxy, is itself driven by US monetary policy. Miranda-Agrippino and Rey (2020) show using high-frequency identified VAR methods that contractionary Federal Reserve shocks directly cause sharp increases in aggregate global risk aversion, deleveraging of global financial intermediaries, and retrenchment of cross-border capital flows. The VIX is therefore deeply endogenous to US domestic financial conditions. For flows directed toward all other destinations, the VIX plausibly operates as an exogenous push factor; for flows directed toward the United States, it is simultaneously a determinant and a reflection of destination-country conditions. Failing to account for this conflates the mechanical US domestic policy cycle and year-specific US financial conditions with the true exogenous risk sensitivity of the rest of the world.

A further complication arises from the interaction between the US's structural position and the GPD measure specifically. The central hypothesis predicts that geopolitical distance attenuates VIX sensitivity: high-GPD pairs should exhibit less responsiveness to global risk conditions because geopolitical distance reduces the volume of alienable portfolio investment and thereby limits the scope for liquidation during risk-off episodes. The United States plausibly disrupts this prediction through its structural role in global finance. As Rey (2013) documents, the US dollar's dominance as the primary funding currency for global financial intermediaries means that US assets occupy an outsized share of global portfolios relative to what geopolitical alignment alone would predict. When a VIX spike triggers deleveraging, operating through the Value-at-Risk constraints of the leveraged intermediaries that Miranda-Agrippino and Rey (2020) identify as the primary transmission channel, the mechanical liquidation of these large US positions could generate extreme flow sensitivity among high-GPD senders that directly contradicts the baseline interaction prediction. Because the United States is disproportionately represented among the highest-GPD dyads in the sample, leaving it in the baseline reference group risks mechanically attenuating and biasing the log VIX × log GPD interaction coefficient downward.

The results in Table B bear this out. Columns 1 and 2, which interact the US receiver dummy with log VIX alone, show that the negative VIX sensitivity of US-bound flows is substantially larger than for the rest of the sample even before GPD is introduced. The full model in Column 5 restores both the significance of log GPD and, critically, the significance of the log VIX × log GPD interaction term, confirming that Column 5 of Table A was not a genuine null result but a consequence of leaving the US distortion uncontrolled for. The coefficient on log VIX × US receiver is −0.574, nearly 48 times the magnitude of the baseline log VIX coefficient, and significant at the 0.1% level, indicating that VIX spikes are associated with a substantially larger retrenchment of flows toward the United States than toward other destinations.

The US receiver dummy in Table B thus replicates within the static fixed effects framework the correction later achieved structurally by the time-varying fixed effects in Tables C and D, by manually extracting the time-varying variance attributable to the US destination. The restoration of interaction significance across both approaches confirms that the distortion in

Table A is specifically attributable to the US's unique structural position rather than to any diffuse omitted variable.

6.5 Robustness: Time-Varying Fixed Effects

Tables C and D replace origin- and destination-country fixed effects with origin-time and destination-time fixed effects, absorbing all time-varying country-specific factors, including fluctuations in monetary policy, GDP growth, and domestic political conditions, that the static fixed effects leave uncontrolled. Because the VIX is a time series with no cross-sectional variation, it is perfectly collinear with the year dimension of the new fixed effects and cannot be separately identified; Tables C and D therefore contain six columns each, corresponding to Columns 3–8 of their Table A and B counterparts respectively.

Table C presents the time-varying fixed effects specifications without the US receiver dummy. Columns 1 and 2, the GPD-only specifications without and with controls, closely replicate their Table A counterparts. The key result is in Column 3, the full interaction model. The coefficient on log GPD increases substantially in magnitude relative to its Table A equivalent, and the coefficient on the log VIX × log GPD interaction term is significant at the 1% level, compared to its insignificance in Table A Column 5. This confirms that the Table A failure was not merely a US distortion but also reflects residual time-varying country heterogeneity that static fixed effects fail to absorb. The stability and strengthening of the interaction estimate under this more demanding specification provides additional confidence that the sensitivity attenuation result is not driven by time-varying omitted country characteristics.

Table D replicates the Table C structure with the US receiver interactions included, corresponding to Columns 3–8 of Table B. The core results are stable: the coefficient on log VIX

× log GPD remains significant at the 1% level and of similar magnitude to the Table B estimate, and the log VIX × US receiver coefficient remains large and highly significant, consistent with the VIX endogeneity argument above.

6.6 Addressing Endogeneity: Instrumenting Geopolitical Distance

A potential concern with the baseline specifications is reverse causality: countries that invest more heavily in one another develop shared financial interests that could themselves induce greater UNGA voting alignment, meaning that flows could be driving geopolitical distance rather than the reverse. To address this, all specifications involving log GPD as a regressor include IV columns in which log GPD, and all corresponding interaction terms, is instrumented by the minimum democracy score in the dyad (lower_dem), following Catalán et al. (2024), who draw the instrument from the war and conflict literature (Oneal, Russett, and Berbaum, 2003). The logic is that because disputes can arise from the actions of a single state, the bilateral risk of conflict depends primarily on the degree of freedom in the less democratic state of the dyad. The minimum democracy score should be unrelated to the volume of bilateral portfolio flows except through its effect on geopolitical distance, with the fixed effects structure absorbing any relationship between institutional quality and overall investment attractiveness.

To informally test the exclusion restriction, the main full model specification of Table B, origin and destination fixed effects with US receiver interactions, was re-estimated with lower_dem included directly as an additional control, along with its interactions with the US receiver dummy and log VIX. In this specification, neither lower_dem nor any of its interaction terms are significant, indicating that the instrument affects portfolio flows and their VIX sensitivity only through the geopolitical distance channel, not independently.

The IV results are consistent and, in an important respect, stronger than their OLS counterparts. Across every IV specification in Tables A through D, including Table A Columns 6–8, where the un-instrumented log GPD and interaction coefficients are insignificant, the instrumented coefficients on log GPD, log VIX, and their interaction are of the same sign, larger in magnitude, and statistically significant. The pattern of larger IV coefficients relative to OLS throughout is consistent with the interpretation that the annual UNGA voting measure introduces classical measurement error into log GPD, attenuating OLS estimates toward zero, and that the minimum democracy score instrument recovers more of the true structural variation in geopolitical alignment. The sign, magnitude, and significance of the core results are additionally stable when using the mean geopolitical distance over the pre-sample period 1990–2000 as an alternative instrument for geopolitical distance during the 2001–2018 panel, providing further reassurance that the baseline findings are not an artifact of any particular instrumentation strategy.

6.7 Investment Composition and the Albuquerque Mechanism

The modified Albuquerque (2003) framework generates a prediction beyond the sensitivity attenuation result: not only should geopolitically distant country pairs exhibit lower and less VIX-responsive portfolio flows, but the composition of their bilateral investment stocks should shift systematically toward FDI and away from portfolio investment. The mechanism is that FDI's partial inalienability raises the utility to the recipient country of remaining in the investment contract, relative to the autarky payoff of expropriation, by less than one unit for each additional unit of capital invested. A higher level of geopolitical distance, proxying for expropriation risk, lowers the average threshold at which the autarky utility exceeds the contract utility, tightening the participation constraint on alienable portfolio capital specifically. The implication is that as GPD rises, the equilibrium composition of bilateral investment should tilt toward the inalienable form.

To test this prediction, the log ratio of FDI investment stock to portfolio investment stock from country i to country j is regressed on log GPD and the full set of gravity controls, with origin-time and destination-time fixed effects and standard errors clustered by directional dyad. The coefficient on log GPD is 0.237, significant at the 1% level. Given that the dependent variable is a log ratio and the standard deviation of log GPD in the sample is 1.36, this implies that a one standard deviation increase in geopolitical distance between countries i and j is associated with approximately a 32% increase in the ratio of FDI to portfolio investment stock from i to j. The sign, magnitude, and significance are all consistent with the modified Albuquerque framework's predictions, though the observational nature of the specification means that a firmly causal interpretation requires further investigation.

The coefficient on log physical distance is −0.335, and given a standard deviation of log physical distance of 1.05, a one standard deviation increase in physical distance is associated with approximately a 35% decrease in the FDI-to-portfolio ratio. This negative coefficient, indicating that physical distance reduces FDI stocks more than portfolio stocks, is consistent with Daude and Fratzscher (2008), who find that FDI investment is more negatively sensitive to information asymmetries proxied by physical distance than portfolio flows, contrary to the predictions of the Goldstein and Razin (2006) model. The opposing signs on log GPD and log physical distance in the same specification are notable: while both forms of distance reduce bilateral investment overall, they operate on the composition of that investment in opposite directions. Physical distance tilts the portfolio toward the more liquid, informationally lightweight instrument; geopolitical distance tilts it toward the less expropriable one. This divergence lends further credence to the interpretation that GPD captures something distinct from information asymmetry alone, and that the expropriation risk channel, rather than the information friction channel, is the operative mechanism through which geopolitical distance shapes bilateral investment composition.

6.8 Quantitative Significance

The core result is best expressed through the marginal effect of the VIX on bilateral flows at different points of the GPD distribution. The marginal effect of log VIX on IHS portfolio flows is:

$$\frac{\partial(\text{IHS Flow})}{\partial \log(\text{VIX})} = \beta_1 + \beta_3 \times \log(\text{GPD})$$

Using the baseline OLS estimates from Column 5 of Table B ($\beta_1 = -0.012, \beta_3 = 0.011$), and noting that the 25th and 75th percentiles of log GPD in the estimation sample are −1.574 and 0.429 respectively, the marginal VIX sensitivity at each percentile is:

> 25th percentile of GPD: -0.012 + 0.011 x (-1.574) = -0.029

> 75th percentile of GPD: -0.012 + 0.011 x (0.429) = -0.007

The IV estimates from Column 8 of Table B ($\beta_1 = -0.010, \beta_3 = 0.014$) yield a sharper picture of the same gradient:

> 25th percentile of GPD: -0.010 + 0.014 x (-1.574) = -0.032

> 75th percentile of GPD: -0.010 + 0.014 x (0.429) = -0.004

Across both sets of estimates, the pattern is consistent: VIX sensitivity is substantially larger in magnitude at the 25th percentile of GPD than at the 75th. Under the OLS estimates, the ratio of sensitivities implies a fourfold attenuation across the interquartile range of geopolitical distance. Under the IV estimates, this attenuation is more pronounced, with the sensitivity at the 75th percentile at roughly one-eighth of that at the 25^{th}, which is consistent with the interpretation that measurement error in the UNGA-based GPD variable attenuates the OLS interaction coefficient and that the IV recovers a larger share of the true structural variation.

Expressed in terms of a one standard deviation increase in log VIX (SD = 0.26), the OLS-implied effect on portfolio flows at the 25th percentile of GPD is approximately −0.0076, or about 3.4% of a standard deviation in IHS portfolio flows; at the 75th percentile it is approximately −0.0019, or about 0.85% of a standard deviation. (A visualization of this attenuation effect can be seen in Figure 5, which plots the change in IHS portfolio flows in response to a 1 SD increase in log VIX across the spectrum of GPD values.) The corresponding IV-implied effects are approximately −0.0083 and −0.0010 respectively. While the absolute magnitudes are modest, reflecting the high variance and near-zero concentration of bilateral portfolio flows, the ratio of sensitivities across the GPD distribution is the key quantity of interest, and it is large and robust across both estimation strategies.

To verify that this attenuation is not simply an artifact of geopolitically distant country pairs having negligibly small flows and therefore mechanical insensitivity, the distribution of portfolio flows in the top 10% of observations by GPD (mean = 0.0103, SD = 0.205) is compared to the bottom 90% (mean = 0.0184, SD = 0.224). The means and standard deviations are similar, confirming that high-GPD pairs maintain meaningful levels of bilateral investment and that the sensitivity result reflects a genuine behavioral difference rather than a floor effect.

6.9 Discussion

Taken together, the results support rejection of the null hypothesis and are broadly consistent with the modified Albuquerque (2003) framework. Higher levels of bilateral geopolitical distance are associated with lower portfolio flows, reduced sensitivity of those flows to the global risk environment as proxied by the VIX, and a higher ratio of FDI to portfolio investment stock. These are all predictions of a model in which geopolitical distance proxies for expropriation risk and tightens the participation constraint on alienable capital. The core sensitivity attenuation result is robust across OLS and IV specifications, across static and time-varying fixed effect structures, and across two distinct instrumentation strategies, with IV estimates consistently larger in magnitude than their OLS counterparts in a pattern consistent with classical measurement error in the UNGA-based GPD variable.

The sensitivity attenuation result complements Mercado (2023), who finds that increased physical distance reduces the sensitivity of bilateral capital flows to VIX changes. The parallel finding with geopolitical distance suggests that the mechanism underlying the physical distance result may be related but distinct: both forms of distance may capture the degree to which an investor pair is insulated from global financial conditions, but through different channels of information frictions in Mercado's case and expropriation-risk-induced participation constraints in the framework employed here. The investment composition result in Section 6.7 reinforces this distinction: physical distance and geopolitical distance have opposite effects on the FDI-to-portfolio ratio, indicating that they are not simply two proxies for the same underlying friction but operate through separable mechanisms.

The modest absolute magnitudes of the VIX sensitivity effects are consistent with geopolitical distance being one of several push and pull factors shaping bilateral investment flows rather than a dominant determinant. The finding that the fourfold OLS attenuation across the interquartile GPD range widens further under IV instrumentation suggests that the true structural role of geopolitical alignment in mediating global risk transmission may be larger than the baseline estimates indicate, and that refining the measurement of geopolitical distance beyond annual UNGA voting shares could strengthen these results further.

7. Conclusion

This paper has examined whether bilateral geopolitical distance modulates the sensitivity of portfolio capital flows to global risk conditions, as proxied by the VIX. Extending the Albuquerque (2003) model of cross-border investment under imperfect contract enforcement to incorporate an alliance network benefit that makes default costs increasing in bilateral geopolitical proximity, I derived the prediction that geopolitically distant country pairs face tighter participation constraints on alienable portfolio capital, reducing both the level and the volatility-responsiveness of their bilateral flows. The empirical analysis, conducted on an unbalanced panel of bilateral portfolio flows from the FINFLOWS database covering the 2001–2018 period, supports this prediction. The interaction of log geopolitical distance with log VIX is positive and statistically significant across OLS and IV specifications, across static and time-varying fixed effect structures, and across two distinct instrumentation strategies. Quantitatively, VIX sensitivity at the 25th percentile of the GPD distribution is roughly four times larger than at the 75th percentile under OLS, widening to approximately eight times under IV, which is a pattern consistent with classical measurement error in the UNGA-based GPD variable attenuating OLS estimates. Consistent with the expropriation-risk mechanism, geopolitical distance is associated with a higher ratio of FDI to portfolio investment stock, while physical distance is associated with a lower ratio, indicating that these two forms of bilateral friction operate on investment composition through separable channels.

Several limitations warrant emphasis. The dependent variable is constructed from changes in bilateral portfolio investment stocks rather than directly observed flows, introducing measurement error that is likely amplified in years with large asset price movements. The UNGA voting-based measure of geopolitical distance, while standard in the literature, is a noisy annual proxy for the underlying structural alignment of bilateral relationships and is constructed along a single dimension of alignment with the US-led liberal order, which complicates the treatment of US-receiver observations as discussed extensively in the results. The exclusion of 2008 and 2009 removes precisely the period in which global risk transmission was most acute, and while this choice is justified by the structural break those years introduce, it means the results characterize the relationship between GPD and VIX sensitivity in normal-to-moderate stress environments rather than during extreme crises. Finally, the composition analysis, while consistent with the Albuquerque framework, is observational and does not establish a causal relationship between geopolitical distance and the FDI-to-portfolio ratio.

These findings point toward several directions for further research. First, the sensitivity attenuation result has been established here for one specific global push factor, the VIX, and it remains an open question whether geopolitical distance similarly moderates the transmission of other drivers of capital flows, such as changes in global interest rates, commodity price shocks, or shifts in investor sentiment captured by measures other than equity-implied volatility. Determining whether the attenuation is specific to the VIX or generalizes across push factors would clarify whether the mechanism operates through the particular channel emphasized by the

Albuquerque framework, expropriation-risk-induced participation constraints, or through a broader insulation effect.

Second, the results of this study, read alongside Daude and Fratzscher (2008) and Mercado (2023), reveal a pattern that warrants further investigation. Physical distance drives down the ratio of FDI to portfolio investment (Daude and Fratzscher, 2008; confirmed in this study) but decreases the sensitivity of capital flows to VIX changes (Mercado, 2023). Geopolitical distance drives up the ratio of FDI to portfolio investment and decreases the sensitivity of capital flows to VIX changes (this study). Both forms of distance attenuate flow sensitivity and both reduce the overall level of bilateral investment, but they have opposite effects on composition, which is a pattern that strongly suggests they operate through distinct channels. Disentangling these channels more precisely, potentially through structural estimation or natural experiments that shift one form of distance while holding the other constant, would sharpen the understanding of how bilateral frictions mediate the transmission of global financial conditions.

Third, the FDI-to-portfolio composition channel itself deserves further examination. The modified Albuquerque framework predicts not only that geopolitical distance shifts composition toward FDI but that this compositional shift is itself the mechanism through which sensitivity attenuation occurs; portfolio capital is the marginal form of investment that responds to changes in global conditions, and geopolitical distance constrains precisely this margin. Testing this compositional mechanism directly, by decomposing the sensitivity attenuation into within-category and between-category components, would provide a more thorough assessment of whether the Albuquerque framework's expropriation channel or alternative mechanisms better explain the observed patterns.

More broadly, the finding that a country's geopolitical alignment structure shapes the volatility of its cross-border financial linkages, not merely their level, carries implications for how policymakers assess the financial consequences of shifts in diplomatic posture. If geopolitical realignment alters not only how much foreign capital a country attracts but also how that capital behaves during periods of global stress, then the financial stability implications of foreign policy choices extend beyond what standard gravity-based analyses of investment levels would suggest.

References

Albuquerque, R. (2003). The composition of international capital flows: Risk sharing through foreign direct investment. *Journal of International Economics*, 61(2), 353–383.

Anderson, J. E., & van Wincoop, E. (2003). Gravity with gravitas: A solution to the border puzzle. *American Economic Review*, 93(1), 170–192.

Bailey, M. A., Strezhnev, A., & Voeten, E. (2017). Estimating dynamic state preferences from United Nations voting data. *Journal of Conflict Resolution*, 61(2), 430–456.

Bellemare, M. F., & Wichman, C. J. (2020). Elasticities and the inverse hyperbolic sine transformation. *Oxford Bulletin of Economics and Statistics*, 82(1), 50–61.

Calvo, G. A., Leiderman, L., & Reinhart, C. M. (1993). Capital inflows and real exchange rate appreciation in Latin America: The role of external factors. *IMF Staff Papers*, 40(1), 108–151.

Catalán, M., Fendoglu, S., & Tsuruga, T. (2024). A Gravity Model of Geopolitics and Financial Fragmentation. *IMF Working Paper,* WP/24/196.

Chicago Board Options Exchange. (n.d.). CBOE Volatility Index: VIX. Federal Reserve Bank of St. Louis FRED Database.

Conte, M., Cotterlaz, P., & Mayer, T. (2022). The CEPII Gravity Database. *CEPII Working Paper*.

Coppedge, M., et al. (2026). V-Dem Dataset. Varieties of Democracy (V-Dem) Project.

Daude, C., & Fratzscher, M. (2008). The pecking order of cross-border investment. *Journal of International Economics*, 74(1), 94–119.

Fernandez-Arias, E. (1996). The new wave of private capital inflows: Push or pull? *Journal of Development Economics*, 48(2), 389–418.

Forbes, K. J., & Warnock, F. E. (2012). Capital flow waves: Surges, stops, flight, and retrenchment. *Journal of International Economics*, 88(2), 235–251.

Fratzscher, M. (2012). Capital flows, push versus pull factors and the global financial crisis. *Journal of International Economics*, 88(2), 341–356.

Garcia-Bernardo, J., Fichtner, J., Takes, F. W., & Heemskerk, E. M. (2017). Uncovering offshore financial centers: Conduits and sinks in the global corporate ownership network. *Scientific Reports*, 7, 6246.

Goldstein, I., & Razin, A. (2006). An information-based trade off between foreign direct investment and foreign portfolio investment. *Journal of International Economics*, 70(1), 271–295.

Mercado, R. V. (2023). Bilateral capital flows: Gravity, push, and pull. *International Finance*, 26(1), 36–63.

Milesi-Ferretti, G. M., & Tille, C. (2011). The great retrenchment: International capital flows during the global financial crisis. *Economic Policy*, 26(66), 289–346.

Miranda-Agrippino, S., & Rey, H. (2020). US monetary policy and the global financial cycle. *Review of Economic Studies*, 87(6), 2754–2776.

Oneal, J. R., Russett, B., & Berbaum, M. L. (2003). Causes of peace: Democracy, interdependence, and international organizations, 1885–1992. *International Studies Quarterly*, 47(3), 371–393.

Pagano, A., Rossi, E., & Ferriani, F. (2020). FINFLOWS Database. European Commission Joint Research Centre.

Portes, R., & Rey, H. (2005). The determinants of cross-border equity flows. *Journal of International Economics*, 65(2), 269–296.

Portes, R., Rey, H., & Oh, Y. (2001). Information and capital flows: The determinants of transactions in financial assets. *European Economic Review*, 45(4–6), 783–796.

Pradhan, M., et al. (2025). Geopolitical risk and cross-border bank lending. *Working Paper*.

Rey, H. (2013). Dilemma not trilemma: The global financial cycle and monetary policy independence. *National Bureau of Economic Research, Inc.* NBER Working Paper 21162

Thomas, J., & Worrall, T. (1994). Foreign direct investment and the risk of expropriation. *Review of Economic Studies*, 61(1), 81–108.

Voeten, E. (2009). United Nations General Assembly voting data. *Harvard Dataverse*.

World Bank. (2026). World Development Indicators. The World Bank Group

Table and Figures

Table A: Portfolio Flows — Country FEs, No US Interactions

	(1) VIX	(2) VIX + Controls	(3) GPD	(4) GPD + Controls	(5) Full Model	(6) GPD (IV)	(7) GPD + Ctrls (IV)	(8) Full Model (IV)
ln VIX	-0.028***	-0.028***			-0.025***			-0.012***
	(0.004)	(0.004)			(0.005)			(0.004)
ln GPD			-0.008***	-0.005***	-0.018*			
			(0.001)	(0.001)	(0.009)			
ln GPD (IV)						-0.017***	-0.015***	-0.090***
						(0.002)	(0.002)	(0.023)
ln VIX × ln GPD					0.005			
					(0.003)			
ln VIX × ln GPD (IV)								0.026***
								(0.008)
ln Physical Distance		-0.018***		-0.015***	-0.015***		-0.007**	-0.005
		(0.003)		(0.003)	(0.003)		(0.003)	(0.003)
Time Difference		0.001*		0.001	0.001		0.000	0.000
		(0.001)		(0.001)	(0.001)		(0.001)	(0.001)
Common Colony		0.007		0.005	0.005		-0.000	-0.002
		(0.013)		(0.013)	(0.013)		(0.014)	(0.014)
Common Language		0.003		0.001	0.001		-0.003	-0.004
		(0.006)		(0.006)	(0.006)		(0.006)	(0.006)
Num. Obs.	42236	42236	42236	42236	42236	41984	41984	41984
R^2	0.034	0.036	0.034	0.035	0.036	0.034	0.035	0.037
Min. 1st Stage F-stat						8654.91	6203	3172.69

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table B: Portfolio Flows — Country FEs, With US Interactions

	(1) VIX × US	(2) VIX × US + Ctrls	(3) GPD × US	(4) GPD × US + Ctrls	(5) Full Model	(6) GPD × US (IV)	(7) GPD × US+C (IV)	(8) Full Model (IV)
ln VIX	-0.019***	-0.019***			-0.012***			-0.010***
	(0.003)	(0.003)			(0.003)			(0.004)
ln GPD			-0.008***	-0.004***	-0.034***			
			(0.001)	(0.001)	(0.008)			
ln GPD (IV)						-0.013***	-0.010***	-0.051***
						(0.002)	(0.002)	(0.018)
ln VIX × ln GPD					0.011***			
					(0.003)			
ln VIX × ln GPD (IV)								0.014**
								(0.006)
ln VIX × US	-0.435***	-0.435***			-0.574***			-0.957***
	(0.123)	(0.123)			(0.155)			(0.313)
ln GPD × US			-0.206***	-0.212***	-0.660*			
			(0.063)	(0.062)	(0.398)			
ln GPD × US (IV)						-0.403***	-0.405***	-2.418**
						(0.097)	(0.096)	(1.086)
ln VIX × ln GPD × US					0.150			
					(0.128)			
ln VIX × ln GPD × US (IV)								0.699*
								(0.357)
ln Physical Distance		-0.018***		-0.016***	-0.016***		-0.013***	-0.011***
		(0.003)		(0.003)	(0.003)		(0.003)	(0.003)
Time Difference		0.001*		0.001*	0.001*		0.001	0.001
		(0.001)		(0.001)	(0.001)		(0.001)	(0.001)
Common Colony		0.007		0.004	0.004		-0.000	-0.001

		(0.013)		(0.013)	(0.013)		(0.014)	(0.014)
Common Language		0.003		-0.003	-0.004		-0.011	-0.012
		(0.006)		(0.005)	(0.005)		(0.007)	(0.008)
Num. Obs.	42236	42236	42236	42236	42236	41984	41984	41984
R^2	0.039	0.041	0.038	0.039	0.047	0.038	0.040	0.047
Min. 1st Stage F-stat						4398.92	3152.97	1612.59

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table C: Portfolio Flows — Country × Year FEs, No US Interactions

	(1) GPD	(2) GPD + Controls	(3) Full Model	(4) GPD (IV)	(5) GPD + Ctrls (IV)	(6) Full Model (IV)
ln GPD	-0.007***	-0.003***	-0.048***			
	(0.001)	(0.001)	(0.010)			
ln GPD (IV)				-0.016***	-0.014***	-0.109***
				(0.002)	(0.002)	(0.023)
ln VIX × ln GPD			0.016***			
			(0.004)			
ln VIX × ln GPD (IV)						0.033***
						(0.008)
ln Physical Distance		-0.016***	-0.016***		-0.007**	-0.007**
		(0.003)	(0.003)		(0.003)	(0.003)
Time Difference		0.001	0.001		0.000	0.000
		(0.001)	(0.001)		(0.001)	(0.001)
Common Colony		0.005	0.005		-0.000	-0.001
		(0.013)	(0.013)		(0.014)	(0.014)
Common Language		0.002	0.002		-0.003	-0.003
		(0.006)	(0.006)		(0.007)	(0.007)

Num. Obs.	42236	42236	42236	41984	41984	41984
R^2	0.138	0.139	0.140	0.138	0.140	0.140
Min. 1st Stage F-stat				10643.86	7534.97	3844.58

* p < 0.10, ** p < 0.05, *** p < 0.01

Table D: Portfolio Flows — Country × Year FEs, With US Interactions

	(1) GPD × US	(2) GPD × US + Ctrls	(3) Full Model	(4) GPD × US (IV)	(5) GPD × US+C (IV)	(6) Full Model (IV)
ln GPD	-0.007***	-0.002**	-0.045***			
	(0.001)	(0.001)	(0.010)			
ln GPD (IV)				-0.013***	-0.009***	-0.086***
				(0.002)	(0.002)	(0.020)
ln VIX × ln GPD			0.015***			
			(0.004)			
ln VIX × ln GPD (IV)						0.027***
						(0.007)
ln GPD × US	-0.224***	-0.231***	-0.991**			
	(0.070)	(0.068)	(0.421)			
ln GPD × US (IV)				-0.409***	-0.411***	-2.162**
				(0.098)	(0.098)	(1.042)
ln VIX × ln GPD × US			0.265**			
			(0.132)			
ln VIX × ln GPD × US (IV)						0.612*
						(0.343)
ln Physical Distance		-0.018***	-0.018***		-0.013***	-0.013***
		(0.003)	(0.003)		(0.003)	(0.003)
Time Difference		0.001*	0.001*		0.001	0.001

		(0.001)	(0.001)		(0.001)	(0.001)
Common Colony		0.005	0.005		0.000	-0.000
		(0.013)	(0.013)		(0.014)	(0.014)
Common Language		-0.003	-0.003		-0.011	-0.011
		(0.006)	(0.006)		(0.007)	(0.007)
Num. Obs.	42236	42236	42236	41984	41984	41984
R^2	0.142	0.144	0.145	0.143	0.145	0.145
Min. 1st Stage F-stat				5419.5	3836.65	1957.78

* p < 0.10, ** p < 0.05, *** p < 0.01

Table E: Ratio Model

	(1)
log_geo_dist	0.237***
	(0.038)
log_dist	-0.335***
	(0.085)
time_diff	0.007
	(0.020)
comcol	0.283
	(0.414)
comlang_off	0.484***
	(0.176)
Num. Obs.	36068
R^2	0.408

* p < 0.10, ** p < 0.05, *** p < 0.01

Table F: Summary Statistics of the Sample

Variable	Obs.	Mean	Std. Dev.	Min	Max
Portfolio Capital Flow Share (Raw)	41,984	0.020	0.422	−29.654	19.644
Portfolio Capital Flows (IHS)	41,984	0.018	0.223	−4.083	3.672
Geopolitical Distance (Log)	41,984	−0.644	1.369	−4.605	1.459
Geopolitical Distance	41,984	0.965	0.825	0.000	4.291
VIX Index Level (Log)	41,984	2.851	0.260	2.406	3.307
GPD × VIX Interaction	41,984	−1.841	3.926	−15.098	4.689
Physical Distance (Log)	41,984	8.375	1.051	4.007	9.882
Time Difference	41,984	4.100	3.705	0.000	18.000
Common Colonial Origin	41,984	0.010	0.099	0.000	1.000
Common Official Language	41,984	0.067	0.250	0.000	1.000
Lower Democracy Index Score in Dyad	41,984	0.493	0.270	0.039	0.886

Source: FINFLOWS Database (Pagano et al., 2020); World Bank Development Indicators; Bailey et al. (2017); CEPII Gravity Database (Conte et al., 2022); FRED (Chicago Board Options Exchange); V-Dem Dataset (Coppedge et al., 2026).

Figure 1:

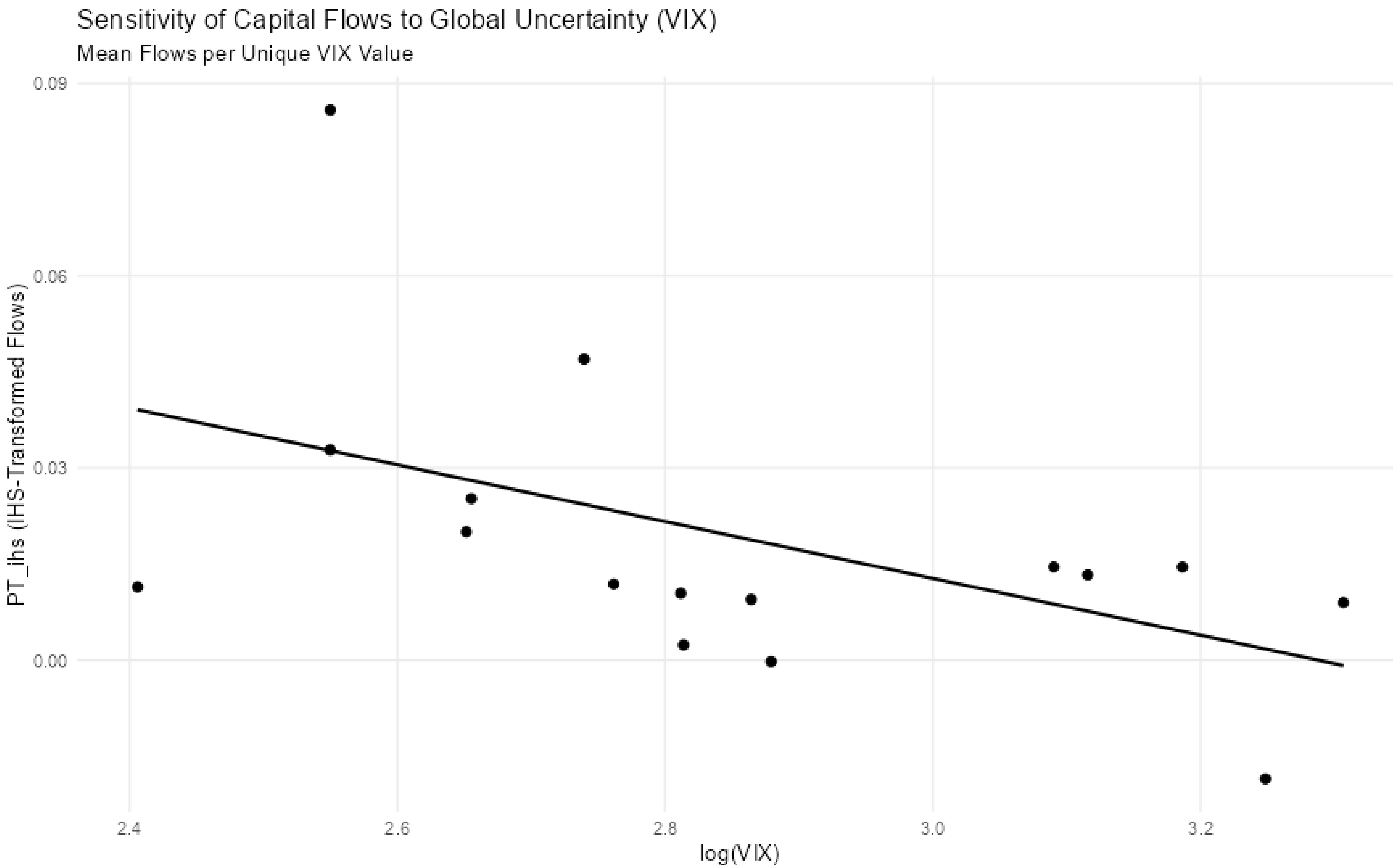
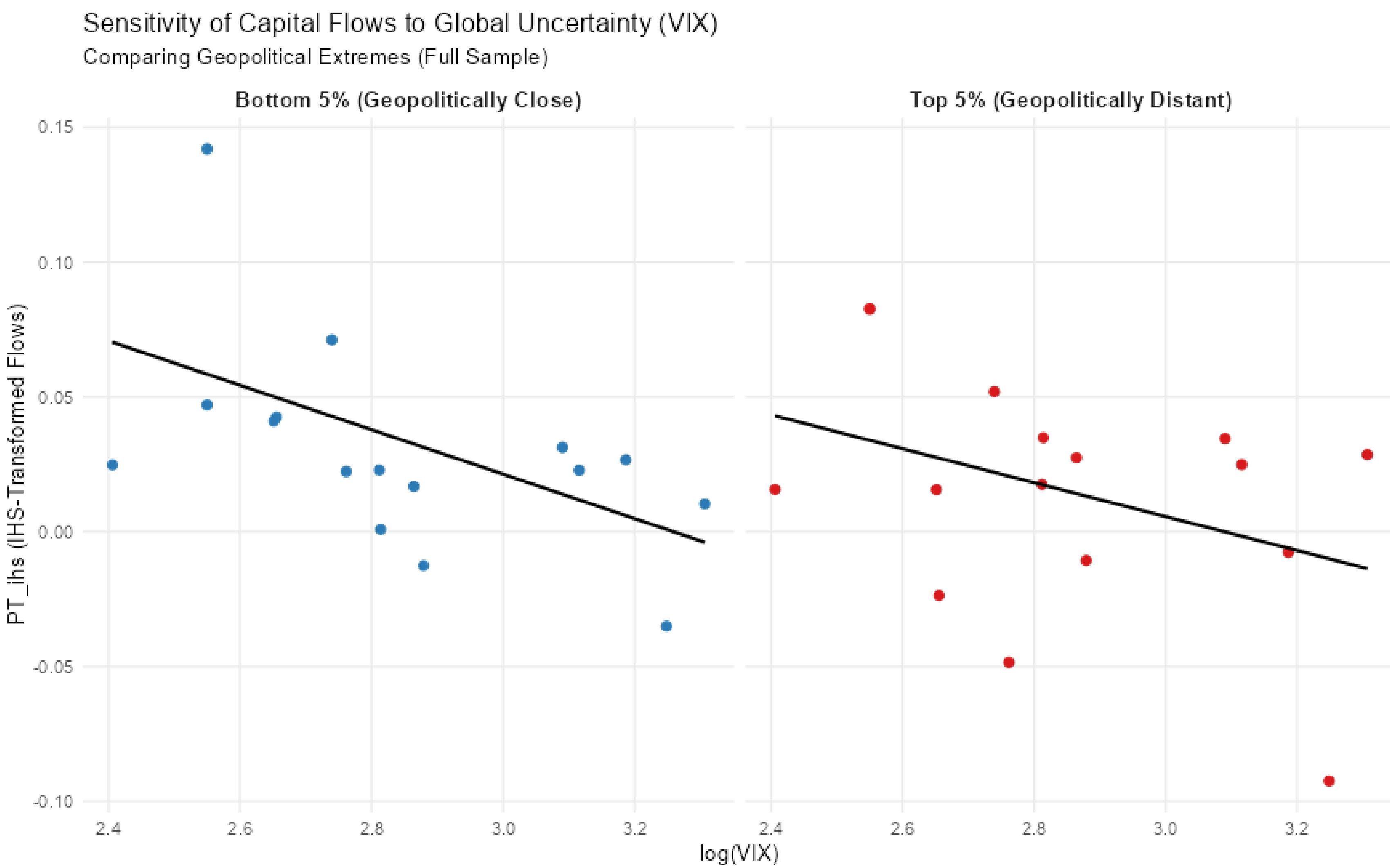
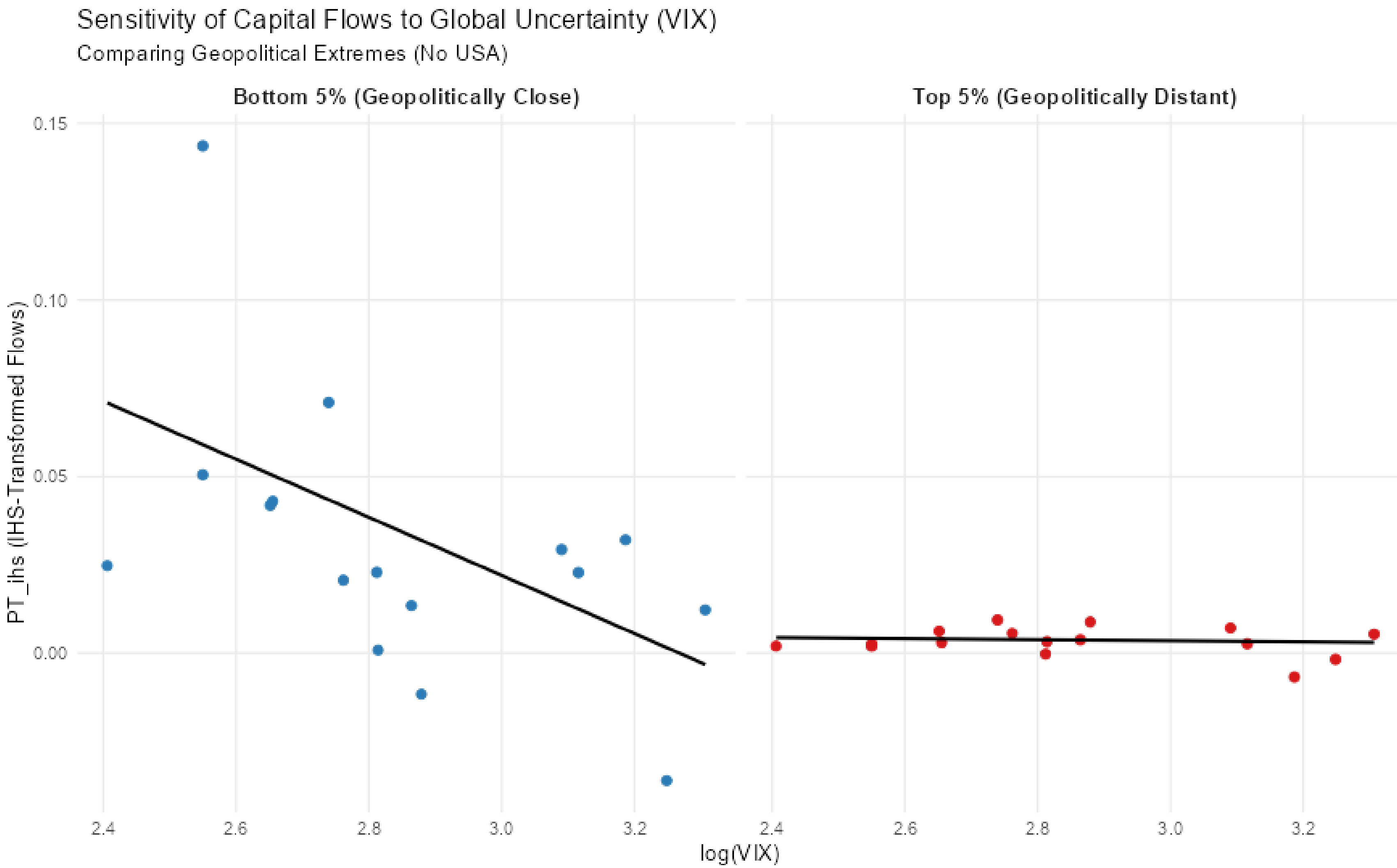

Sensitivity of Capital Flows to Global Uncertainty (VIX)
Mean Flows per Unique VIX Value
0.09
0.06
0.03
0.00
PT_ihs (IHS-Transformed Flows)
2.4
2.6
2.8
3.0
3.2
log(VIX)

Figure 2:



Sensitivity of Capital Flows to Global Uncertainty (VIX)
Comparing Geopolitical Extremes (Full Sample)
Bottom 5% (Geopolitically Close)
Top 5% (Geopolitically Distant)
PT_ihs (IHS-Transformed Flows)
0.15
0.10
0.05
0.00
-0.05
-0.10
2.4
2.6
2.8
3.0
3.2
log(VIX)

Figure 3:

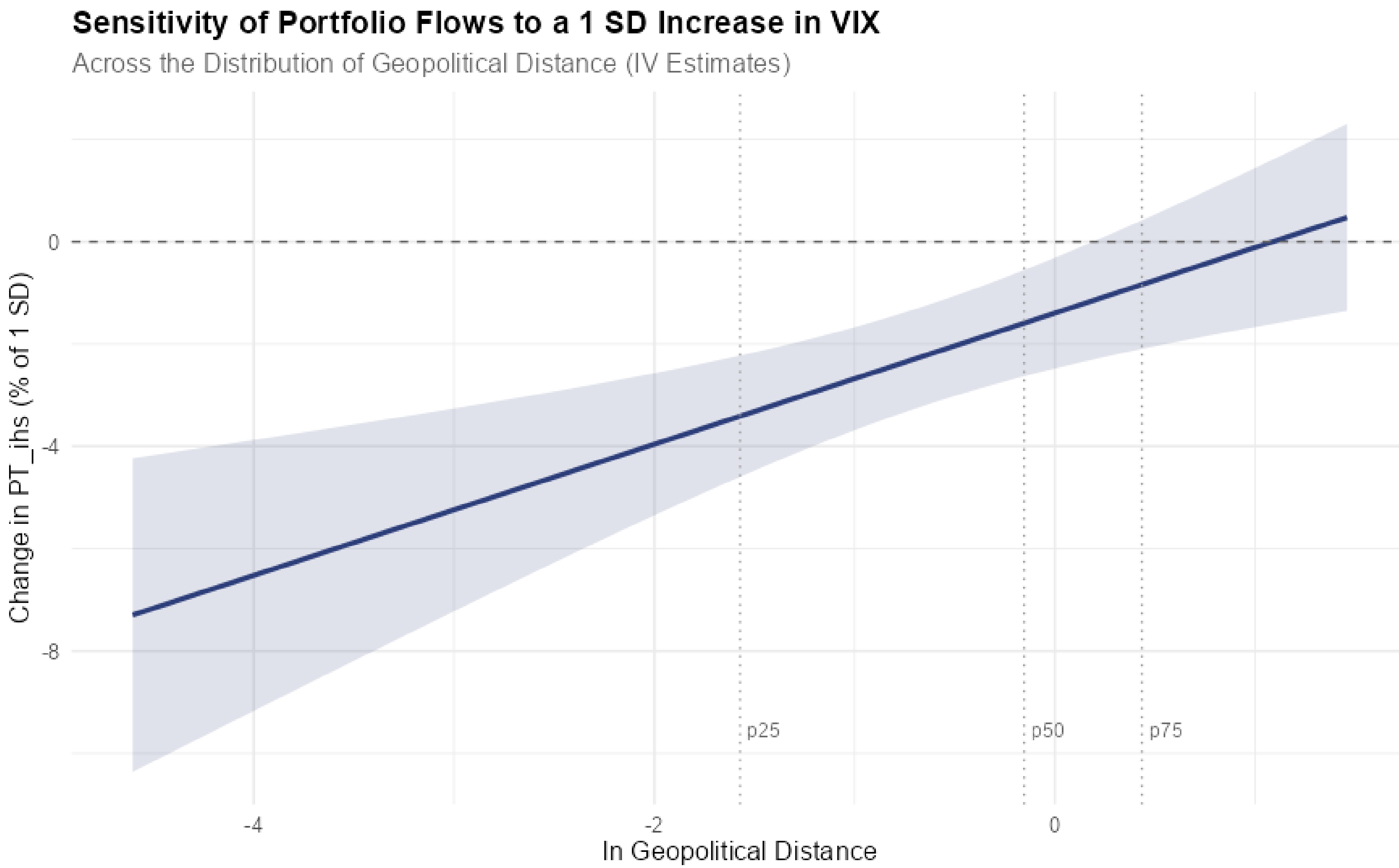


Sensitivity of Capital Flows to Global Uncertainty (VIX)
Comparing Geopolitical Extremes (No USA)
Bottom 5% (Geopolitically Close)
Top 5% (Geopolitically Distant)
0.15
0.10
0.05
0.00
PT_ihs (IHS-Transformed Flows)
2.4
2.6
2.8
3.0
3.2
log(VIX)

Figure 4:


VIX Level Over Time
Time series analysis of market volatility
25
20
15
VIX Index Value
2005
2010
2015
Year

Figure 5:


Sensitivity of Portfolio Flows to a 1 SD Increase in VIX
Across the Distribution of Geopolitical Distance (IV Estimates)
Change in PT_ihs (% of 1 SD)
0
-4
-8
p25
p50
p75
-4
-2
0
ln Geopolitical Distance