Political Beta

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Abstract

We use a novel firm-by-destination country-level dataset on exports from Russia to detect management of a non-tradable risk – political risk – by exporting firms through operational hedging. We find that a decline in political relations between Russia and a given export destination country adversely affects Russian exports into that country. This effect is more pronounced in the case of homogeneous products and exporters trading with more markets, where export shifts can easily be made. Using a framework akin to portfolio theory, we introduce the concept of "political beta" and show that a given exporter values a given export destination country more (by responding less to the changes in political relations) when that country contributes less (has lower political beta) or even hedges against (has negative political beta) the total political risk the company is facing. Exporters choose safer (riskier) new destinations when their average political portfolio has worse (better) political relations. Our results highlight the importance of political risks that result from interactions between countries, and how firms respond to this risk, through the diversification of political risks in the total portfolio of countries to which a given firm is exporting.

This version: November 19, 2019

JEL classification:

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[5] We have benefited from helpful comments from Lucy Chernykh, William Dougan, Ruben Enikolopov, Raymond Fisman, Mike Makowsky, Steven Perfect, Thomas Mroz as well as seminar participants at Clemson University. Excellent research assistance from Matthew (Kirk) Sidwell is gratefully appreciated. Florida State University Research Computing Center (RCC) is acknowledged for generous allotment of compute time, particular thanks goes to Bin Chen and Brian Gentry for their help with adjusting the code for running at RCC.

1. Introduction

"The ongoing trade war between China and the United States has already begun affecting the economies of both countries — none more noticeably than in the shipping and logistics industry. In 2019 alone, we have seen Chinese imports drop by nearly 6.5%, while the United States shows a 10% drop in exports."

Sedat Saka, Forbes

The above quote highlights the fact that firms operating internationally face additional risks relative to purely domestic market focused firms. Some risks, like foreign exchange rate risk, can be managed through financial market solutions, such as derivative contracts.[6] Others, however, such as political risk stemming from either aggregate levels of trade between their domicile nation and that of their customers, are non-tradable. As such, these firms are forced to react in ways that utilize solutions outside of financial markets. So how should an individual firm operating internationally handle political risk? One such solution is to adjust firm operations, i.e., operational hedging. As the unfolding trade war between the US and China alluded to in the quote above, or any of a myriad of other current events, suggests, the importance of bilateral political relations on individual firms cannot be understated. It is, therefore, important to understand how firms manage political risks, which is non-traded, in the context of international trade.

Previous studies have identified the adverse effects that a break down in political relations might have on international trade.[7] These studies, however, are often done at the country level, and are silent on hedging techniques for such risk. What's more, prior studies have yet to consider the interaction between different countries' risk profiles and the resulting diversification potential. This seems to be in stark contrast to the financial diversification literature (Sharpe 1964), which finds that an investor's decision is based on the systematic/non-diversifiable part of the risk that a given financial asset contributes to his/her overall portfolio. We believe our paper fills an important

[6] Operational hedging can be used when risks are traded. Hoberg and Moon (2017) find that firms tend to choose suppliers from the same country (same currency) as their destination export market to mitigate foreign exchange risk. Even though foreign exchange risk can be mitigated using financial instruments, Hoberg and Moon find that operational hedging can be used when it provides superior results for the firms. Allayannis, Ihrig and Weston (2001) suggest that both techniques can be useful if used in tandem.

[7] Papers such as Gupta and Yu (2009) and Glick and Taylor (2010) suggest that as the relationship between two countries deteriorates, economic flows between the two countries fall. Papers such as Polachek (2004), Polachek et al. (2007), Martin, Mayer and Thoenig (2008) suggest that the relationship is complicated, however, because trade relations can actually protect countries from going into war. Friedman's (2006) memorable "Golden Arches Theory of Conflict Resolution", suggests the same using the presence of McDonald's as evidence of trade relations. Reuveny (2000) provides a survey of extant literature on the trade and political relations.

gap in the operational hedging literature, which to the best of our knowledge, has not examined hedging of *non-traded* risks, especially where country-level risk characteristics are not measured in isolation.

Our paper begins with a theoretical model of operational hedging at the firm level that utilizes the interaction between risks of countries' into which a given firm exports (heretofore, "export destinations"), thus accounting for potential operational diversification at the firm-level between different markets. To test this model empirically, we use a unique firm-by-destination country administrative data from Russia for all exporting companies over the term 1999-2011. Our sample comprises more than 300k observations across 180 export destination countries. Such granular data allows us to observe the response of an individual exporter to political relations between Russia and a given destination market, which is essential to assessing the (non-diversifiable) contribution of a given export market to the overall political risk "portfolio" to which a given firm exports.

The main findings of our study are the following. First, we verify that political relations affect international trade in our sample. We show that, as political relations between a given country and Russia worsen, Russian companies sharply decrease their exports into that country. Moreover, we find that this response is larger in the case of more homogeneous products and when an exporting firm has a wider network of existing export destinations. We conjecture that substitution away from a given export destination is easier in the case when political relations between Russia and that country worsen.

Second, we find evidence of firm-level operational diversification of political risk. Exporting firms respond differentially to changes in political relations with given export destinations depending on the market's (i.e., country's) contribution to overall political risk ("portfolio") the given exporting firms is facing ("holding"). Specifically, an exporting firm's response to worsening political relations with a given export destination would be smaller (in absolute value) if the political relations with that export destination tend to move (in terms of political relations) against the average political relations of the exporting firm's political portfolio. At the same time, the response would be larger (in absolute value) if the political relations with that export destination tend to co-move (in terms of political relations) with most other export destinations.

This result is analogous to an investor's assessment of a given stock in his portfolio based on how much systematic/non-diversifiable risk, as measured by its "beta" it adds to the investor's portfolio (Sharpe (1964), Lintner (1965)). In our context, we define "political β" as the regression coefficient of political relations for a given export destination with the (weighted) average political relations of all export destinations of a given firm.[8] Our findings above then indicate that an exporting company responds more to changes in political relations for "high political β" countries and responds less in the case of "low political β" ones. This result highlight the importance of the interaction of country-level political risk in a given firm's (political) portfolio.

Finally, we also use an aggregated version of our trade data, as well as the NBER-UN Comtrade database, to show that the political risk management and diversification patterns that we uncover from our firm-by-destination country-level analysis cannot be detected using more aggregated country-by-country bilateral trade data. This is intuitive as active risk management is likely to take place at the individual firm-level. As non-tradable risk cannot be exchanged easily among firms within the same country, the risk characteristics of a given market derived from country-level data are unlikely to reflect the (differential) assessment of that risk by individual firms.

Our paper contributes to several strands of literature. First, this paper is most directly related to the literature on risk management, particularly non-tradable risks, in an international context. There are several papers that have examined hedging in an international context Among more recent contributions are Desai, Foley, and Hines (2008) who find that firms respond to international risks exposure by lowering their leverage, Hoberg and Moon (2017) who study the management of FOREX risk by multinational companies and find that financial hedging is used in the case when liquid FOREX instruments are available whereas in other cases firms hedge financial risks by using the suppliers from the same country as their destination market.

As mentioned above, however, most of the extant literature (due to data limitations) analyze each country's risk in isolation without looking at the interaction between country risks in the overall political "portfolio" of a given exporting firm. We expand this literature by showing

[8] It is natural to think of a firm's average political relations measure (equally-weighted or weighted by the share of exports) as the overall (equally-weighted or value-weighted) "political" portfolio a given firm is "holding". It is worth noting that since different firms (even exporting the same product might export into different destinations (and/or export different shares of total exports to the same destinations), the overall political portfolio is specific to a given firm. As a result, political β thus defined is specific to a given country-by-firm pair. A country which serves as hedge destination (i.e. with low or negative political β) for one exporter might be high political β for other exporters.

that such interaction is important and produces results akin to diversification argument in portfolio theory in the case of financial assets, which dates back to seminal contributions by Sharpe (1964), Lintner (1965), and Merton (1973). Namely, the firm's attitude to country-level risk of a given export destination depends on the codependence between its political relations and the (weighted) average political relations of its current export destinations (as proxied by this country's political β in a given firm's political "portfolio").

We also contribute to the literature examining political risk. As the world becomes more globalized and bilateral relations, more volatile, political risk becomes more worthy of study. This is especially salient in recent political shocks to international trade such as the trade war between the US and China. Among recent contributions are: Michaels and Zhi (2010) who show how American firms tried to substitute away from French inputs following a worsening in political relations between the US and France in 2003; Fisman, Hamao, and Wang (2014) who measure the adverse impact on stock returns of Chinese (Japanese) firms involved in operations in Japan (China), respectively; and Fouka and Voth (2016) who document the decrease in demand for German products in Greece during 2010-2014 Greek debt crisis and find that the effect is more pronounced in the areas that suffered more from WWII.

Our paper expands this timely strand of literature by leveraging a unique and granular firm-by-country level dataset on exported products. This allows us to highlight individual firm responses to political relations over the whole set of countries, which proves to be essential in studying and detecting diversification of political risk across various destinations undertaken by individual firms. Detailed data from transactions with one country or data aggregated at the country level might be not rich enough to correctly assess and detect such risk management.

The rest of the paper is structured as follows. The second section provides the motivation of the paper. The third section describes the data used in our analysis. The fourth section details our results. The fifth section considers important extensions and the sixth section concludes the paper.

2. A Model of the Management of Political Risk

2.1 Setup of a Russian Exporter's Problem

Consider an exporting company that "lives" for two periods. For simplicity, we abstract from the choice of export destinations and assume that the firm exports to some fixed set of N countries,

indexed by j. Denote A_t^j the level of political relations between Russia and country j in period $t, t = 1,2$. Without loss of generality, assume that higher values of A^j mean better political relations.

The information is structured in the following way. The level of current (period $t = 1$) political relations with all markets A_1^j is known, but political relations in the second period are uncertain and become known at $t = 2$. The firm decides how much to export in any given period after observing the contemporaneous level of political relations, $\{A_1^j\}_{j=1}^N$. Denote the firm's exports in period $t = 1$ into country j as Q_1^j, while profits received from market j in period $t = 1,2$ are denoted as π_t^j.

Additionally, in the first period, the firm makes an investment in relationship-specific capital that affects the firm's profitability in the second period. We posit that such investment is likely closely related to first period exports into a given market. It could be argued, for example, that higher exports in the first period could lead to better brand recognition, better relations with retailers, etc., which increases the demand (reduce cost of selling) for the firm's product in the second period. For simplicity, we represent this investment and first-period exports Q_1^j by the same variable. Thus, second period profits π_2^j would depend on second period political relations A_2^j and first period exports Q_1^j. For simplicity, we assume that current investment in relationship-specific capital enters multiplicatively in the second period profit function.[9]

$$\pi_2^j = \phi(Q_1^j)\pi_2(A_2^j) \quad (1)$$

Profits in the first period depend on exports in the first period Q_1^j and first period political relations A_1^j:

$$\pi_1^j = \pi_1(A_1^j, Q_1^j) \quad (2)^{10}$$

Under our chosen normalization, higher A_1^j means better political relations such that $\frac{\partial^2 \pi_1}{\partial A_1^j \partial Q_1^j} > 0$: better political relations increase marginal revenue/reduce marginal cost of exporting.

[9] This could result, e.g., under demand with constant (but potentially varying across markets) price elasticity and an investment in relationship-specific capital that affects either the marginal cost of selling in the market or the demand for the product without changing the elasticity.

[10] Those profit functions differ across markets as well with $\pi_2^j = \pi_2^{(j)}(A_2^j)$ and $\pi_1^j = \pi_1^{(j)}(A_1^j, Q_1^j)$. But we omit superscripts j for those profits functions to simplify the notation.

The firm is risk averse and maximizes the sum of the current profits it receives from all markets j plus the expected value of (the sum of) future profits minus the variance of future profits in all markets. Put formally, the exporter would maximize the following objective:[11]

$$\Pi = \sum_j \pi_1\left(A_1^j, Q_1^j\right) + \theta \sum_j \phi\left(Q_1^j\right) E_1\left[\pi_2\left(A_2^j\right)\right] - \frac{\delta^2}{2} Var\left[\sum_j \phi\left(Q_1^j\right)\pi_2\left(A_2^j\right)\right] \quad (3)$$

The second and third terms are analogous to the standard utility function of an investor in the Asset Pricing literature, who cares only about mean return and variance: $U(\mu, \sigma^2) = \theta\mu - \frac{\delta^2}{2}\sigma^2$. The investor likes mean return μ but dislikes variance of the return σ^2. θ and δ are parameters of the utility function.

2.2. Solution of the Exporter's problem: Political risk diversification

The first order conditions for a Russian firm's choice of exports into a particular market j can be written as:

$$\frac{\partial \pi_1}{\partial\, Q_1^j} + \phi'\left(Q_1^j\right)\left\{\theta\, E_1\left[\pi_2\left(A_2^j\right)\right] - \delta^2\, cov_1\left[\pi_2\left(A_2^j\right), \sum_i \phi\left(Q_1^i\right)\pi_2\left(A_2^i\right)\right]\right\} = 0 \quad (4)$$

The intuitive interpretation of these conditions is the following. Exporting an additional unit of product Q_1^j in some market j in the first period $t = 1$ produces two types of benefits. First, it affects contemporaneous marginal profits from this market.

$$CMP_j = \frac{\partial \pi_1}{\partial\, Q_1^j} \quad (5)$$

Second, it changes future profitability of selling to this country.

$$FMB_j = \phi'\left(Q_1^j\right)\left\{\theta\, E_1\left[\pi_2\left(A_2^j\right)\right] - \delta^2\, cov_1\left[\pi_2\left(A_2^j\right), \sum_i \phi\left(Q_1^i\right)\pi_2\left(A_2^i\right)\right]\right\} \quad (6)$$

At the optimum, the exporter equates to zero the sum of contemporaneous marginal profit CMP_j and the future marginal benefit FMB_j from the investment in country j's relationship-specific capital.[12]

[11] One can think of this two-period problem as a short-cut for the multiperiod model, where there is no uncertainty about contemporaneous profits, but future profitability has a stochastic component in it due to the uncertainty in political relations.

[12] Since current period marginal profit is equal to the difference between current marginal revenue and marginal cost, this condition could be reformulated as the sum of contemporaneous marginal revenue and future marginal benefit from exporting today where it is equated to the current marginal cost of the product.

In its turn, the future marginal benefit term FMB_j consists of two terms.

$$FMB_j = EP_j - COV_j \tag{7}$$

The first term relates to the impact of current exports, Q_1^j, on future expected profits in that selected market j:

$$EP_j = \theta\phi'\left(Q_1^j\right)E\left[\pi_2\left(A_2^j\right)\right] \tag{8}$$

The second term (with a negative sign) reflects the impact of current exports, Q_1^j, into a particular market j on the variance of future profits from *all* markets/countries:

$$COV_j = \delta^2\phi'\left(Q_1^j\right)\, cov\left[\pi_2\left(A_2^j\right), \sum_i \phi\left(Q_1^i\right)\pi_2\left(A_2^i\right)\right] \tag{9}$$

It is worth noting that this latter term, COV_j, depends on the covariance of political relations between Russia and country j with the weighted-average of political relations between Russia and all export destinations. It is not the (future) variance of political relations with country j that matters for the behavior of exporter i, but rather this country's contribution to the overall (political) risk this exporter is facing. Markets j that have a higher covariance with the overall political "portfolio" of current export destinations of this firm (i.e. countries that tend to move *together* with all other export destinations of the given exporting firm) tend to have *lower* future marginal benefit FMB_j (as measured at $t = 1$) for this exporting firm. At the same time markets that tend to co-move less (or even more) against other markets this firm is exporting to, tend to have (ceteris paribus) higher future marginal benefit FMB_j for this exporting firm.

This result is akin to the diversification argument from portfolio theory. In an assessment of a particular financial asset, an investor cares about non-diversifiable risk contained in that asset, which is measured by the asset's co-movement with the market portfolio: the market β of the asset, rather than the total risk (variance) of this asset in isolation, matters. It is important to note here that in our context, there is no common political market portfolio, since political risk is not traded.

As a result, all country covariances (and resulting political β's)[13] are firm-country-specific.[14] An interesting consequence of this construct is that the same export market might be perceived as lower (systematic) risk by some exporters and high (systematic) risk by others, depending on the overall political "portfolios" of countries "held" by respective exporters.

2.3. Empirical predictions from the model

Our model provides several testable empirical predictions. We focus on intuitive explanations of the logic delivering those predictions here in the main text and relegate detailed proofs and derivations to the Appendix section A1.

Consider an exporter whose behavior is described by the model we considered above in Sections 2.1-2.2. Assume that political relations with one of the countries this firm exports to worsen. We are interested in studying what would be the effect on the level of firm exports into this market, and the heterogeneity in this response vis-a-vis the nature of the product traded, country-level (risk) characteristics, etc.

2.3.1. Baseline effect of political relations

As a first step in understanding how firms respond to bilateral political relations between its domicile nation and export destination countries, it is instructive to examine the baseline effect of political relations on firm-level exports. Our prediction in this regard is the following.

Prediction 1: *Worsening political relations between Russia and a given country in the current period results in lower exports into that market for given exporters.*

That is, if we expose a given export market j to an adverse political shock, a given company would reduce exports into that market since the contemporaneous marginal profit of exporting is lower.[15] The decline in contemporaneous marginal profitability of exporting into country j, CMP_j,

[13] One can easily transform the covariance above into the time-series regression coefficient ("political β") by dividing the covariance COV_j in (9) by the variance of the overall political relations portfolio, $\sum_i \phi(Q_1^i)\pi_2(A_2^i)$. What the first order condition (4) then says, is that keeping other things equal, the exporter would perceive higher political β countries as less valuable markets. Intuitively, exporting into higher β countries exposes a company to higher non-diversifiable/systematic risk in the future. At the same time, building relations with low β or negative β countries allows the firm to reduce/hedge against the overall political risk the exporter is holding. In the analysis below, we always include firm-specific fixed effects to control for differences in political portfolios different firms are "holding". For robustness, we also use covariances instead of β's. Results are qualitatively similar.

[14] In our empirical analyses below, we calculate political β's using time window rolling over past periods (to approximate moments conditional on time t information set, as, in principle, all moments in first order conditions (4) are time $t = 1$, specific). Thus, the political $\beta's$ that we end up using are firm-by-country-by-time-period specific.

[15] Mathematically, under the assumed normalization (higher A_1^j means better political relations) contemporaneous marginal profits $CMP_j = \frac{\partial \pi_1}{\partial Q_1^j}$ decreases when A_1^j goes down, thus resulting in decreased exports into this country, Q_1^j.

could come from the demand side: with local consumers and businesses substituting away from Russian products when political relations with Russia worse, as in Michaels and Zhi (2010) or Canayaz and Darendeli (2019). Alternatively, the decline in political relations might increase effective costs of the product due to various trade restrictions, sanctions, and tariffs initiated by the government (either Russian government or government in a foreign country). In either scenario, the current period marginal profits CMP_j of exporting products into a given country j declines and the firm reduces its exports into the affected market.

We now turn to exploring the heterogeneity in this impact depending on various characteristics of the trade relationship between a given firm and a given market as relates to the characteristics of an export market, nature of the product traded, and the availability of alternative exporting options for the firm's product.

2.3.2. Heterogeneity depending on the number of export destination markets

Regarding the availability of alternative export destinations for the firm we have the following result:

Prediction 2: *The impact of a change in current period political relations is stronger for companies that trade with more countries.*

Establishment of a new trade relationship is costly, (see Melitz, Eaton and Kortum) and takes time. In this regard, for a given exporter, its response to an adverse political shock is directly related to how many trade ties it has *already* established. Exporters with more active trade relations tend to (are able to) substitute away more from a given market when political relations with that market deteriorate. This finding comes from the well-known result in producer theory: the generalized "Le Chatelier principle" of Samuelson (1947). A producer's response to a shock in a given market tends to be more elastic in the long-run when factors kept fixed in the short-run are allowed to adjust. Firms exporting to more countries have more adjustment margins/options and, thus, respond more (in magnitude, i.e. decrease their exports by more) when political relations with a particular market worsen.

2.3.3. Heterogeneity depending on the nature of the traded product

Regarding the nature of the product traded we have the following result.

Prediction 3: *The magnitude of the negative response of exports to a decrease in political relations is smaller (less negative) in the case of more differentiated products.*

In the discussion of first order condition to exporter problem (see equation (4)), we found that contemporaneous exports into a given market produce two types of (marginal) benefits for a given exporting firm: (i) contemporaneous – through the impact on current profits (CMP_j in (5)) of the firm and (ii) future benefits (FMB_j in (6)) accrued from higher current exports increasing demand for the product of the firm in the future.

Future marginal benefits of exporting today accrue because of a higher demand in this market/country (for this firm's product) in the future: e.g. due to better brand recognition, more established product dealership network, etc. Such relationship building is likely to be more important in the case of differentiated products (Rauch (1999)). Such products might be tailored to a particular customer (market), or, alternatively, even if they perform the same function, are perceived as quite distinct products by the final consumers. Thus, (in equation (6)) the marginal product of investment in relationship specificity, ϕ', and hence (ceteris paribus) FMB_j, are likely to be higher for more differentiated/specialized products than for homogeneous commodities.

Since the future marginal benefit term in the first order conditions equation (4), FMB_j, is higher for the differentiated commodities, the role of any current shocks to political relations, A_1^j, affecting current benefits of exporting, (CMP_j), becomes smaller, because export decisions in this case are determined increasingly more by considerations about future benefits than simply current profits. Thus, the response to variation in political relations of exporters of differentiated products is likely to be attenuated compared to the response of exporters of more homogeneous products. [16]

2.3.4. Heterogeneity depending on the country's risk characteristics

Regarding the risk characteristics of the country, we have the following result.

Prediction 4: *The magnitude of the negative response of exports to a decrease in political relations is greater in magnitude (i.e., more negative) in the case of destinations whose political relations tend to co-move with political relations of an exporter's other export destinations and smaller in magnitude (i.e., less negative) for destinations whose political relations tend to move less with (or even against) the political relations of an exporter's other export destinations.*

[16] To see this in technical terms: if in the FOC (4): $CMP_j\left(Q_1^j, A\right) + FMB_j\left(Q_1^j\right) = 0$ we replace FMB_j with $\lambda * FMB_j$, it is evident that $\frac{dQ_1^j}{dA} \to 0$ as $\lambda \to \infty$. As future benefits become more important, contemporaneous profits play an increasingly smaller role in the exporter's decision. In Theorem 3 in Appendix A1, we show formally that $\frac{dQ_1^j}{dA}$ is smaller in magnitude when ϕ' is replaced with $\lambda\phi', \lambda > 1$.

Like prediction 3, this finding also comes from the exporter's first order conditions (4) in Section 2.2, the tradeoff between current marginal profits (5) of exporting into a given market j, (CMP_j), and the future marginal benefits (6) from exporting due to firm's investment in market j-specific relationship capital, FMB_j.

As the expression for FMB_j demonstrates, potential export destination markets that have a ***higher*** degree of co-movement with other export destinations of a given firm (higher COV_j term in equation (8)), tend to convey ***smaller*** future marginal benefits for this firm, FMB_j (see equation (6), (7)). At the same time, future marginal benefits from exporting today tend to be ***higher*** (keeping other things equal) in the case of countries that co-move ***less*** with (or move against) other export destinations.

Since, as we discussed above, political relations induce a smaller response in the case of markets with higher future marginal benefits, FMB_j, the response to a change in contemporaneous political relations, A_1^j, with some market j would be ***smaller*** for countries that co-move ***less*** with (or move against) other export destinations of a firm.[17]

A destination market, which co-moves less with (or moves against) other export destinations of a given exporting firm, thus, represents a valuable hedge against future political risk for this firm. As a result, this exporter tends to respond less to a worsening in current political relations with Russia and such market (and tolerates an associated decrease in current profits), due to this market's hedging potential against future political risks.

It is also worth noting that the designation of a market as a hedge or highly undiversifiable political risk destination is firm-specific. The same country might serve as hedge for some firms and be an exposure to high risk for others. We assume that political risk is not tradable (as least not easily tradable). As a result, different agents cannot share/trade risk creating a common country-level "total" political market portfolio for these firms, such as in traditional portfolio theory, where the overall market porftolio serves as a common yardstick against which to measure an individual asset's contribution to systematic risk.[18] Our construct is contrary to that. Indeed, a

[17] Note that volatility of political relations of Russia with a given market itself does not enter into the firm's calculation. Only the systematic/undiversifiable component results in a differential response. Diversifiable risk (i.e. the one offset by variation in political relations with other export destination countries) does not elicit differential response.

[18] It is worth noting that even in most countries, even developed ones, most of the firms are not publicly traded. As a result, individual investors cannot diversify risks by holding portfolio's of those exporting firms either, which further precludes the existence of single market portfolio of political risks. Most of political risk hedging has to be done at the firm level and those risks are not easily transferred across exporting firms. XXXfind better place to mention this?

firm's assessment of country's contribution to systematic/undiversifiable risk is measured by this country's co-movement with the whole set of export destination countries for that particular firm.

3. Data

3.1. Company-level exports

Our sample comprises exports of goods by companies located in Russia to more than 180 countries. The data is derived from a database of individual customs forms for export transactions submitted to the Russian Customs Services over the years 1999-2011. These customs forms are required to be completed by firms every time a transaction occurs involving a product that crosses the Russian border (legally).[19] Russian customs forms provide the following information about each export transaction: 1) a description of the shipment (i.e., type, value, and weight of the goods), 2) identifying information for the Russian exporting firm (i.e., firm name, address, taxpayer number), and 3) information about the foreign counterpart of the transaction (i.e., importer).

We use company identification numbers to identify individual exporters in our sample and aggregate all (values and weights of) exports to a particular country by a given Russian exporter within each year. We follow Rauch (1999) in classifying goods as homogeneous or differentiated commodities and calculate separate values for exports of differentiated and homogeneous commodities for each company X country pair in a given year.

3.2. Political relations

Our proxy for political relations between Russia and individual export destination countries is the "Affinity of Nations Index" (Gartzke 2010), which is an index that quantifies the similarity of state preferences based on relative voting positions of country pairs in the UN General Assembly since 1946. Alesina and Dollar (2000) argue that UN votes are a reliable indication of the political alliances between countries, because the pattern of those votes is strongly correlated with alliances and similarity of economic and geopolitical interests. Records for United Nations General Assembly voting include entries equal to one of the following for each issue/year: "yes", "no",

[19] These datasets are available for purchase from several online vendors in Russia: see e.g. www.russbd.com. Aggregated versions of these statistics are available from Russian Customs Service as well. This data was initially made public when it was leaked from the Federal Customs Service of Russia. Similarly obtained datasets have already been used in prior research on the Russian economy. Though the Russian government does not publicly admit that the data were ever leaked, it is willing to support and use research done on the basis of such data in the design of its policy. See Braguinsky et al (2014), Mironov and Zhuravskaya (2016), Chernykh and Mityakov (2017).

"abstain", "absent" or "nonmember". The Affinity of Nations Index for bilateral pairs of countries (i.e., Russian and each exporting nation) adopted in this paper utilizes the first three possible answers and quantifies it as follows: 1 = "yes"; 2 = "no"; 3 = "abstain". Our measure of political relations is calculated using the numerical representation of the response as denoted above in the following equation:

$$AF = 1 - 2\frac{d}{d_{max}} \tag{10}$$

where *d* is the sum of metric distances between votes by bilateral pairs in a given year and d_{max} is the largest possible metric distance for those votes. The resulting Index, which lies between -1 and 1, follows the "*S*" measure as in Signorino and Ritter (1999). Positive (Negative) values of the index correspond to (dis)similarity in UN voting for the two countries in the bilateral pair. Unlike other indexes that are based on alliance portfolios, indexes based on UN voting provide significant time-series variation in political distance. Following Dreher and Sturm (2012) and the majority of the literature, we focus on all votes (that is, both key and non-key votes).

Tables 1 contains summary statistics for all variables used in our analysis.

4. Results

4.1. Baseline impact of political relations on international trade.

We start our analysis by first documenting the effect that political relations might have on exports of Russian firms into a particular country when political relations between Russia and that country deteriorate. This relates to Prediction 1 in the theoretical model Section 2.

We employ the gravity equation of trade, which is a standard workhorse model in international trade. In its classical form, the gravity equation links the (log of the) amount of trade between counties to their economic sizes and (log of) distance between the two, where "distance" could mean not only geographical distance between the countries, but also other factors that might be impediments to international trade (Tinbergen, 1962). In the multiplicative constant elasticity form, the gravity equation could then be written as:

$$Q_{i,j,t} = \frac{\left(Y_t^{(j)}\right)^{\gamma_1}\left(Y_t^{Russia}\right)^{\gamma_2}}{\left(D_t^{(j)}\right)^{\delta}} e^{\alpha+\eta_{i,j,t}} \tag{11}$$

where $Q_{i,j,t}$ are total exports of Russian firm i into country j in year t. $Y_t^{(j)}$ and Y_t^{Russia} denote country j and Russian GDP in year t, respectively. $D_t^{(j)}$is the measure of "distance" between Russia and country j.

In particular, in our paper we investigate political relations as a factor affecting trade. Namely, we use the Gartzke's (2010) Affinity Index, $AF_{j,Russia,t}$, for Russia and some other country, as a measure of the opposite of the (log) distance ($\ln D_t^{(j)}$) between Russia and country j in year t. Thus, in our analysis of the impact of political relations on Russian firms' exports to a given country, we consider the following log-linearized version of the gravity equation:

$$\ln Q_{i,j,t} = \alpha + \delta AF_{j,t-1} + \gamma \ln Y_{j,t} + \rho X_{i,t} + a_{i,(t)} + f_j + \phi_t + \eta_{ijt} \qquad (12)$$

Here, $\ln Q_{i,j,t}$ is log of total exports by firm i into country j in year t (in current USD).[20] $A_{j,t-1}$ is the measure of political relations between Russia and country j in year $t-1$ proxied by the Affinity Index, as described in Section 3.2 above. Since we have Russian firms on the exporting side of the transaction, for simplicity, we omit the subscript *Russia* for the Affinity Index.

We include country fixed effects, f_j, in our specifications to absorb country-level heterogeneity that might affect trade (notably geographical distance is absorbed by those fixed effects). Thus, the coefficient on the Affinity Index $AF_{j,t-1}$, δ, should be interpreted as the change in the overall level of exports associated with a variation in the political relations within a particular country. Positive δ indicates higher trade when political relations are better, as higher Affinity Index means higher level of agreement between the given country and Russia.

We also control for company-level heterogeneity by company fixed effects, a_i. In some specifications, we additionally control for more flexible firm X year fixed effects $a_{i,t}$, which account for potential productivity shocks (and hence ability to export) at the firm-level.

As per the gravity model, we include the log of a country's GDP and population. We also control for the size of the Russian exporting company by including the log of its assets.[21] Year

[20] In all of our analysis below we consider trade flows as measured in US dollars. By Russian law every good crossing border is reported not only in the currency of the contract but also according to its "statistical value", which is equal to current dollar value of goods crossing border. Time fixed effects included in all regressions account for US inflation.
[21] The results are similar if we omit these controls.

fixed effects, ϕ_t, are included to account for various aggregate time shocks (notably they absorb log of Russian GDP).

The estimation results of equation (12) found in Table 2 indicate that as political relations between Russia and a given export destination worsen, Russian companies significantly reduce their exports into that country (specification 1). Estimated coefficients are not only statistically significant, but also large in economic sense. Specifically, a decrease in Affinity Index by one standard deviation (by 0.26) is associated with a decrease in exports into that country by around 10 percent (=0.38*0.26).

[Insert Table 2 here], [Figure 1 around here]

Figure 1 shows a partialled-out[22] plots of the relationship between (log) exports and political relations confirming that indeed there is a positive relationship between Affinity Index (lagged by one year) and the amount of firm-level exports.

We also analyze whether a higher order lag of Affinity Index (from 2 years) can be driving the level of exports and find that, controlling for the previous year's political relations, it does not seem to add much: the estimated coefficients are positive but smaller (one half the size) and only weakly statistically significant (specification 2) or not statistically significant (specification 4 with firm X year FE). We also try to assess whether current exports might be related to the current year's political relations measure, but estimated effects for contemporaneous Affinity Index are small in an economical sense, have the opposite sign, and are only weakly statistically significant. This is probably not surprising as international trade might involve some medium-term contracts, which firms cannot renegotiate immediately following a contemporaneous breakdown in political relations. Thus, for the rest of the analysis we focus on the Affinity Index that is lagged by one year.

Collectively, it seems that a worsening in political relations between Russia and a given export destination (decreases in the Affinity Index) is associated with a significant decrease in exports by Russian firms into that country. Below, we investigate the heterogeneity of this effect depending on substitution options available to the firm, namely, the nature of the good being traded, the risk profile of the country, and the country's diversification potential for a given exporting firm.

[22] We partial out country FE, firm FE, year FE, firm assets and country log GPD and log population.

4.2. Heterogeneity of the effect depending on product type

We start by examining the heterogeneity in the impact of political relations depending on the type of goods traded. Namely, we utilize a standard classification of goods in the International Trade literature into differentiated and homogeneous products (Rauch (1999)). According to this classification, goods that have an active international trade market, or goods that can be reference-priced to such goods, are denoted as homogeneous. The rest of the goods are classified as differentiated.[23]

Homogeneous goods are, thus, the goods that could, to a large extent, be standardized, while differentiated goods tend to be more tailored to a particular user. In this regard, importance of a relationship-specific investment (i.e. relationship building) is less important for the homogeneous goods. As a result, homogeneous goods do not lock in an exporter to a particular buyer in a particular market, which make it easier for the exporter to find alternative users/uses for its products in the case of a breakdown in political relations with a given export destination.

As we discussed in Prediction 3 in the Section 2.2.3 above, since homogeneous goods have a higher value (than differentiated products) outside of any particular bilateral relationship, the relationship itself, and hence investment in it, becomes of lesser importance for the exporter (i.e., the marginal productivity of investment in relationship ϕ' is lower). Hence, the future marginal benefit term of exporting in a given market (FMB_j in (6)) is lower, which makes the decision to export more responsive to variation in current political relations A_1^j, which in turn determines contemporaneous marginal profits from exporting. Hence, we expect that the response to the changes in bilateral political relations would be the strongest in the case of homogeneous goods and muted in the case of differentiated goods (Prediction 3).

To probe this conjecture, we re-estimate specification (12) separately for trade in homogeneous and differentiated commodities. Estimates presented in Table 3 support our conjecture and indicate that changes in political relations have an impact on exports of homogeneous commodities that is up to twice as that of differentiated goods. Indeed, a decrease in the Affinity Index by one standard deviation translates into a decrease in exports of homogeneous products by around 15 (=0.581*0.26) percent, while the effect for the differentiated commodities is around 6.5 (=0.255*0.26) percent (in the more flexible firm X year fixed effects specifications 4-6).

[23] XXX Mention somewhere about the holdup problem – probably above???

[Insert Table 3 here]

Figure 2 provides a graphical illustration of those patterns highlighting the differential impact of political relations for homogeneous versus differentiated commodities.

Thus, it seems that political relations have the most pronounced effect for exports of homogeneous commodities, where, as mentioned above, substitutions across international markets is likely easier. At the same time, the response seems to be more tempered for the exports of differentiated commodities, which tend to be more tailored to a particular buyer.

4.3. Number of trading partners

Establishment of an export/import relationship with a counter-party in a foreign country might involve fixed costs (Melitz (2000)).[24] In this regard, firms with fewer trading partners might be particularly subject to hold-up problems and might have trouble finding alternative markets for their products when political relations with their current destination markets worsen. In our model, we keep the number of trading partner countries fixed (which is implicitly assuming an infinite fixed entry cost) but the main intuition remains the same if we lift this assumption. Exporting firms with more trading partners have more margins/options of adjustment in the case of a breakdown in political relations with a particular market. Hence their response to political relations would be the strongest (Prediction 2). This result is the manifestation of the famous generalized "Le Chatelier principle" dating back to Samuelson (1947).

In Figure 3, we show partialled out plots showing the relationship between Affinity Index and exports depending on whether the firm exports into 1-2, 3-5, 6-10, and 10+ destinations. The scales of the graph are kept the same, so that slopes can be compared across subplots. We find that the effect of political relations, indeed, increases in magnitude as we go from firms exporting to a small number of countries to the firms exporting to more countries.

We also examine these patterns in a regression framework by re-estimating specification (12) for subsamples of firms with different number of trading partner countries. Table 4 contains our estimation results.[25]

[Insert Table 4 here]

[24] In our model we assumed a fixed number of markets, which effectively implies infinite costs. But the model predictions are likely to go through in the presence of fixed costs of entering the market XXXX

[25] We report the results from the more flexible specification with firm X year fixed effects. Specifications that replace those with firm fixed effects show similar results.

In Panel A we consider exports of all goods (i.e., both homogeneous and differentiated) and find that political relations has a very small effect on companies that trade with just a few of countries (Table 4, specification 2): estimated coefficients on the Affinity Index are small in size and not statistically significant. However, once a firm is exporting to a larger number of countries, changes in political relations with one particular destination results in a more pronounced response. If the firm is exporting to more than 10 destinations, an improvement in political relations by one standard deviation (by 0.26) results in a more than 20 (=0.855*0.26) percent increase of exports into that country (Table 4, specification 4), which is twice the size of the effect we observe in the whole sample of all exporters (Table 4, specification 1).

The number of trading partners might depend on the type of the product traded. Homogeneous products, for which the impact of political relations, as we saw above, tends to be the strongest, might also be the products for which a given exporter might find more trading partners in more countries. To (at least partially) alleviate the concerns that product type might be explaining the patterns we find in Panel A, we look at exports of homogeneous and differentiated goods separately (seen in Panels B and C).

As before, we find that substitution patterns are more pronounced for homogeneous products in the case where a given exporter has established relations with many trading partners. The effects for differentiated commodities, while present, are smaller in magnitude. This is not surprising as, by their nature, differentiated commodities tend to be tailored to a particular buyer who might be difficult to replace in the case when political relations with the buyer's country worsen.

Overall, we conclude that political relations seem to have a considerable impact on international trade. Exporting companies tend to decrease their exports into countries when/where political relations between Russia and those countries worsen. Intuitively, the effects are most pronounced when such exporting companies are likely to have alternative buyers of their products, i.e., when their product is more homogeneous, and when the exporting company has established trade relations with more countries.

4.4. Diversification of political risk

In this section, we explore the heterogeneity of a firm's response to the changes in political relations depending on a given country's contribution to the overall political risk the company is facing. The general message from our model in Section 2 is that due to diversification of political

risk across all of a firm's destination markets, what matters to the firm is not the overall volatility/variance of political relations with some country, but rather the covariance/co-movement of those relations with all other export destination countries for this firm.

A market which moves less with or even moves against (in terms of political relations) other destination markets (keeping other things equal) is more valuable to the firm since said market might provide a political risk hedge for this firm. (i.e. political relations with this market are likely to be improving when political relations with other export markets in its "political portfolio" are deteriorating). Due to such hedging potential, such markets are perceived by a given exporter as having higher future benefits (FMB_j in (6) is higher since COV_j in (9) is lower/negative), and, as a result, the response to a contemporaneous worsening in political relations for such market would be attenuated compared to markets without such hedging potential.

4.4.1. Country's contribution to total company-level political risk: political β.

To test this logic empirically, we need to measure the degree of co-movement of a given country (in terms of political relations) with other export destination countries. Our model above suggests using the covariance between a given country's political relations and some-weighted average political relations with all its export destination countries, where weights are related to the amount of exports of this firm in each market (see first order condition equation (4) above).

Following the asset pricing literature, we propose measuring a country's contribution to overall political risk the given exporting firm is facing by a regression coefficient of political relations for a given country on the weighted average of political relations over all of its export destination countries.[26]

$$\beta_{j,i} = \frac{cov\left(AF_{j,t}, WAF_{i,t}\right)}{var\left(WAF_{i,t}\right)} \tag{13}$$

Here $AF_{j,t}$ is the measure of political relations between Russia and country j in year t and $WAF_{i.t}$ is the (weighted) average political relations for a given exporting firm i in year t, where averaging is taken over all countries with which this firm trades.

We would like to investigate a differential response to the changes in political relations $AF_{j,t}$ depending on the contribution of country j to the overall political risk the firm is facing,

[26] This approach to the measurement of systematic risk is more in the spirit of portfolio theory. However, we perform a robustness check using covariances rather than time series regression coefficients $\beta's$ and find the similar results. See Table A3.3 in Appendix A3.

which is proxied by political β: $\beta_{j,i}$. In particular, we would like to estimate the following specification:

$$\ln Q_{i,j,t} = \gamma_0 AF_{j,t-1} + \gamma_1 \beta_{j,i} + \gamma_2 \beta_{j,i} AF_{j,t-1} + \delta_1 \ln Y_{j,t} + \delta_2 X_{i,t} + a_i + (f_j) + \phi_t + \eta_{i,j,t} \quad (14)$$

Unfortunately, we cannot calculate political β exactly according to formula (10) and run a regression (11). Our model suggests that $WAF_{i.t}$ should be a weighted average of political relations with weights reflecting the amount of exports Q_{ijt} a given firm i sends into a given country j. But at the same time Q_{ijt} is also a dependent variable in the equation (14).

To break down such simultaneity connection we use a rolling pre-ranking approach akin to those commonly employed in the Asset Pricing literature (see e.g. Black, Jensen, and Scholes (1972) or Fama, French (1992) for a classical exposition).

Namely, we select a given firm i. Our sample covers the period 2001 to 2011. For each year t from 2006 to 2011 for this selected firm i we construct political β's using information on political relations and this firm trade prior to year t as follows,

First, we use firm i exports into all countries over $t-5$ to $t-1$ and define weights for overall firm's political portfolio as:

$$w_{j,i}^{EW}(t) = \frac{1}{N_i(t)} \quad (15a)$$

$$w_{j,i}^{VW}(t) = \frac{\sum_{\tau=t-5}^{t-1} Q_{i,j,\tau}}{\sum_{j'} \left(\sum_{\tau=t-5}^{t-1} Q_{i,j',\tau}\right)} \quad (15b)$$

Here $N_i(t)$ is the number of countries with which firm i traded over $t-5$ to $t-1$. $w_{j,i}^{EW}(t)$ assigns equal weights to all countries with which firm i has traded in the previous 5 years, thus, giving us an analogue of equally-weighted portfolio. $w_{j,i}^{VW}(t)$ is equal to the share of exports by firm i to country j over the 5 years preceding year t in the total amount of firm i exports over the same period. $w_{j,i}^{VW}(t)$ thus, gives us the analogue of a value-weighted portfolio.

Second, using those weights we define the (i) equally-weighed (EW), and (ii) value weighted (VW) political portfolios of the company i in year $\tau < t$ as:

$$WAF_{i,\tau}^{K} = \sum_{j} w_{j,i}^{K}(t) AF_{j,\tau}, K \in \{EQ, VW\} \quad (16)$$

We take $WAF_{i,\tau}^{K}$ such defined as a proxy for the total amount of political risk the given exporting firm i is facing in year $\tau < t$.

Finally, for each year $t = 2006, \dots, 2011$ we use prior information about political relations for some country j ($AF_{j,\tau}$) and firm i's political portfolio ($WAF_{i,\tau}^{K}$) over $\tau = \{t-14, \dots, t-2\}$ to calculate (equally-weighted and value-weighted) political $\beta(t)$'s as slope coefficients from the following time series regression: [27,28]

$$AF_{j,\tau} = \alpha_i^K(t) + \beta_{j,i}^K(t) WAF_{i,\tau}^K + \epsilon_{j,i,\tau}, \tau = t-15, t-2 \quad (17)$$

or, equivalently

$$\beta_{j,i}^K(t) = \frac{cov_{t-14,t-2}\left(AF_{j,\tau}, WAF_{i.\tau}^K\right)}{var_{t-14,t-2}\left(WAF_{i,\tau}^K\right)}, K \in \{EW, VW\} \quad (18)$$

were $cov_{t-5,t-1}$ and $var_{t-5,t-1}$ denote sample analogues of covariance and variance taken over the $t-14$ to $t-2$ period.

Such defined $\beta_{j,i}^K(t)$ shows the degree of co-movement between political relations for a given country with Russia, $AF_{j,\tau}$, with the overall political risk exporter *i* was facing, $WAF_{i.\tau}^K$, over the periods preceding t: ($t-14$ to $t-2$).

This rolling pre-ranking approach results in time-varying political β's, since we use a rolling 13 year window (e.g. for $t = 2006$ we run time series regression (14) over $\tau = 1992-2004$ and for $t = 2011$ we run it over $\tau = 1997-2009$). We allow for the firms to (gradually) change their assessment of a country's risk contribution to their political portfolios depending on new information about political relations between that country and Russia.[29]

Note also that $\beta_{j,i}^K(t)$ are specific not only to a given country j but also to firm i: the same country j might have different political β's for different firms, depending on other countries (and amount of exports into those countries) with which firm i trades.

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[27] Since in our regressions we use affinity index lagged by one year AF_{t-1}, to avoid the overlap of the period during which political β, for each year t we use information on $AF_{j,\tau}$ only over $t-14$ to $t-2$ in calculating $\beta(t)$. We chose the $t-14$ time frame so that for the first year $t = 2006$ used in our estimation period, we measure $\beta(t = 2006)$ starting from 1992, which is the first year when political relations for Russia is available after the collapse of Soviet Union in 1991.

[28] We, thus, use the firm's exports over 5 years prior to year t to calculate portfolio weights $w_{j,i}^K(t)$, but use information about political relations over a longer period prior to year $t-1$ to run time-series regressions of political relations of country j, $AF_{j,\tau}$, on firm *''s* political portfolio, $WAF_{i.t}^K$. We use a larger time window for political relations as we feel that using only 5 years to run a time-series regression might produce very noisy estimates of respective regression coefficients β. At the same time, we hope that using only 5 years of exports might be sufficiently long to evaluate firm's "dependence" on a given country in its portfolio.

[29] In a robustness check we use only 2005 to calculate political β's and use them as constant beta's for all years 2006-2011. The results are similar. See Table A3.1 in Appendix A3.

For example, if Firm 1 trades predominantly with Western Europe and sends some of its products to Belarus, then Belarus would likely be moving against all other countries to which this firm exports. Conversely, a country like Finland would move together with other countries with which this firm exports (assuming that Belarus and Western Europe political relations with Russia move in the opposite directions). At the same time, if Firm 2 trades predominantly with Belarus, Kazakhstan, Uzbekistan but sends some it its exports to Finland then Finland would be moving against other countries with which this firm exports. In this regard, Belarus would be a hedge market for Firm 1 and high non-diversified political risk market for the Firm 2, while the opposite would hold for Finland.

Our model above (Prediction 4) suggests that Firm 1 would respond less to the changes in political relations with Belarus, since Belarus (likely moving less together with Western European countries than e.g. Finland) might represent a valuable hedge for this exporter. On the other hand, Belarus (likely comoving with Kazakhstan and Uzbekistan) would be less likely to serve as a hedge for Firm 2. Thus, we expect Firm 2 to respond more to the changes in political relations with Belarus than Firm 1.

4.4.2. Heterogeneity w.r.t. country's contribution to firm-level political risk.

We now explore the differential impact of the changes in political relations for high-political β vs low-political β countries according to the prediction of our theoretical model (Prediction 4).

Before doing formal regression analysis, we plot the implied relation between political relations and trade for high and low political β countries. Patterns presented in Figure 4 indicate that the response to political relations is indeed larger in magnitude in the case of countries that tend to co-move with a firm's current export destinations.

[Insert Figure 4 here]

To test this more formally, we estimate the following empirical specification over $t = 2006 - 2011$ using $\beta_{i,j}(t)$ calculated on the basis of the rolling pre-ranking approach described in the previous section above:

$$\ln Q_{ijt} = \gamma_0 AF_{j,t-1} + \gamma_1 \beta_{i,j}(t) + \gamma_2 \beta_{i,j}(t) AF_{j,t-1} + \delta_1 \ln Y_{j,t} + \delta_2 X_{i,t} + a_{i,(t)} + f_{j,(t)} + \phi_t + \eta_{ijt} \quad (19)$$

The main coefficient of interest in this model is γ_2, which shows the differential impact of Russian political relations with country j, depending on this country's co-movement (or lack thereof) with the overall political risk a firm is facing. The political risk diversification logic

outlined above suggests that γ_2 should be positive (attenuating the main positive effect of the Affinity Index, γ_0).

As before, we include firm fixed effects, a_i, and year fixed effects, $\phi_{t,}$ to absorb firm-specific fixed heterogeneity and aggregate time shocks. We also include country-fixed effects fixed effects, f_j to use within country changes in political relations as identifying variation. As is standard in more modern trade literature (cite?XXX), we further include country X year fixed effects, $f_{j,t}$, in some specifications to absorb country-specific shocks: such as demand fluctuations related to real-real business cycles shocks, exchange rate shocks, etc. In some specifications we still further include firm X year fixed effects, $a_{i,t}$, to further account for potential firm-level shocks hitting Russian exporters. Since $\beta_{i,j}^{K}(t)$ are generated regressors we calculate standard errors by bootstrap with 1000 repetitions.[30]

Table 5 contains estimation results of equation (19) for these various specifications. Panel A reports the results for equally-weighted political beta's $\beta_{i,j}^{EW}(t)$, while Panel B uses value-weighted political beta's $\beta_{i,j}^{VW}(t)$. Across all specifications: (i) with country and firm fixed effects only (Column 1); (ii) country X year and firm fixed effects (Column 2); (iii) country and firm X year fixed effects (Column 3); and even in the most flexible (iv) country X year and firm X year fixed effects (Column 4) specifications, we find the same qualitative and even quantitative empirical patterns.

The baseline positive effect of Affinity Index ($\gamma_0 > 0$) is attenuated in the case of smaller (negative) $\beta_{i,j}$ destination markets compared to positive (higher) $\beta_{i,j}$ markets. That is, an exporter responds less to the changes in political relations for destinations that have the higher hedging potential for this exporter, i.e. co-move less with (or even move against) other destination countries with which this firm trades. At the same time, the response to political relations would be higher for destinations without such hedging potential, i.e. the destinations which tend to co-move more (in terms of political relations) with other destination countries with which this firm exports.

[Insert Table 5 here]

Estimated coefficients are not only statistically significant, but also imply effects of considerable magnitudes. The coefficient, γ_0, shows the effect of political relations, $AF_{j,t-1}$, for a country that has no co-movement with other countries in this firm's political portfolio ($\beta = 0$) is

[30] We would like to thank FSU Research Computing Center for the general allotment of computing time.

around 0.34, suggesting that for a one standard deviation decrease in political relations, international trade will decrease by around 9 percent (=0.34*0.26). For a hedge destination with $\beta = -2$, the political relations would have almost no impact on trade: the marginal effect of political relations for such destinations would decline to 0.06 (=0.34-2*0.14), implying only a 1.5 percent change in trade in response to one standard change in the Affinity Index. At the same time, for high systematic political risk destinations with, e.g., $\beta = 2$, the marginal impact would be 0.62 (=0.34-2*0.14), implying a 16 percent change in trade for a one standard deviation change in the Affinity Index.

One concern with our results above could be potential endogeneity of political relations and trade. For example, a reverse causality argument could be made that trade shocks in Russia might lead to the changes in the way countries form political relations with Russia. (e.g. oil dependent countries might be particularly friendly with Russia in the time of high demand for oil etc). However, our specifications (2 and 4) that include country X year fixed effects explicitly control for all country-year level unobservables that might drive such endogeneity between *aggregate* trade flows and political relations.[31] The identifying variation in those regressions comes from the differential contribution of the same country to systematic political risk for different Russian exporting firms. Yet, even in such flexible specifications, we find similar heterogeneity with respect to political β. Notably, not only the signs of the coefficients remain the same, but also their magnitudes, which do not change much across various specifications.

We thus argue that political β seems to capture some salient aspects of risk about which exporting firms care. Namely, we show that a given exporting company responds ***less*** to variation in political relations with a given country when that country contributes ***less*** (has lower political β) or even hedges against (has negative β) the total political risk the company is facing.

Collectively, our results are, thus, similar to the diversification logic behind standard Asset Pricing models, such as CAPM, where investors value assets differently depending on their contribution to the overall systematic risk the investor is facing. In our case, we show that exporters seem to value more destinations with higher hedging potential (those with lower or negative β) as they do not decrease their exports (as much) when political relations with such hedge markets

[31] Note also that such country X year fixed effects also absorb variation in country demand for imports depending on real-business cycles shocks, exchange rate fluctuations etc. We also explicitly include exchange rates in out specifications without country X year fixed effects and the same patterns emerge.

worsen, At the same time they tend to be more willing to contract their operations (in response to the similar adverse shock to political relations) in the case of destinations that do not have such hedging potential (high β ones).[32]

4.4.3 Overall vs systematic risk: political β vs political σ.

Above, we find that an exporter responds differentially to the changes in political relations with their export destination countries depending on the co-movement of those countries with the overall political risk this exporter is facing. It could be argued, however, that higher beta countries might also have more volatile political relations. Put differently, our finding that exporters tend to respond ***more*** to the changes in political relations with ***high*** β countries might be driven by exporters' responding ***more*** to markets with ***higher*** volatility of political relations.[33]

To probe this, we calculate the standard deviation of political relations, σ_j, for each country j, and analyze the heterogeneity of the response to "political beta" while also including interactions of "political sigma". Like in the case of political β we use the rolling pre-ranking approach for political σ : i.e. use $\tau = t-14$ to $t-2$ time window in calculating the standard deviation of political relations, $AF_{j,\tau}$: $\sigma_j(t)$. Thus defined, political $\sigma_j(t)$ is time-varying and country j specific, i.e., it is common for all firms i. We then consider the following empirical specification for $t =$ 2006 to 2011:

$$\ln Q_{i,j,t} = \gamma_0\, AF_{j,t-1} + \gamma_1\sigma_j(t) + \gamma_2\sigma_j(t)AF_{j,t} + \gamma_3\beta_{i,j}(\mathrm{t}) + \gamma_4\beta_{i,j}(\mathrm{t})AF_{j,t-1} + \\ +\delta \ln Y_{j,t} + \delta X_{i,t} + a_i + f_{j,(t)} + \phi_t + \eta_{i,j,t} \qquad (20)$$

As before, we consider specifications with country a_i and firm fixed effects, f_j. We also include firm X year fixed effects in some specifications. However, since political σ is country (X year) specific, we cannot include country X year fixed effects.

Estimation results for equation (20) are contained in Table 6. In the first two columns we omit political β and its interaction term and look only at the heterogeneity of the effect of political relations, $AF_{j,t-1}$, depending on the variance of a country's political relations (calculated over

[32] Unlike the "classical" diversification framework, where all investors face a similar type of risk measured by the "market" portfolio, our framework with political risk (which we argue is not easily tradable) has each exporting company facing its own political risk. As a result, the same country might represent systematic risk for some exporting firms, while is presents idiosyncratic risk for others.

[33] It is impossible for a country to have higher beta without having sufficiently high variance of political relations. The converse is not true, high variance countries might have lower (or even negative) beta, which makes it even more important to disentangle the contributions of these two channels.

preceding years as described above): political σ. We find some evidence that firms tend to respond more to the changes in political relations with higher political σ countries in specifications that do not include political β. The coefficients, γ_2, on interactions between affinity index, $AF_{j,t-1}$, and political σ are positive and are significant both in statistical and economic senses.

However, once we include political β's and their interactions with the Affinity Index, coefficients, γ_2, decline considerably and become insignificant in a statistical sense and small in magnitudes, i.e., an economical sense, implying that there is no heterogeneous response to political relations depending on political σ once political β is considered. In the more flexible specifications with firm X year fixed effects included (Column 4 and Column 6), γ_2 even flip signs. At the same time, political $\beta's$ and their interactions both from the value-weighted approach and from the equally-weighted approach are positive and have the same magnitudes as before in Table 5.

This result again resembles diversification logic from the Asset Pricing literature: it is not the overall risk of an asset that investors care about (variance of an asset's return), but rather the systematic risk this asset contributes to an investor's portfolio (covariance of that asset return with a market portfolio). In our case, since political risk is not traded, there is no common market portfolio but rather each firm has its own political portfolio. Still, the diversification logic remains. Exporting firms respond differentially to political relations with high vs low ***systematic*** political risk countries (proxied by high vs low political β) rather than total political risk (proxied by high vs low political σ).[34]

5. Extensions and robustness checks

5.1. Alternative measurement of political risk exposure

Our analysis of the diversification of political risk in Section 3.2 shows that exporters respond to a country's political risk differently depending on that country's contribution to overall political risk facing the exporter, or the "political beta".

Our "political beta" is defined as the covariance of a given country's political relations with the overall political portfolio a company is facing, which we calculate as the (weighted) average political relations with all export destinations of that firm. Defined in this way, a company's political portfolio contains all countries, including the one for which political "beta" is calculated.

[34] In this regard, our model might be more in the spirit of Merton's ICAPM (Merton (1973)) where individuals have (labor) incomes outside of the stock market rather than regular CAPM.

To ensure that our results are not stemming from biases resulting from calculating political portfolios in this way, in this section we consider an alternative way to measure political "beta".

Namely, in our rolling pre-ranking approach (Section 4.3.1 equations (15)-(18)) when calculating political β for some country j^*, we exclude contribution of that country to the overall political portfolio a firm i is facing (with appropriate rebalancing so that portfolio weights in (15) sum to unity). The resulting political β's show the degree of co-movement of political relations (with Russia) of a given destination country j^* and (weighted) average political relations of *other* export destination markets (with Russia) of firm i, excluding country j^*.

We then re-estimate specifications in equation (19), studying the heterogeneity of the political relations impact depending on those β's. Estimation results are presented in Table 7. Results are qualitatively similar to those discussed above.

Second, to ensure that our results are not stemming from the specifics of our rolling pre-ranking approach, we, instead, took the political β's calculated in 2006 and used them throughout the whole period. (This, naturally reduced the number of observations as companies that did not export before 2006 are automatically excluded from such analysis). The results are presented in Table A3.1 in Appendix A3 and are qualitatively and quantitatively similar to the ones presented in the main text.

Finally, as per our model, instead of political β (a time-series regression coefficient, which, as we mentioned, a more standard approach in the literature to measure systematic risk) we used covariance of political relations between some country and firm's political portfolio as the measure of systematic political risk. The results in Table A3.3 are again similar to those in the main text.

Overall, we argue that we find a robust heterogeneity of firms' responses to political relations depending on the contribution of those relations to the overall systematic political risk those firms are facing. Exporters respond less to the changes in political relations with higher hedging potential (low-beta) destinations and respond more to political relations changes in case of markets that expose them to higher systematic political risk (higher-beta).

5.2. Aggregate data analysis

In our analysis above, we show that exporting firms respond differentially to the change in political relations with a given destination country depending on that country's co-movement (or lack of it) with its (firm's) other export destination countries. In other words, an exporting firm's response to a change in political relations is greater for the destination countries with high political β and

smaller in the case of lower (or negative) political β; political β being defined as the coefficient from a regression of political relations between Russia and a given destination country on average (weighted) political relations of that firm's export destinations. The construction of political β is, thus, specific to a given exporting firm.

As a result, having firm-by-country level dataset is essential for such analysis. Given that firm-by-country trade level data are difficult to come by, one could ask a question of whether the patterns that we find can possibly be detected in data at higher levels of aggregations: e.g. aggregated to the country-level.

To probe this, we used UN-Comtrade dataset over 1962-2000 to calculate bilateral trade flows between all (trading in a given year) country pairs. Similar to our main analysis above, for each exporting country i we defined its (equally-weighted $WAF_{i,t}^{EW}$ and value-weighted $WAF_{i,t}^{VW}$) political portfolios as:

$$WAF_{i,t}^{K} = \sum_{j} w_{j,i,t}^{K} \, AF_{j,t} \, , K \in \{EW, VW\} \tag{21}$$

where the weights for equally-weighted are $w_{j,i,t}^{EW} = \frac{1}{N_i}$, where N_i is the number of countries with which country i trades, and for value-weighted portfolio are: $w_{j,i,t}^{VW} = \frac{Trade_{j,i,t}}{\sum_{j'} Trade_{j',i,t}}$ where $Trade_{j,i,t}$ is bilateral trade between countries i and j in year t.

Since UN-Comtrade data span four decades (1962-2000) we use a decade-based rolling pre-ranking approach: i.e. considered each decade to calculate political betas and using those betas for the analysis of trade between countries in the next 10 years. Namely, we define political $\beta_{i,j,d}$ for the exporting country i for the destination country j in decade d as:

$$\beta_{j,i,d}^{K} = \frac{cov_d\left(AF_{i,j,t}, WAF_{i,t}^{K}\right)}{var_d\left(WAF_{i,t}^{K}\right)}, K \in \{EQ, VW\} \tag{22}$$

where subscript d in respective covariances and variances means that those sample moments are taken using observations from a particular decade.[35]

[35] Since, as in our main text regressions, we use lagged Affinity index A_{t-1} as a determinant of period t trade, in calculating β in (17) for a given decade d we use lagged by one period political relations measures: e.g. for 1980-1989 decade we calculate β on the basis of 1969-1978 period affinity indices to avoid overlap with 1979 affinity index used as an explanatory variable for 1980.

In a similar way, we define political $\sigma_{i,j,d}$ of a given exporting country by importing country pair as standard deviation of political relations between these two countries in a given decade d.

We then assess the heterogeneous impact of political relations on exports from country i into some destination country j depending on the co-movement of political relations between those two countries (in the prior decade) with the overall political "portfolio" of exporting country i. In some specifications, we also consider a differential effect depending on the overall volatility (in the prior decade) of political relations between these two countries. Namely, we consider the following empirical specification:

$$\begin{aligned}\text{Ln}\, Q_{ijt} = \gamma_0\, AF_{i,j,t-1} + \gamma_1 \sigma_{i,j,d(t)-1} + \gamma_2 \sigma_{i,j,d(t)-1} AF_{i,j,t-1} + \gamma_3 \beta_{i,j,d(t)-1} + \\ + \gamma_4 \beta_{i,j,d(t)-1} AF_{i,j,t-1} + \delta_1 \ln Y_{j,t} + \delta_2 Y_{i,t} + \alpha_{i,j} + \phi_t + \eta_{ijt} \qquad (23)\end{aligned}$$

Here $d(t)$ denotes a decade to which period t belongs, thus, $d(t)-1$ indicates a prior decade. In all specifications we control for a given trading countries pair fixed effects, $\alpha_{i,j}$, and year fixed effects, ϕ_t. In this regression equation coefficient, γ_2, shows the differential effect of a change in political relations, $AF_{i,j,t}$, in the case when a given destination country j tends to co-move more with other countries to which country i exports. If country i can diversify its trade across all export destination markets, then we expect this coefficient to amplify the overall effect of Affinity Index $AF_{i,j,t}$: $\gamma_2 > 0$. Coefficient, γ_4, shows the differential effect of political relations depends on the volatility (from the previous decade) of political relations between the two countries.

Table 8 presents the estimation results. We find virtually no heterogeneity of the exporting country response to political relations depending on political β. Coefficients γ_2 on interaction of the affinity index with political β are virtually zero. At the same time, there seems to be considerable heterogeneity depending on (the past decade's) volatility of political relations: political σ. ~~Since political β's for the whole sample can take on quite extreme values, we reestimated (20) restricting the sample to observations with moderate values of beta: $|\beta| < 5$. We do find some heterogeneity of effect of political relations differs with respect to political β but only in specifications that do not control for political σ. Once the effect is allowed to vary with~~

~~respect to the volatility of bilateral political relations, γ_2 becomes small in magnitude and statistically insignificant in that case as well.~~[36]

Thus, it seems that in the aggregated data we do not see patterns indicative of diversification of political risks. This is intuitive since the management of political risk, which is not easily tradable, is likely to take place at the firm level. Each firm being exposed to a certain set of destination markets and having its own political portfolio adjusts its trade with those markets according to those markets' contribution to the overall political risk of this particular firm. Trade flows and political β's measured from the *aggregated* data would miss the political risk diversification patterns being undertaken at the individual firm-level.

As a result, we conclude that for the proper analysis of political risk management it is essential to utilize sufficiently detailed data, namely, those disaggregated to the level of an agent where political risk management is likely to take place (firm-by-destination country level in our context).

5.3. Choice of new destinations. DO WE NEED THIS in this paper?

Above we found that exporters tend to hedge their political risks by responding less to changes in political distance to markets with higher hedging potential. In this section we present more evidence of political risk management by examining the impact of a new trading partner (country) depending on the average political relations with/distance to current trading partners. Unlike our previous analysis, which was at the exporting firm-by-destination country (by year) level, here we use only firm (by-year) level data.

Specifically, for a given exporter *i* in a given year *t* we calculate the average Affinity Index for the new markets, i.e. those markets with which a given company began trade in period *t*.[37]

$$AF_{i,t-1}^{NEW} = \frac{\sum_{\{j:Trade_{j,i,t}>0 \& Trade_{j,i,t-1}=0\}} AF_{j,t-1}}{\#\{j: Trade_{j,i,t} > 0 \& Trade_{j,i,t-1} = 0\}} \quad (24)$$

where $\{j: Trade_{j,i,t} > 0 \& Trade_{j,i,t-1} = 0\}$ is the set of new destination countries for a given exporter in a given year, # denotes cardinality of the set operator.

[36] The same pattern is observed when we use our firm-level export data and aggregate it to a given destination country level. Unfortunately, we cannot compare the patterns emerging from our data to that of UN-Comtrade as our dataset starts in 2001 and UN-Comtrade ends in 2000.

[37] Exporters that did not enter new markets in a given year are omitted from this analysis.

We then relate this measure of the quality of political relations with new markets to the (average) political relations of the markets with which this exporting firm has traded in the previous year:

$$AF_{i,t-1}^{OLD} = \frac{\sum_{\{j:Trade_{j,i,t-1}>0\}} AF_{j,t-1}}{\#\{j: Trade_{j,i,t-1} > 0\}} \quad (25)$$

Namely, we consider the following empirical specification:

$$AF_{i,t-1}^{NEW} = \alpha_i + f_t + \beta AF_{i,t-1}^{OLD} + \left(\delta AF_{i,t-1}^{POT}\right) + \gamma X_{i,t} + \epsilon_{i,t} \quad (26)$$

To alleviate any concerns about potential reversion to the mean, in some specifications we additionally control for the average political relations with all *potential* destination markets for a given exporting company in year *t*: $AF_{i,t-1}^{POT}$.[38] We include year fixed effects f_t and exporting firm fixed effects α_i in all specifications. Among additional controls, $X_{i,t}$, with include exporting company's log of total assets.

Estimation results of (26) in Table 9 show that when political relations with existing markets are better, companies tend to pick new trading destinations for which political relations with Russia are worse (Specification 1). In specifications 2 we additionally control for the average political distance to all potential destination markets to account for the reversion to the mean effects mentioned above. The coefficient declines but remains significant in economic and statistical senses. Furthermore, in specifications 3 and 4 we use trade shares as weights instead of equal weighting in calculating dependent and explanatory variables and find the similar effect.

In all cases we find that out of all ***potential*** markets, companies tend to pick the ones with ***worse*** political relations when political relations for the existing portfolio of countries with which a company trades ***improves***. We interpret this as evidence that countries might need less hedging in the case when they face lower political risk in their political portfolio, as a result they are willing to include more risky destination in their trading mix. Similarly, as company-level exposure to

[38] Namely, we calculate $AF_{i,t-1}^{POT} = \frac{\sum_{\{j:Trade_{j,i,t-1}=0\}} AF_{j,t-1}}{\#\{j:Trade_{j,i,t-1}=0\}}$, where $\{j: Trade_{j,i,t-1} = 0\}$ is the subset of *all* potential new destination countries for a given exporter in a given year. The inclusion of $AF_{i,t-1}^{POT}$ allows us to account for the following general equilibrium effect. When the political relations between Russia and a given exporting company's portfolio of existing destination markets are good, then then the set of potential new trading destinations might predominantly consist of countries with worse political relations with Russia. Controlling for the average political relations with *all* potential new destinations countries, $AF_{i,t-1}^{POT}$ thus allows us to assess whether the potential export market additions would have better (than available according to $AF_{i,t-1}^{POT}$) or worse political relations with Russia.

political risk rises, as proxied by the decrease in the Affinity Index with its existing trading markets, it starts adding currently safer (destinations with better political relations with Russia) to its trading portfolio.

[Insert Table 9 here]

5.4. Additional robustness checks.

We also performed a battery of additional robustness checks to make sure that our results are not driven either by important few outlier observations and/or insufficiently flexible functional form assumptions.

5.4.1. Accounting for FOREX risk

In all of our analyses we consider trade flows as measured in current US dollars. By Russian law every good crossing border is reported not only in the currency of the contract but also in "statistical value" which is equal to dollar value at the current dollar exchange rate. Also, most of international trade transactions at the time of our analysis were done in convertible currencies such as USD dollars and Euro. However, we rerun our regressions in Tables 2-4 (and non country X year specifications in Tables 5-7) including log of country exchange rates and found similar results. See Appendix A4 Tables A4.1-A4.4.

We further tried to find patterns indicative of diversification of FOREX risk, akin to our specification (19) and Table 5. Namely, for each firm we defined FOREX β as the degree of comovement between a given currency and the overall portfolio of currencies this given firm is exposed through its international trade operations. We use the similar rolling preranking approach where for each year t=2004-2011 we use past 2 years information about currency movements and firm trade to calculate the FOREX β used in our regression in year t. Namely, we consider the following empirical specification:[39]

$$\ln Q_{ijt} = \gamma_1 \beta^P_{i,j}(t) + \gamma_2 \beta^P_{i,j}(t) AF_{j,t-1} + \gamma_1^{FX} \beta^{FX}_{i,j}(t) + \gamma_2^{FX} \beta^{FX}_{i,j}(t) \log FX_{\ j,t} + \\ + \delta_1 \ln Y_{j,t} + \delta_2 X_{i,t} + a_{i,t} + f_{j,(t)} + \phi_t + \eta_{ijt} \qquad (27)$$

Here $\beta^P_{i,j}$ is political β used in our main text Tables 5-7 above and $\beta^{FX}_{i,j}(t)$ is FOREX β, which shows the degree of comovement of a given currency with overall effective currency portfolio firm is exposed to through its (past trade). Since we include countryXyear fixed effects

[39] Unlike political relations, we assume that FOREX movements are immediately affecting trade so we do not lag foreign exchange rate by one year and instead use (log of) contemporaneous mean annual value, $\log FX_{\ j,t}$.

in all specifications then all country-year specific variables are absorbed: particularly, this includes the level of political relations $AF_{j,t-1}$ and $\log FX_{j,t}$ log foreign exchange rate.

Estimation results in Table A4.5 show that we find evidence of political risk diversification even after accounting for FOREX risk. Coefficients γ_2 remain positive and statistically significant suggesting that a firm responds more to variation in the Affinity Index $AF_{j,t-1}$ with countries that tend to comove in terms of political relations with other countries this firm trades with.

Regarding the FOREX risk, we do find that firm's tend to respond differentially to variation in foreign exchange rate with a given country j, $\log FX_{j,t}$, depending on that country comovement (or lack of it) with currencies of other countries this firm trades with (Specifications 1 and 2). But this effect seems to be driven by outliers, once we exclude firms with values of FX β in absolute values higher than 3 (less than 1% of observations) the coefficients γ_2^{FX} become virtually nil.

Taken together the results of this section illustrate that firm's responses to political relations and firm's hedging of political risk that we document in the main text above are separate forms of risk facing exporting firms. We conjecture that we do not find a significant differential response by the firms to FOREX shocks depending on FOREX β of a given currency because FOREX risks *can* be hedged by financial instruments or the choice of currency of the contract (a la Hoberg and Moon (2017)). At the same time, political risk is not easily traded across companies (note also that most of the companies in our sample, as in many other countries, are not publicly traded which further complicate the exchange of risk at the individual investor-level). As a result, the adjustment of trade flows to manage political risk seems to be the appropriate risk hedging strategy.

5.4.2. Subsamples analysis

We further considered various subsamples of our data to make sure our results are not driven by few important outlier observations. We considered only larger companies (with value of total assets above 10M rubles ~$200,000) to avoid measuring the impact from smaller companies, which might only occasionally participate in international trade transactions. We also considered only company-country observations for sufficiently large trade flows (above $10,000). In both cases we got the similar qualitative and quantitative patterns as in the main text.

Regarding the political beta we restricted observations only to moderate values of political β (those with absolute value of β less than 5) to make sure that extreme values of political β were not driving our results. We further considered only observations with positive β out of concerns that negative β countries for different firms might actually be the same pariah countries that always

demonstratively go against international community in their international voting and, as a result, political relations with them might have smaller impact on economic outcomes such as trade.[40] In all cases we see the same common pattern: firm's responding less to a change in political relations with smaller (or negative) political β countries.

LAG BETA by several periods!!!?? Another robustness check???

6. Conclusion

In this paper we propose and test a model of management of non-tradable risk through operational hedging. Namely, we analyze how Russian exporting firms respond to political relations by adjusting their exports when political relations between Russia and other countries change.

We find patterns consistent with our model. First, we show that a worsening in political relations between Russia and some country does considerably reduce exports of Russian firms into that country. The effect being stronger for exports of homogeneous goods or in the case of exporters who have established trade relationships with more markets.

Second, there is a notable heterogeneity in the exporter's response indicative of diversification of political risk. Namely, an exporter responds less to the changes in political relations with "hedge" markets, i.e. those which move against other markets (in the firm's portfolio) and, thus, have the potential to protect this exporter from future fluctuations in political relations. This result resembles a well-known diversification logic embedded in standard asset pricing models: where investors care about the systematic risk that a given asset exposes their portfolios to.

Finally, we show that the political risk diversification patterns we describe cannot be detected in the aggregate data. We conjecture this stems from the fact that the optimization and risk management decisions happen at the firm-level. Thus, measures of a given market's political risk calculated from aggregate data cannot be informative about systematic risk this market presents.

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[40] This logic is actually already refuted by our results in Tables 5, 7 with country X year fixed effects, since identification in those specifications comes from the same country being low vs high political β for different firms.

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Table 1: Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Log exports	346,863	11.399	2.294	4.605	24.944
Log exports (homogeneous)	138,203	11.405	2.747	4.615	24.456
Log exports (differentiated)	241,035	10.827	2.062	4.610	20.724
Affinity index (t-1)	332,325	0.572	0.263	-0.548	1.000
Log firm assets	346,863	18.614	2.749	6.370	29.051
Log country GDP	346,863	12.216	2.115	2.985	16.559
Log country population	346,863	2.685	1.909	-4.477	7.221
Year	346,863	2006	2.944	2001	2011
The following variables are defined only over 2006-2011					
Value-weighted political β	135,180	0.570	1.180	-23.802	43.613
Equally-weighted political β	135,180	0.829	1.498	-14.517	20.644
Value-weighted political β (country excl)	135,180	0.570	1.180	-23.802	43.613
Equally-weighted political β (country excl)	132,355	0.441	1.536	-14.517	20.644
Political σ	145,627	0.092	0.047	0.017	0.263

Notes: Sample includes all Russian exporting firm-by-country observations over 2001-2011 with value of exports above $100. Goods are classified as homogeneous/differentiated on the basis of Rauch (1999) classification. Affinity Index is Affinity of Nations Index of a given country with Russia from Gartzke (2010). Log firm assets are obtained from SPARK-Interfax database. Log country GDP (chained real GDP) and log country population are from PennWorld Tables. Political β's and σ's are constructed for 2006-2011 period as described in the main text Section 4.3.

Table 2: Baseline effect of political relations on exports

	(1)	(2)	(3)	(1)	(2)	(3)
	Dependent variable: log exports					
Political affinity (t-1)	0.381***	0.269***	0.295***	0.403***	0.258***	0.293***
	(0.070)	(0.071)	(0.069)	(0.086)	(0.088)	(0.086)
Political affinity (t-2)		0.115*	0.137**		0.127	0.149*
		(0.066)	(0.067)		(0.082)	(0.083)
Political affinity (t)			-0.136*			-0.144*
			(0.070)			(0.085)
Log firm assets	0.223***	0.224***	0.224***			
	(0.008)	(0.008)	(0.008)			
Log country GDP	0.334***	0.329***	0.329***	0.374***	0.370***	0.370***
	(0.033)	(0.035)	(0.035)	(0.041)	(0.043)	(0.043)
Log country population	-0.373***	-0.406***	-0.389***	-0.314**	-0.335**	-0.319**
	(0.114)	(0.115)	(0.116)	(0.129)	(0.131)	(0.131)
Observations	316,812	314,254	314,254	251,817	249,260	249,260
R-squared	0.516	0.516	0.516	0.557	0.558	0.558
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm X Year FE	No	No	No	Yes	Yes	Yes

Notes: Sample consists of a company-by-destination country export observations in Russia over 2001-2011. Export observations below $1,000 value are dropped. Sample excludes exports into localities/affiliated territories that do not have formal representation in the UN and companies with no information about value of assets. Dependent variable is log of total amount of exports (in current USD) being sent by a given firm into a given destination country. Political Affinity is Gartzke (2010) Affinity of National Index calculated on the basis of similarity of country's votes with Russia in a given year. Firm assets are obtained from SPARK-Interfax database, log country GDP (chained real GDP) and log country population are from PennWorld Tables. All specifications are estimated by OLS. Country fixed effects, firm fixed effects, and time fixed effects are included in all regressions but not reported. Standard errors clustered at the exporting firm level are reported in parenthesis. ***, **, * indicate statistical significance at 1%, 5%, and 10%, respectively.

Table 3: Product-level Heterogeneity

	(1)	(2)	(3)	(4)	(5)	(6)
	Dependent variable: log trade in $					
	Panel A: Homogeneous goods					
Political affinity (t-1)	0.400***	0.245**	0.249**	0.581***	0.390***	0.346**
	(0.111)	(0.112)	(0.110)	(0.140)	(0.144)	(0.141)
Political affinity (t-2)		0.307***	0.310***		0.403***	0.374**
		(0.106)	(0.108)		(0.142)	(0.145)
Political affinity (t)			-0.022			0.181
			(0.116)			(0.151)
Observations	122,736	121,629	121,629	90,579	89,467	89,467
R-squared	0.643	0.643	0.643	0.660	0.660	0.660
	Panel B: Differentiated goods					
Political affinity (t-1)	0.310***	0.190**	0.223***	0.255**	0.117	0.175*
	(0.083)	(0.084)	(0.082)	(0.103)	(0.106)	(0.105)
Political affinity (t-2)		0.100	0.128*		0.071	0.109
		(0.077)	(0.077)		(0.096)	(0.096)
Political affinity (t)			-0.174**			-0.246**
			(0.082)			(0.103)
Observations	219,558	217,883	217,883	169,454	167,799	167,799
R-squared	0.473	0.474	0.474	0.526	0.527	0.527
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE						
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Sample consists of a company-by-destination country export observations in Russia over 2001-2011. Sample excludes exports into localities/affiliated territories that do not have formal representation in the UN and companies with no information about value of assets. Dependent variable is log of total amount of exports (in current USD) of (homogeneous, differentiated) goods being sent by a given firm into a given destination country. Classification of goods into homogeneous and differentiated is done according to Rauch (1999). Political Affinity is Gartzke (2010) Affinity of National Index calculated on the basis of similarity of country's votes with Russia in a given year. Firm assets are obtained from SPARK-Interfax database, log country GDP (chained real GDP) and log country population are from PennWorld Tables. All specifications are estimated by OLS. Country fixed effects, firm fixed effects, and time fixed effects are included in all regressions but not reported. Standard errors clustered at the exporting firm level are reported in parenthesis. ***, **, * indicate statistical significance at 1%, 5%, and 10%, respectively.

Table 4: Heterogeneity by # of Trading Partners

	(1)	(2)	(3)	(4)
	Dependent variable: log trade			
	Panel A: All goods			
Number of trading partners	*Any*	*1-5*	*6-10*	*10+*
Political affinity (t-1)	0.403***	-0.025	0.661***	0.855***
	(0.086)	(0.130)	(0.117)	(0.161)
Observations	251,817	120,652	121,987	66,515
R-squared	0.557	0.639	0.495	0.477
	(6)	(7)	(8)	(9)
	Panel B: homogeneous goods			
Number of trading partners	*Any*	*1-5*	*6-10*	*10+*
Political affinity (t-1)	0.581***	0.049	0.891***	0.989***
	(0.140)	(0.258)	(0.177)	(0.223)
Observations	90,579	35,815	51,139	31,696
R-squared	0.660	0.746	0.611	0.583
	(11)	(12)	(13)	(14)
	Panel C: differentiated goods			
Number of trading partners	*Any*	*1-5*	*6-10*	*10+*
Political affinity (t-1)	0.255**	-0.036	0.350**	0.451**
	(0.103)	(0.153)	(0.142)	(0.205)
Observations	169,454	81,455	81,540	41,837
R-squared	0.526	0.594	0.483	0.481
Year FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
FirmXYear FE	Yes	Yes	Yes	Yes
Log firm assets	Yes	Yes	Yes	Yes
Log country GDP, log population	Yes	Yes	Yes	Yes

Notes: Sample consists of a company-by-destination country export observations in Russia over 2001-2011. Sample excludes exports into localities/affiliated territories that do not have formal representation in the UN and companies with no information about value of assets. Additionally, sample in specifications 2,3, and 4 is further restricted to exporting firms trading in a given year with 1-5, 6-10, more than 10 countries, respectively. Dependent variable is log of total amount of exports (in current USD) of (all, homogeneous, differentiated) goods being sent by a given firm into a given destination country. Classification of goods into homogeneous and differentiated is done according to Rauch (1999). Political Affinity is Gartzke (2010) Affinity of National Index calculated on the basis of similarity of country's votes with Russia in a given year. Firm assets are obtained from SPARK-Interfax database, log country GDP (chained real GDP) and log country population are from PennWorld Tables. All specifications are estimated by OLS. Log exporting firm assets, log country GDP, log country population are included in all regressions, but not reported. Country fixed effects, firm fixed effects, and time fixed effects are included in all regressions but not reported. Standard errors clustered at the exporting firm level are reported in parenthesis. ***, **, * indicate statistical significance at 1%, 5%, and 10%, respectively.

Table 5: Diversification: Heterogeneity with respect to political β.

	(1)	(2)	(3)	(4)
	Dependent variable: log exports			
	Panel A: Value-weighted portfolio			
Affinity index(t-1) X political β	0.117***	0.123***	0.139***	0.147***
	(0.012)	(0.012)	(0.012)	(0.012)
Affinity index(t-1)	0.347***		0.340***	
	(0.114)		(0.112)	
Political β	0.174***	0.177***	0.173***	0.175***
	(0.008)	(0.008)	(0.008)	(0.008)
Log firm assets	0.168***	0.168***		
	(0.013)	(0.014)		
Log country GDP	0.376***		0.423***	
	(0.062)		(0.066)	
Log country population	1.087***		0.982***	
	(0.227)		(0.231)	
Observations	134,658	135,867	179,914	181,896
R-squared	0.505	0.509	0.575	0.578
	Panel B: Equally-weighted			
Affinity index(t-1) X political β	0.045***	0.051***	0.052***	0.060***
	(0.010)	(0.010)	(0.010)	(0.010)
Affinity index(t-1)	0.355***		0.353***	
	(0.114)		(0.112)	
Political β	0.063***	0.065***	0.067***	0.068***
	(0.007)	(0.006)	(0.006)	(0.006)
Log firm assets	0.170***	0.170***		
	(0.013)	(0.014)		
Log country GDP	0.284***		0.343***	
	(0.062)		(0.066)	
Log country population	0.870***		0.719***	
	(0.225)		(0.231)	
Observations	134,658	135,867	179,914	181,896
R-squared	0.496	0.500	0.566	0.569
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Firm X year FE	No	No	Yes	Yes
Country X year FE	No	Yes	No	Yes

Notes: Sample consists of a company-by-destination country export observations in Russia over 2006-2011. Sample excludes exports into localities/affiliated territories that do not have formal representation in the UN and companies with no information about value of assets. Dependent variable is log of total amount of exports (in current USD) being sent by a given firm into a given destination country. Political Affinity is Gartzke (2010) Affinity of National Index calculated on the basis of similarity of country's votes in the UNGA with Russia in a given year. Country political β in Panel A (B) is calculated by a rolling pre-ranking value-weighted (equally-weighted) approach as described in the main text. Firm assets are obtained from SPARK-Interfax database, log country GDP (chained real GDP) and log country population are from PennWorld Tables. All specifications are estimated by OLS. Log exporting firm assets, log country GDP, log country population are included in all regressions, but not reported. Country fixed effects, firm fixed effects, and time fixed effects are included in all regressions but not reported. In addition, specifications 3, 4 include firm X year fixed effects, and specifications 2,4 include country X year fixed effects. Standard errors (clustered at the firm level are calculated by bootstrap with 1000 repetitions. ***, **, * indicate statistical significance at 1%, 5%, and 10%, respectively.

Table 6: Diversification: Political β vs. Political σ .

	(1)	(2)	(3)	(4)	(7)	(8)
			Dependent variable: log exports			
Affinity index(t-1) X country political σ	2.094**	1.424*	0.661	-0.348	1.051	0.328
	(0.869)	(0.805)	(0.914)	(0.839)	(0.927)	(0.843)
Affinity index(t-1) X country political β			0.117***	0.140***	0.045***	0.052***
			(0.012)	(0.012)	(0.010)	(0.010)
Affinity index(t-1)	0.165	0.206	0.274*	0.386***	0.233	0.317**
	(0.142)	(0.142)	(0.157)	(0.147)	(0.157)	(0.148)
Country political σ	0.235	0.232	-0.990*	-1.289**	-0.561	-0.878
	(0.588)	(0.549)	(0.602)	(0.575)	(0.610)	(0.582)
Country political β			0.175***	0.174***	0.063***	0.067***
			(0.008)	(0.008)	(0.007)	(0.006)
Log firm assets	0.191***		0.168***		0.170***	
	(0.013)		(0.013)		(0.013)	
Log country GDP	0.191***	0.185***	0.352***	0.352***	0.290***	0.312***
	(0.063)	(0.064)	(0.065)	(0.068)	(0.065)	(0.068)
Log country population	0.661***	0.440*	1.014***	0.800***	0.886***	0.641***
	(0.227)	(0.229)	(0.234)	(0.236)	(0.232)	(0.236)
Observations	144,942	198,204	134,658	179,914	134,658	179,914
R-squared	0.498	0.572	0.505	0.575	0.496	0.566
Measurement country political β	NA	NA	*Value-weighted*		*Equally-weighted*	
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm X year FE	No	Yes	No	Yes	No	Yes

Notes: Sample consists of a company-by-destination country export observations in Russia over 2006-2011. Sample excludes exports into localities/affiliated territories that do not have formal representation in the UN and companies with no information about value of assets. Dependent variable is log of total amount of exports (in current USD) being sent by a given firm into a given destination country. Political Affinity is Gartzke (2010) Affinity of National Index calculated on the basis of similarity of country's votes in the UNGA with Russia in a given year. Country political β in Panel A (B) is calculated by a rolling pre-ranking value-weighted (equally-weighted) approach, as described in the main text. Country political σ is a past 12 period's variance of Affinity index for a given country. Firm assets are obtained from SPARK-Interfax database, log country GDP (chained real GDP) and log country population are from PennWorld Tables. All specifications are estimated by OLS. Country fixed effects, firm fixed effects, and time fixed effects are included in all regressions but not reported. In addition, specifications 2, 4 and 6 include firm X year fixed effects. Standard errors (in parentheses) are calculated by bootstrap with 1000 repetitions (with two-way clustering at the firm and country levels). ***, **, * indicate statistical significance at 1%, 5%, and 10%, respectively.

Table 7: Diversification: Political β Construction with Country Exclusion

	(1)	(2)	(3)	(4)
	Dependent variable: log exports			
	Panel A: Value-weighted portfolio			
Affinity index(t-1)X political β of country	0.029**	0.034**	0.035***	0.041***
	(0.012)	(0.013)	(0.012)	(0.012)
Affinity index(t-1)	0.393***		0.376***	
	(0.108)		(0.117)	
Political β of country	0.049***	0.051***	0.047***	0.048***
	(0.008)	(0.008)	(0.008)	(0.008)
Log firm assets	0.172***	0.171***		
	(0.014)	(0.014)		
Log country GDP	0.192***		0.227***	
	(0.065)		(0.066)	
Log country population	0.648***		0.417*	
	(0.239)		(0.243)	
Observations	130,795	131,950	172,478	174,346
R-squared	0.491	0.495	0.562	0.564
	Panel B: Equally-weighted			
Affinity index(t-1)X political β of country	0.034***	0.038***	0.032***	0.038***
	(0.009)	(0.010)	(0.009)	(0.010)
Affinity index(t-1)	0.396***		0.379***	
	(0.108)		(0.116)	
Political β of country	0.034***	0.035***	0.038***	0.039***
	(0.006)	(0.007)	(0.006)	(0.006)
Log firm assets	0.173***	0.172***		
	(0.014)	(0.014)		
Log country GDP	0.206***		0.255***	
	(0.065)		(0.066)	
Log country population	0.695***		0.464*	
	(0.239)		(0.242)	
Observations	130,795	131,950	172,478	174,346
R-squared	0.491	0.495	0.562	0.564
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Firm X year FE	No	No	Yes	Yes
Country X year FE	No	Yes	No	Yes

Notes: Sample consists of a company-by-destination country export observations in Russia over 2006-2011. Sample excludes exports into localities/affiliated territories that do not have formal representation in the UN and companies with no information about value of assets. Dependent variable is log of total amount of exports (in current USD) being sent by a given firm into a given destination country. Political Affinity is Gartzke (2010) Affinity of National Index calculated on the basis of similarity of country's votes in the UNGA with Russia in a given year. Country political β in Panel A (B) is calculated by a rolling pre-ranking value-weighted (equally-weighted) approach with country exclusion as described in the main text. Firm assets are obtained from SPARK-Interfax database, log country GDP (chained real GDP) and log country population are from PennWorld Tables. All specifications are estimated by OLS. Log exporting firm assets, log country GDP, log country population are included in all regressions, but not reported. Country fixed effects, firm fixed effects, and time fixed effects are included in all regressions but not reported. In addition, specifications 3, 4 include firm X year fixed effects, and specifications 2,4 include country X year fixed effects. Standard errors (clustered at the firm level) are calculated by bootstrap with 1000 repetitions. ***, **, * indicate statistical significance at 1%, 5%, and 10%, respectively.

Table 8: Using Aggregated Bilateral Trade Data from UN-Comtrade. (Non-bootstrapped)

	(1)	(2)	(3)	(4)
	Dependent variable: log bilateral trade			
Political β X Affinity index	-0.001	0.010	-0.000	0.016
	(0.003)	(0.022)	(0.002)	(0.021)
Political σ X Affinity index			-2.488***	-2.538***
			(0.939)	(0.940)
Affinity index	0.275**	0.269**	0.582***	0.579***
	(0.112)	(0.107)	(0.153)	(0.153)
Political β	0.000	-0.005	-0.000	-0.010
	(0.001)	(0.014)	(0.001)	(0.013)
Political σ			1.768***	1.798***
			(0.591)	(0.591)
Observations	179,995	179,995	179,995	179,995
R-squared	0.864	0.864	0.864	0.864
Measurement of political β	Equally-weighted	Value-weighted	Equally-weighted	Value-weighted
Destination & origin countries (log) GDP and population	Yes	Yes	Yes	Yes
Importer X Exporter pair FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

Notes: Sample includes bilateral trade observations over 1963-2000 from NBER-Comtrade database. Localities that have no representation in the UN are excluded from the sample. Political Affinity is Gartzke (2010) Affinity of National Index calculated on the basis of similarity of votes in the UNGA of a given pair of countries in a given year. Importing country political β in Panel A (B) is calculated by a rolling pre-ranking value-weighted (equally-weighted) approach on the basis of preceding decade information, as described in the main text. Country political σ is a past decade's variance of Affinity index for a given country. Log importing and exporting country GDP (chained real GDP) and log importing and exporting countries population (from PennWorld Tables) are included in all regressions. All specifications are estimated by OLS. Dyadic country pair fixed effects and year fixed effects are included in all regressions, but not reported. Standard errors (in parentheses) are calculated by bootstrap with 1000 repetitions (with two-way clustering at the importing and exporting country levels). ***, **, * indicate statistical significance at 1%, 5%, and 10%, respectively.

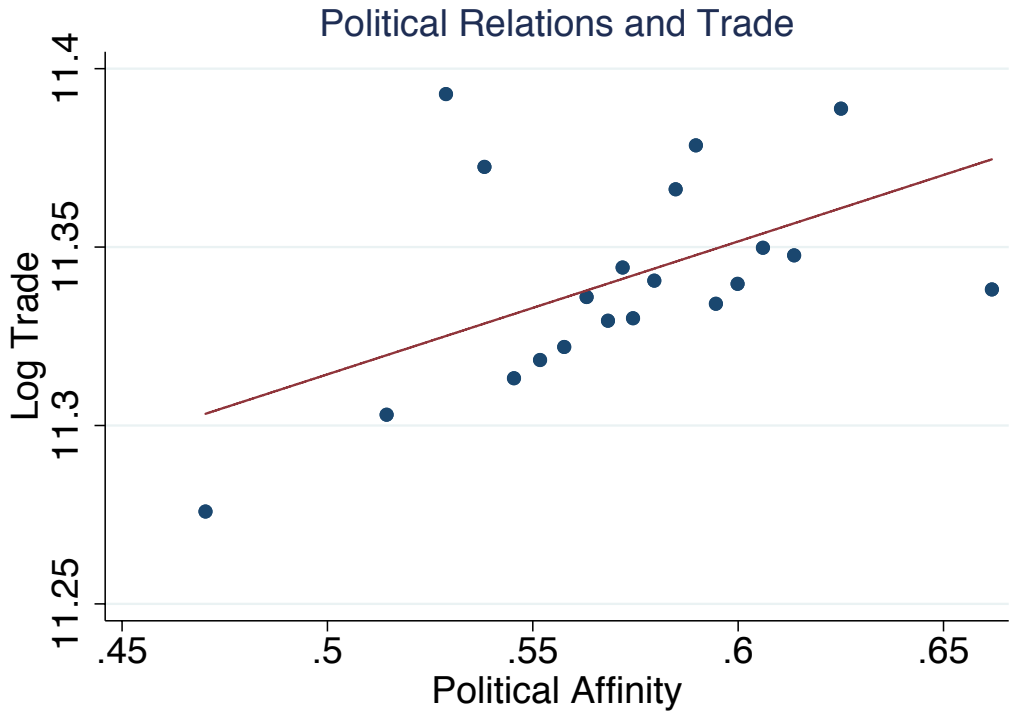
Table 9: Political relations and the choice of new trading partners

	(1)	(2)	(3)	(4)
	Dependent variable: Mean Affinity Index (new destinations)			
Mean Affinity index (old destinations)	-0.286***	-0.055***	-0.226***	-0.066***
	(0.013)	(0.011)	(0.012)	(0.011)
Mean Affinity index (potential destinations)		1.201***		1.247***
		(0.024)		(0.025)
Log firm assets	-0.004	-0.005	-0.006	-0.008**
	(0.004)	(0.003)	(0.004)	(0.004)
Observations	27,767	27,767	27,767	27,767
R-squared	0.350	0.464	0.323	0.431
Weighting approach	*Equally-weighted*		*Value-weighted*	
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes

Notes: Sample includes all exporting firms that has started trading with new destination markets in a given year. Dependent variable is equal to weighted average Affinity Index with new destination markets. Mean Affinity index (old destinations. potential destinations) is equal to weighted-average Affinity Index with (destinations with which company traded in the previous period, did not trade in the previous period), respectively. In specifications (1) and (2) weighting is proportional to current trade shares, while in specifications (3) and (4) equal weights are used. For potential destinations equal weights are used throughout. Firm assets are from SPARK-Interfax database. Year fixed effects and exporting firm fixed effects are included in all regressions but not reported. Standard errors (in parentheses) are clustered at the firm level. ***, **, * indicate statistical significance at 1%, 5%, and 10%, respectively.

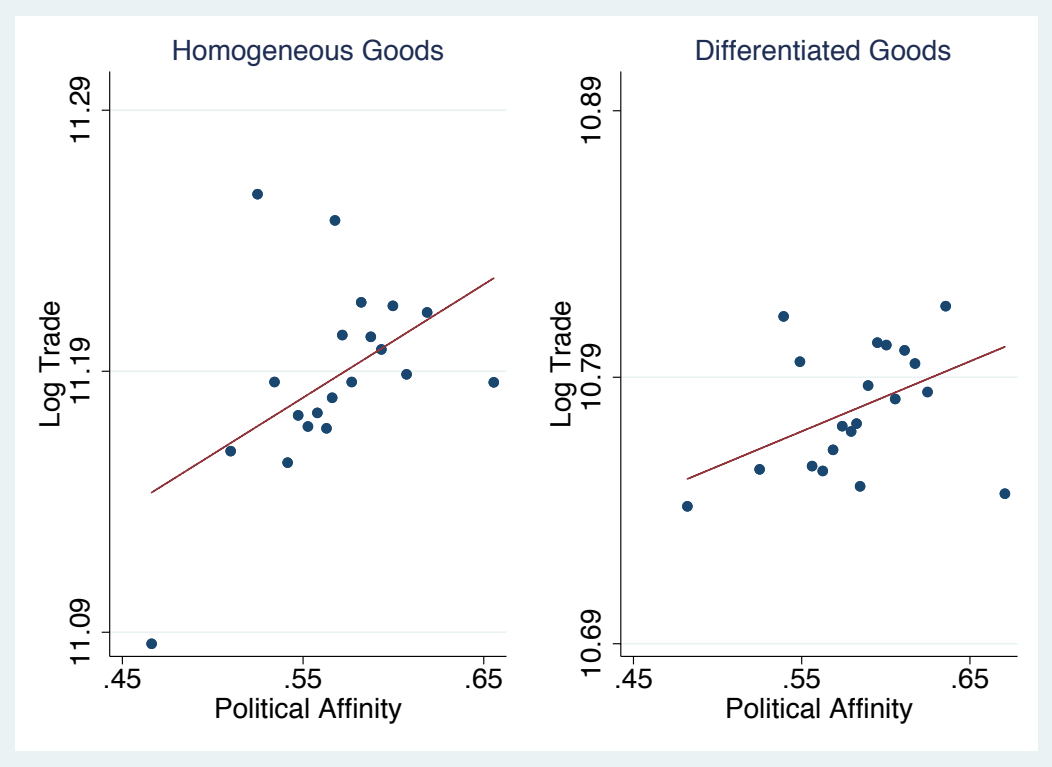
Figures

Figure 1: Baseline effect



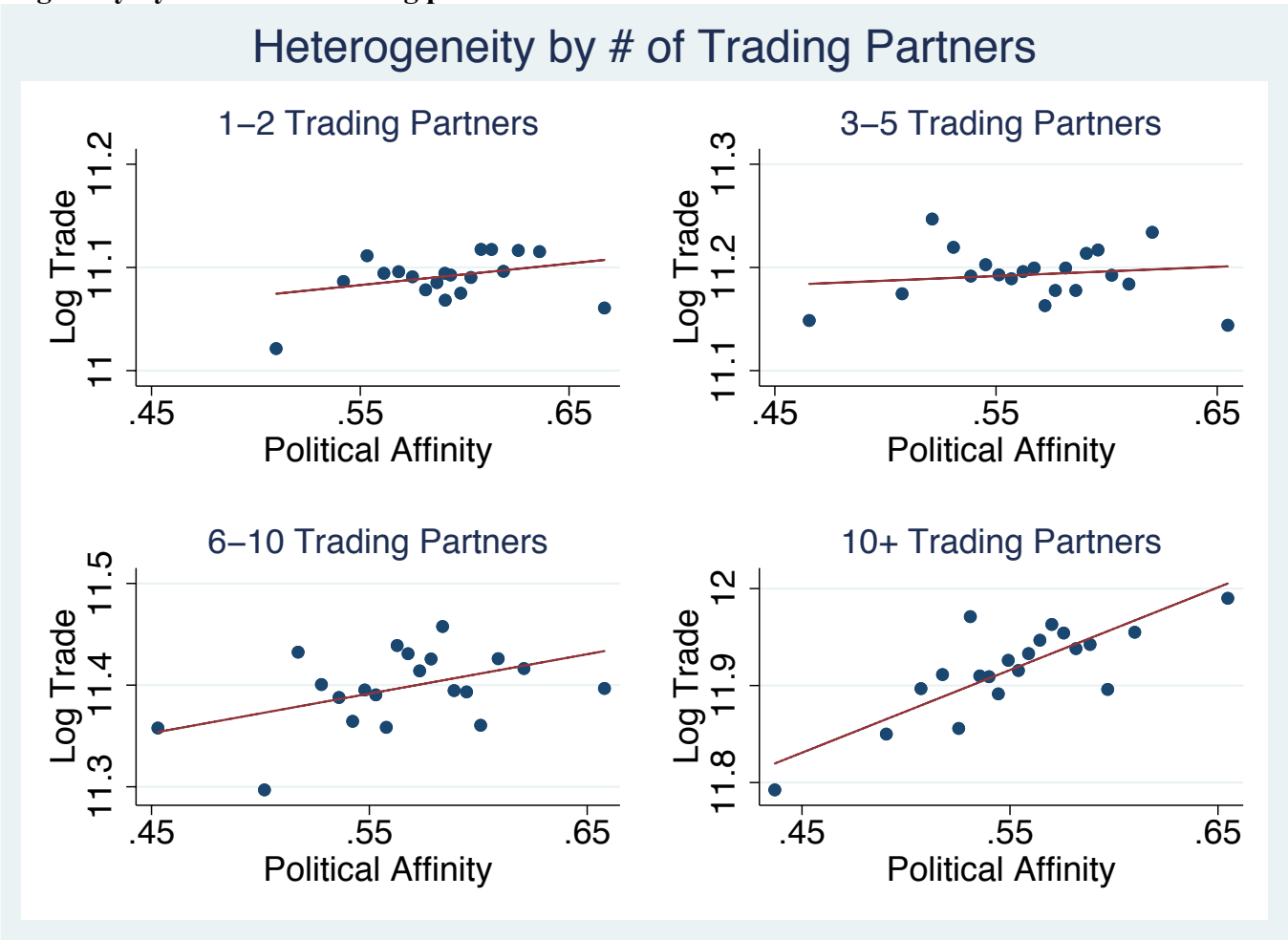
Notes: This figure shows the relation between political affinity for Russia and a given country and Russian firms' exports into that country. The heterogeneity here is by the degree of similarity of a given country to other countries in firm's portfolio of countries. We restrict observations to countries with at least 3 trading partners. "High correlation" is a country which is similar to other countries a given company trades with, "Low correlation" is a country which tends to move against other countries in exporting firm's portfolio of destination countries. Political affinity is Gartzke measure of similarity of votes in the UN General Assembly. Higher number means better political relations. Country fixed effects, exporting company fixed effects and year fixed effects are included in all regressions. We also include firm's log of assets, and country's log of GDP.

Figure 2: Homogeneous vs differentiated goods



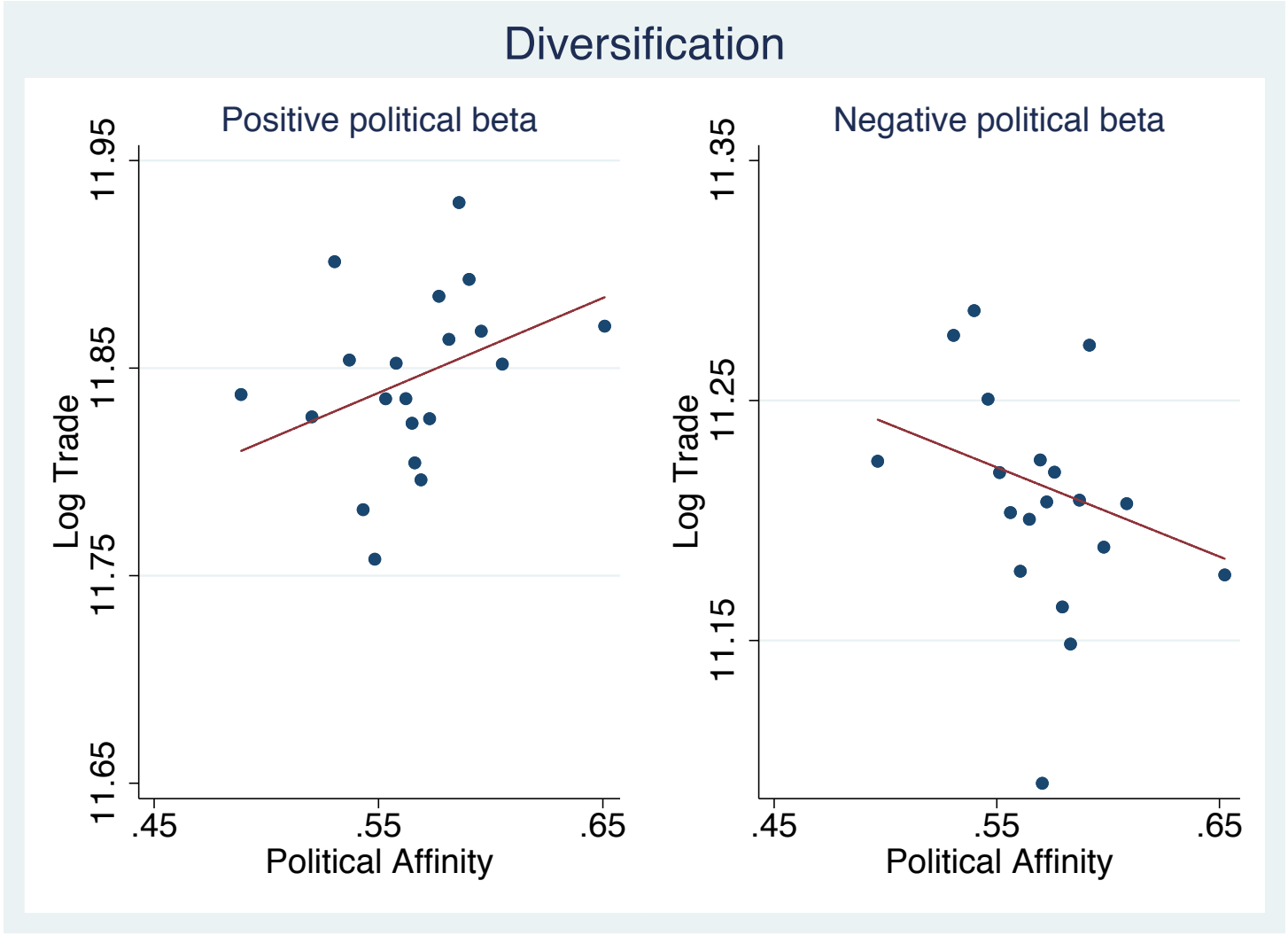
Notes: This figure shows the relation between political affinity for Russia and a given country and Russian firms' exports into that country separately for homogeneous and differentiated commodities. Political affinity is Gartzke measure of similarity of votes in the UN General Assembly. Higher number means better political relations. Country fixed effects, exporting company fixed effects and year fixed effects are included in all regressions. We also include firm's log of assets, and country's log of GDP.

Figure 3: Heterogeneity by number of trading partners



Notes: This figure shows the relation between political affinity for Russia and a given country and Russian firms' exports into that country separately for companies trading with different number of countries. The idea being that political relations with a given destination market have a higher impact on trade provided a company has more other destination markets to substitute into. Political affinity is Gartzke measure of similarity of votes in the UN General Assembly. Higher number means better political relations. Country fixed effects, exporting company fixed effects and year fixed effects are included in all regressions. We also include firm's log of assets, and country's log of GDP.

Figure 4. Political beta effect



Notes: This figure shows the relation between political affinity for Russia and a given country and Russian firms' exports into that country. The heterogeneity here is by the degree of similarity of a given country to other countries in firm's portfolio of countries. We restrict observations to countries with at least 3 trading partners. Political affinity is Gartzke measure of similarity of votes in the UN General Assembly. Higher values means better political relations. Country fixed effects, exporting company fixed effects and year fixed effects are included in all regressions. We also include firm's log of assets, and country's log of GDP.

Appendix A1: Derivations of Empirical predictions.

Prediction 1: *Worsening political relations between Russia and a given country results in lower exports into that country by Russian exporters.*

Prediction 2: *The impact of political relations on exports is stronger for exporting firms that trade with more countries (i.e. have more margins of adjustment).*

These predictions follow from the two propositions below:

Theorem 1: (restricted response)*: Consider an exporter selling in N markets in periods 1 and 2. Assume that contemporaneous ($t = 1$) political relations with one of the markets changes by dA_1^j. Then the (restricted) response, $dQ_1^{j,R}$, in the given export market j while keeping the exports to other markets, $Q_1^i, i \neq j$, constant, would be the same in sign to $\frac{\partial^2 \pi_1^j}{\partial A_1^j \partial Q_1^j}$.*

Proof: The result follows immediately by totally differentiating the first order condition to the exporter's problem (4), while assuming that $dQ_1^i = 0, i \neq j$:

$$\frac{dQ_1^{j,R}}{dA_1^j} = -\frac{1}{\Delta_j} \frac{\partial^2 \pi_1^j}{\partial A_1^j \partial Q_1^j} \qquad (A1.1)$$

Where Δ_j is the partial second derivative of the objective function with respect to Q_1^j, which is negative due to the respective second order conditions.

Q.E.D.

Theorem 2: *Consider an exporter selling in N markets. Assume political relations with the market j change by dA_1^j. Assume the firm can adjust its exports only in some markets: $M = \{m_1, m_2, \ldots, m_M\}$. Denote the resulting (partially restricted) optimal response in market j as $dQ^j(M)$. Assume now we allow adjustment in more markets $M' = M \cup (m'_1, m'_2, \ldots, m'_K)$. Then the optimal response in market j will be negative and larger (in absolute value) when adjustment in a larger set of markets M' is allowed:*

$$\left|dQ^j\ (M')\right| > \left|dQ^j(M)\right| \qquad (A1.2)$$

Proof

The proof follows from the Generalized Le Chatelier Principle as derived in Samuelson (1947). See e.g. Samuelson (1983) p. 36-38 and associated equation (44). For the convenience of the reader, we reproduce the full proof below in a separate Appendix section A2 below adjusting the exposition in Samuelson to our particular case. Also, the derivation in Samuelson (1983) makes use of the Jacobi Theorem on determinants, which we essentially rederive from first principles.
Q.E.D.

Corollary 1: *Consider an exporter selling in N markets. Assume that that contemporaneous ($t = 1$) political relations with one of the markets changes by dA_1^j . Then the response, dQ_1^j , in the given export market j while allowing the exports to other markets, $Q_1^i, i \neq j$, to adjust optimally would be the same in sign to and larger in magnitude than the restricted response $dQ_1^{j,R}$, when keeping exports to other markets, $Q_1^i, i \neq j$, fixed.*

Prediction 3: *The magnitude of the negative response of exports to a decrease in political relations is smaller (less negative) in the case of more differentiated products.*

Prediction 4: *The magnitude of the negative response of exports to a decrease in political relations is greater in magnitude (i.e., more negative) in the case of destinations whose political relations tend to co-move with political relations of an exporter's other export destinations and smaller in magnitude (i.e., less negative) for destinations whose political relations tend to move less with (or even against) the political relations of an exporter's other export destinations.*

Both of these predictions come from the following intuitive idea. In our multiperiod setup, exports into a given market today produce two types of benefits for a given exporting firm: (i) contemporaneous – through the impact on current profits of this firm and (ii) future benefits accrued from higher current exports increasing demand for the product of this firm in the future. Denote $\mathrm{P}(Q)$ current profits of selling the good and $C(Q)$ future benefits then

$$\max \mathrm{AP}(Q) + BC(Q) \tag{A1.3}$$

$$AP'(Q) + BC'(Q) = 0 \tag{A1.4}$$

$$\frac{dQ}{dA} = \frac{-P'(Q)}{AP''(Q) + BC''(Q)} \tag{A1.5}$$

When the benefits accrued in the future are smaller, then the effect of any shocks to demand today would become larger as decision to export would be primarily determined by current profits, i.e. keeping other things equal $\frac{dQ}{dA}$ larger when B is smaller. Or,

$$\frac{\partial}{\partial B}\left(\frac{dQ}{dA}\right) \leq 0 \qquad (A1.6)$$

In the theorem below we show that the value of future benefits is lower for homogeneous goods and in the case of markets that tend to co-move with other markets in the firm's political portfolio (i.e. markets that expose the given exporter to higher systematic political risk).

Theorem 3: *Consider an exporter selling in N markets in periods 1 and 2. Assume that contemporaneous ($t = 1$) political relations with one of the markets changes by dA_1^j. Then the (restricted) response, $dQ_1^{j,R}$, in the given export market j while keeping the exports to other markets, $Q_1^i, i \neq j$, constant would be **larger** in the case when relationship-specific investment $\phi(Q_1^j)$ is **less** productive (i.e. results in **smaller** future marginal benefits).*

Proof:

From First Order Conditions of the exporter's problem we have:

$$\frac{dQ_1^{jR}}{dA_1^j} = -\frac{1}{\Delta_j}\frac{\partial^2 \pi_1}{\partial Q_1^j \partial A_1^j} \qquad (A1.7)$$

Where Δ_j is the term corresponding to a given market in the Second Order Conditions. In turn, this term is equal to the second derivative of the objective functions w.r.t. Q_1^j.

$$\Delta_j \equiv \frac{\partial^2 \pi_1}{\left(\partial Q_1^j\right)^2} + \frac{\partial}{\partial Q_1^j}\left(\phi'\left(Q_1^j\right)\left[\theta\, E\left[\pi_2\left(A_2^j\right)\right] - \delta^2\, cov\left(\pi_2\left(A_2^j\right), \sum_i \phi\left(Q_1^i\right)\pi_2\left(A_2^i\right)\right)\right]\right) \qquad (A1.8)$$

Thus, keeping other things equal (namely, the effect on current benefits, $\frac{\partial^2 \pi_1}{\partial Q_1^j \partial A_1^j}$) the response, $\frac{dQ_1^{jR}}{dA_1^j}$, will be larger in magnitude in the case when Δ_j is smaller in absolute value.[41]

[41] $\Delta_j \leq 0$ due to second order conditions.

For homogeneous products we are likely to have that $\phi'(Q_1^j)$ is very small. The product is viewed as highly substitutable with other products and productivity relationship-specific investment into the product is likely to be small.

Formally, we can represent product homogeneity as assuming that relationship-specific investment is:

$$\phi \equiv \phi(Q_1^j, \lambda) = \lambda\psi(Q_1^j) \qquad (A1.9)$$

with higher values of λ representing more product differentiation. It is then clear that

$$\frac{\partial}{\partial\lambda}\left(\frac{dQ}{dA}\right) \leq 0 \qquad (A1.10)$$

Exporters of more differentiated products who have a higher productivity of relationship-specific investment respond less to contemporaneous variation in political relations.

Q.E.D.

Theorem 4: *Consider an exporter selling in N markets in periods 1 and 2. Assume that contemporaneous ($t = 1$) political relations with one of the markets changes by dA_1^j. Assume that investment in relationship-specific investment exhibit decreasing returns to scale: $\phi''(Q_1^j) < 0$. Then the (restricted) response, $dQ_1^{j,R}$, in the given export market j while keeping the exports to other markets, $Q_1^i, i \neq j$, constant would be **lower** in the case of markets that tend to co-move **less** (in terms of political relations) with other export destination countries of the firm (i.e. the response to contemporaneous relations is **smaller** for markets with **lower** systematic political risk).*

Proof:

From First Order Conditions to exporter's problem we have:

$$\frac{dQ_1^{jR}}{dA_1^j} = -\frac{1}{\Delta_j}\frac{\partial^2\pi_1}{\partial Q_1^j \partial A_1^j} \qquad (A1.11)$$

where Δ_j is the term corresponding to a given market in the Second Order Conditions. In turn, this term is equal to the second derivative of the objective functions w.r.t. Q_1^j.

$$\Delta_j \equiv \frac{\partial^2\pi_1}{\left(\partial Q_1^j\right)^2} + \frac{\partial}{\partial Q_1^j}\left(\phi'(Q_1^j)\left[\theta\, E[\pi_2(A_2^j)] - \delta^2\, cov\left(\pi_2(A_2^j), \sum_i \phi(Q_1^i)\pi_2(A_2^i)\right)\right]\right) \qquad (A1.12)$$

To assess the impact of country-level systematic risk rewrite Δ_j as:

$$\Delta_j = \frac{\partial^2 \pi_1}{\left(\partial Q_1^j\right)^2} + \phi''\left(Q_1^j\right)\{\theta E\left[\pi_2\left(A_2^j\right)\right] - \delta^2\, CV_j\} - \delta^2\left[\phi'^2\left(Q_1^j\right) - \phi''\left(Q_1^j\right)\phi\left(Q_1^j\right)\right]\sigma^2(\pi_2\left(A_2^j\right))$$

$$(A1.13)$$

where

$$CV_j = cov\left(\pi_2\left(A_2^j\right), \sum_{i \neq j} \phi\left(Q_1^i\right)\pi_2\left(A_2^i\right)\right) \qquad (A1.14)$$

reflects the degree of co-movement of market j with other markets in firm's portfolio of countries. It is obvious that keeping other things equal,

$$\frac{\partial}{\partial CV_j}\left(\frac{dQ_1^j}{dA_1^j}\right) \geq 0 \qquad (A1.15)$$

That is, the response to political relations is larger for countries that tend to co-move more with other countries in firm's portfolio. Similarly, the response is smaller for countries that tend to co-move less, or even more against other countries the firm exports to. **Q.E.D.**

Appendix A2: Proof of the Generalized Le Chatelier Principle

The general form of the exporter's problem (3) in the main text can be written equivalently as:

$$max_{Q_j} \sum_{j=1}^{N} F^{(j)}(Q_j, A_j) - C(Q_1, \dots, Q_N, A_1, \dots, A_N) \quad (A2.1)$$

Here $F^{(j)}(Q_j, A_j)$ is equal to first period profits $\pi_1^j = \pi_1(A_1^j, Q_1^j)$ from equation (2) and $C(Q_1, \dots, Q_N, A_1, \dots, A_N)$ (with a negative sign) represents the whole second period expectation and covariance terms in objective function (3).

Theorem 5 (Generalized Le Chatelier Principle: adjustment in all markets): *Assume the firm maximizes the payoff function in equation (A2.1). Assume that A_j increases by dA_j while other parameters remain constant, $dA_i, i \neq j$. Then the optimal response of dQ_j will be the same in sign to the restricted response, dQ_j^R, while keeping $dQ_i = 0, i \neq j$. Moreover, both responses will be the same in sign as the following derivative:*

$$sign\left\{\frac{dQ_j}{dA_j}\right\} = sign\left\{\frac{dQ_j^R}{dA_j}\right\} = sign\left\{\frac{\partial^2}{\partial Q_j \partial A_j}\left(F^{(j)}(Q_j, A_j) - C(Q_1, \dots Q_N, A_1, \dots, A_N)\right)\right\} \quad (A2.2)$$

Proof:

Consider First Order Conditions associated with the problem in (A2.1):

$$\frac{\partial F^{(j)}(Q_j, A_j)}{\partial Q_j} - \frac{\partial C(Q_1, \dots, Q_N, A_1, \dots, A_N)}{\partial Q_j} = 0, j = 1, \dots N. \quad (A2.3)$$

Assume one of the parameters, A_j, changes by dA_j, while the others remain fixed. When we do not allow for the response in $Q_i, i \neq j$, i.e. $dQ_i = 0, i \neq j$ the restricted response in terms of Q_j: dQ_j^R can be found from the following equation:

$$(F_{jj} - C_{jj})dQ_j^R = -(F_{jA} - C_{jA})\, dA_j \quad (A2.4)$$

Here and onward double subscripts denote corresponding partial derivatives. $F_{jj} \sim \frac{\partial^2 F^{(j)}(Q_j, A_j)}{\partial Q_j^2}$, $F_{jA} \sim \frac{\partial^2 F^{(j)}(Q_j, A_j)}{\partial Q_j \partial A_j}$, $C_{jA} \sim \frac{\partial^2 C}{\partial Q_j \partial A_j}$.

The term on the left-hand side pre-multiplying dQ_j^R: $\left(F_{jj} - C_{jj}\right)$, is nonpositive due to Second Order Conditions. Thus, the sign of $\frac{dQ_j^R}{\mathrm{dA_j}}$ will be the same as the sign of the $F_{jA} - C_{jA}$ cross-derivative, i.e.,

$$sign\left\{\frac{dQ_j^R}{dA_j}\right\} = sign\left\{\frac{\partial^2}{\partial Q_j \partial\, A_j}\left(F_j\left(Q_j, A_j\right) - C(Q_1, \dots Q_N, A_1, \dots, A_N)\right)\right\} \qquad (A2.5)$$

Consider now the optimal response of the agent when his/her exports in all markets are allowed to be adjusted. In this case, $dQ_i, i \neq j$ are allowed to deviate from zero. Assume for simplicity that $j = 1$. Totally differentiating the First Order Conditions in (A2.3), we get for the selected market $j = 1$:

$$(F_{1A} - C_{1A})dA_1 + (F_{11} - C_{11})dQ_1 - \sum_{k=2}^{N} C_{1k}dQ_k = 0 \qquad (A2.6)$$

And for any other market $i \neq 1$, without a shock we have:

$$(F_{ii} - C_{ii})dQ_i - \sum_{k=2}^{N} C_{ik}dQ_k = 0, i = 2, \dots, N \qquad (A2.7)$$

It is useful to write this system of equations (A2.6) and (A2.7) in matrix notation:

$$\begin{pmatrix} F_{11} - C_{11} & -C_{12} & \cdots & -C_{1N} \\ -C_{12} & F_{22} - C_{22} \cdots & & -C_{2N} \\ \cdots & \cdots & \cdots & \cdots \\ -C_{1N} & -C_{2N} & \cdots F_{NN} - C_{NN} & \end{pmatrix}\begin{pmatrix} dQ_1 \\ dQ_2 \\ \cdots \\ dQ_N \end{pmatrix} = \begin{pmatrix} (F_{1A} - C_{1A})dA_1 \\ 0 \\ \cdots \\ 0 \end{pmatrix} \qquad (A2.8)$$

The matrix:

$$\Delta = \begin{pmatrix} F_{11} - C_{11} & -C_{12} & \cdots & -C_{1N} \\ -C_{12} & F_{22} - C_{22} \cdots & & -C_{2N} \\ \cdots & \cdots & \cdots & \cdots \\ -C_{1N} & -C_{2N} & \cdots F_{NN} - C_{NN} & \end{pmatrix} \qquad (A2.9)$$

is the Hessian of the firm's optimization problem (A2.1) and hence it is negative semidefinite by the Second Order Conditions.

We need to solve the system (A2.8) for dQ_1. Consider the equations (A2.7) from markets $i = 2, \dots, N$. In matrix form those can be written as:

$$\begin{pmatrix} F_{22} - C_{22} & -C_{13} & \cdots & -C_{2N} \\ -C_{13} & F_{33} - C_{33} \cdots & & -C_{3N} \\ \cdots & \cdots & \cdots & \cdots \\ -C_{2N} & -C_{3N} & \cdots F_{NN} - C_{NN} & \end{pmatrix}\begin{pmatrix} dQ_2 \\ dQ_3 \\ \cdots \\ dQ_N \end{pmatrix} = \begin{pmatrix} C_{12} \\ C_{13} \\ \cdots \\ C_{1N} \end{pmatrix} dQ_1 \qquad (A2.10)$$

The matrix

$$\Delta_{(-1)} = \begin{pmatrix} F_{22} - C_{22} & -C_{13} & \cdots & -C_{2N} \\ -C_{13} & F_{33} - C_{33} & \cdots & -C_{3N} \\ \cdots & \cdots & \cdots & \cdots \\ -C_{2N} & -C_{3N} & \cdots & F_{NN} - C_{NN} \end{pmatrix} \quad (A2.11)$$

is the square submatrix obtained from the original Hessian by crossing out the first row and first column. It is also negative semidefinite as the main diagonal submatrix of a negative semidefinite matrix.[42]

It is instructive to introduce notation for the following vectors:

$$\vec{c}_{(-1)} = \begin{pmatrix} -C_{12} \\ -C_{13} \\ \cdots \\ -C_{1N} \end{pmatrix} \quad (A2.12)$$

and

$$d\vec{Q}_{(-1)} = \begin{pmatrix} dQ_2 \\ dQ_3 \\ \cdots \\ dQ_N \end{pmatrix} \quad (A2.13)$$

Then equation (A2.10) can be written in matrix notation as:

$$\Delta_{(-1)} d\vec{Q}_{(-1)} = -\vec{c}_{(-1)} dQ_1 \quad (A2.14)$$

This allows us to express all components of vector $d\vec{Q}_{(-1)}$ as (linear) functions of dQ_1.

$$d\vec{Q}_{(-1)} = -\Delta_{(-1)}^{-1} \vec{c}_{(-1)} dQ_1 \quad (A2.15)$$

Similarly, the equation (A2.6) (for the market that was hit by a shock) can be written as:

$$(F_{11} - C_{11}) dQ_1 + \vec{c}_{(-1)}^{T}\, d\vec{Q}_{(-1)} = -(F_{1A} - C_{1A}) dA_1 \quad (A2.16)$$

or, alternatively,

$$(F_{11} - C_{11}) dQ_1 - \vec{c}_{(-1)}^{T}\, \Delta_{(-1)}^{-1} \vec{c}_{(-1)} dQ_1 = -(F_{1A} - C_{1A}) dA_1 \quad (A2.17)$$

When the impact on other markets ($i > 1$) is ignored, then, as we saw above in equation (A2.4), the restricted change in dQ_1^R in response to an increase dA_1 (keeping exports to other markets $Q_i, i \neq 1$ fixed) was the same as the sign of $F_{1A} - C_{1A}$. Indeed, from (A2.4) we have:

$$\frac{dQ_1^R}{dA_1} = -\frac{(F_{1A} - C_{1A})}{(F_{11} - C_{11})} \quad (A2.18)$$

where $F_{11} - C_{11} < 0$ due to the second order conditions.

[42] It is also a Hessian for the problem with fixed Q_1 but optimally chosen $Q_i, i \neq 1$.

When general equilibrium effects are taken into account, we have additional compensatory effects from adjustments in other markets. Those are represented by $-\vec{c}_{(-1)}^{T}\,\Delta_{(-1)}^{-1}\vec{c}_{(-1)}$ term. This term is positive since matrix $\Delta_{(-1)}^{-1}$ is negative semidefinite. However, as Lemma 1 below demonstrates, the combined term pre-multiplying dQ_1: $F_{11} - C_{11} - \vec{c}_{(-1)}^{T}\,\Delta_{(-1)}^{-1}\vec{c}_{(-1)}$ is still unambiguously negative.

Hence the sign of the change in Q_j when other $Q_i, i \neq j$ are allowed to be adjusted would be the same as in the case of the restricted response. Moreover, the change, dQ_1, will be larger in magnitude as the restricted change since the denominator for unrestricted response.

Indeed, from (A2.17) we have:

$$\frac{dQ_1}{dA_1} = -\frac{(F_{1A} - C_{1A})}{(F_{11} - C_{11}) - \vec{c}_{(-1)}^{T}\,\Delta_{(-1)}^{-1}\vec{c}_{(-1)}} \qquad (A2.19)$$

Since $(F_{11} - C_{11}) - \vec{c}_{(-1)}^{T}\,\Delta_{(-1)}^{-1}\vec{c}_{(-1)}$ is smaller in absolute value than $(F_{11} - C_{11})$ we get that unrestricted response is the same in sign but larger in magnitude that the unrestricted response.

$$sign\left\{\frac{dQ_1}{dA_1}\right\} = sign\left\{\frac{dQ_1^R}{dA_1}\right\} \qquad (A2.20)$$

and

$$\left|\frac{dQ_1}{dA_1}\right| \geq \left|\frac{dQ_1^R}{dA_1}\right| \qquad (A2.21)$$

Q.E.D.

Lemma: Assume that matrix Δ is a negative semidefinite Hessian associated with the problem (A2.1). Then the following expression is nonpositive:

$$(F_{11} - C_{11}) - \vec{c}_{(-1)}^{T}\,\Delta_{(-1)}^{-1}\vec{c}_{(-1)} \qquad (A2.22)$$

Proof

Consider the Hessian matrix Δ from equation (A2.9). With the notation in (A2.11) and (A2.12) it can be written as:

$$\Delta = \begin{pmatrix} F_{11} - C_{11} & \vec{c}_{(-1)}^{T} \\ \vec{c}_{(-1)} & \Delta_{(-1)} \end{pmatrix} \qquad (A2.23)$$

Since matrix Δ is negative semidefinite due to Second Order Conditions of problem (A2.1), then for any N dimensional vector x we have:

$$x^T \Delta x \leq 0 \qquad (A2.24)$$

Let

$$x_0 = \begin{pmatrix} 1 \\ -\Delta_{(-1)}\vec{c}_{(-1)} \end{pmatrix} \quad (A2.25)$$

Then

$$x_0^T \Delta x_0 = (F_{11} - C_{11}) - \vec{c}_{(-1)}^T \, \Delta_{(-1)}^{-1} \vec{c}_{(-1)} \leq 0 \quad (A2.26)$$

Q.E.D.

Theorem 6 (Generalized Le Chatelier Principle: adjustment in a subset of markets): *Consider an exporter selling in N markets. Assume political relations with one of the markets changes by* dA_1^j. *Assume the producer can adjust its exports only in some markets:* $M = \{m_1, m_2, \ldots, m_M\}$. *Denote the resulting (partially restricted) optimal response in market j as* $dQ^j(M)$. *Assume now we allow adjustment in more markets* $M' = M \cup (m_1', m_2', \ldots, m_K')$. *Then the optimal response in market j will be negative and larger (in absolute value) when adjustment in a larger set of markets* M' *is allowed:*

$$\left|dQ^j \ (M')\right| > \left|dQ^j(M)\right| \quad (A2.27)$$

Proof: We will prove the claim of the theorem by mathematical induction. As before without loss of generality assume that the selected market $j = 1$.

Step 1: Initialization of the induction: Base case $n = 1$.

When we allow no markets to adjust then $dQ_1(0)$ can be found from the equation

$$(F_{11} - C_{11})dQ_1(0) = -(F_{1A} - C_{1A})dA_1 \quad (A2.28)$$

When one market is allowed to adjust then using equation (A2.17) for one-dimensional $\vec{c}_{(-1)}^T$ we get that $dQ_1(1)$ satisfies:

$$\left[(F_{11} - C_{11}) - \frac{c_{12}^2}{(F_{22} - C_{22})}\right] dQ_1(1) = -(F_{1A} - C_{1A})dA_1 \quad (A2.29)$$

Expression $(F_{11} - C_{11}) - \frac{c_{12}^2}{(F_{22} - C_{22})}$ is negative but smaller in absolute value than $|F_{11} - C_{11}|$ since $-\frac{c_{12}^2}{(F_{22} - C_{22})} \geq 0$. Hence,

$$|dQ_1(1)| > |dQ_1(0)| \quad (A2.30)$$

Thus, the theorem's claim is valid for $n = 1$.

Step 2. Inductive step.

Assume the proposition is true for $n = k$. Let's prove that it is true for $n' = k + 1$. In the case when k markets are allowed to adjust the resulting change in $dQ_1(k)$ is found from equation

(A2.19). Inspecting that expression it is obvious that in order to prove our proposition that $|dQ_1(k+1)| > |dQ_1(k)|$ it is sufficient to show that $\vec{c}_{(-1)}^T\ \Delta_{(-1)}^{-1}\vec{c}_{(-1)}$ is becoming more negative (increases in absolute value) when dimensions of $\vec{c}_{(-1)}$ and $\Delta_{(-1)}^{-1}$ increase.[43]

Denote as $\Delta_{(-1)}(k)$ and $\vec{c}_{(-1)}(k)$ those expressions for $n = k$. For $n = k+1$ these elements can be respectively written as:

$$\Delta_{(-1)}(k+1) = \begin{pmatrix} \Delta_{(-1)}(k) & \vec{b}_k \\ \vec{b}_k^T & a_{kk} \end{pmatrix} \tag{A2.31}$$

and

$$\vec{c}_{(-1)}(k+1) = \begin{pmatrix} \vec{c}_{(-1)}(k) \\ -C_{1,k+1} \end{pmatrix} \tag{A2.32}$$

where $\vec{b}_k^T = -(C_{2,k+1}, C_{3,k+1}, \ldots, C_{k,k+1})$ and $a_{kk} = F_{k+1,k+1} - C_{k+1,k+1}$.

Using the formula for the block inverse matrix when one of the blocks is a scalar:

$$\begin{pmatrix} A & b \\ b' & c \end{pmatrix}^{-1} = \begin{pmatrix} A^{-1} + \frac{1}{d}A^{-1}b\ b'A^{-1} & -\frac{1}{d}A^{-1}b \\ -\frac{1}{d}\ b'A^{-1} & \frac{1}{d} \end{pmatrix} \tag{A2.33}$$

where $d = c - b'A^{-1}b$.

We need to show that the negative (by Lemma 1) expression $\vec{c}_{(-1)}^T\ (k)\Delta_{(-1)}^{-1}(k)\vec{c}_{(-1)}(k)$ is larger in magnitude (more negative) for higher k. Using the block-inverse formula above for $\Delta_{(-1)}^{-1}(k+1)$ we can write the following difference as:

$$\vec{c}_{(-1)}^T\ (k+1)\Delta_{(-1)}^{-1}(k+1)\vec{c}_{(-1)}(k+1) - \vec{c}_{(-1)}^T\ (k)\Delta_{(-1)}^{-1}(k)\vec{c}_{(-1)}(k) =$$

$$= \frac{1}{d}\left(\vec{c}_{(-1)}^T(k)\ \Delta_{(-1)}^{-1}(k)\vec{b}_k\ \ \vec{b}_k^T\ \Delta_{(-1)}^{-1}(k)\vec{c}_{(-1)}(k) - 2\vec{c}_{(-1)}^T(k)\Delta_{(-1)}^{-1}(k)\vec{b}_k\ C_{1,k+1} + C_{1,k+1}^2\right) \tag{A2.34}$$

Here we use the fact that $\vec{c}_{(-1)}^T(k)\Delta_{(-1)}^{-1}(k)\vec{b}_k$ is scalar hence cross terms in the bilinear form above are equal to each other and can be written as $2\vec{c}_{(-1)}^T(k)\Delta_{(-1)}^{-1}(k)\vec{b}_k\ C_{1,k+1}$.

By the block-matrix inverse formula the denominator in the expression (A2.33)

$$d = F_{k+1,k+1} - C_{k+1,k+1} - \ \vec{b}_k^T\ \Delta_{(-1)}^{-1}(k)\vec{b}_k\ \leq 0, \tag{A2.35}$$

[43] Indeed, according to (A2.19): $\frac{dQ_1}{dA_1} = -\frac{(F_{1A}-C_{1A})}{(F_{11}-C_{11})-\vec{c}_{(-1)}^T\ \Delta_{(-1)}^{-1}\vec{c}_{(-1)}}$. When the negative term $\vec{c}_{(-1)}^T\ \Delta_{(-1)}^{-1}\vec{c}_{(-1)}$ increases in absolute value (becomes more negative), the denominator: $(F_{11} - C_{11}) - \vec{c}_{(-1)}^T\ \Delta_{(-1)}^{-1}\vec{c}_{(-1)}$ becomes closer to zero (while still remaining negative by Lemma 1), which increases the magnitude of $\frac{dQ_1}{dA_1}$.

which is non-positive by Lemma 1. (One need to apply Lemma 1 to market $k+1$ while allowing for the adjustment in markets $2-k$.)

The numerator in the expression (2.34) is positive. Indeed, since $\vec{c}^{T}_{(-1)}(k)\ \Delta^{-1}_{(-1)}(k)\vec{b}_k$ is a scalar, we have

$$\vec{c}^{T}_{(-1)}(k)\ \Delta^{-1}_{(-1)}(k)\vec{b}_k\ \ \vec{b}^{T}_{k}\ \Delta^{-1}_{(-1)}(k)\vec{c}_{(-1)}(k) = \left(\vec{c}^{T}_{(-1)}(k)\ \Delta^{-1}_{(-1)}(k)\vec{b}_k\ \right)^2 \qquad (A2.36)$$

Thus, the numerator om (2.34) is simply equal to:

$$\left(\vec{c}^{T}_{(-1)}(k)\ \Delta^{-1}_{(-1)}(k)\vec{b}_k\ - C_{1,k+1}\right)^2 \qquad (A2.37)$$

Hence, we establish that

$$\vec{c}^{T}_{(-1)}\ (k+1)\Delta^{-1}_{(-1)}(k+1)\vec{c}_{(-1)}(k+1) \le \vec{c}^{T}_{(-1)}\ (k)\Delta^{-1}_{(-1)}(k)\vec{c}_{(-1)}(k) \qquad (A2.38)$$

Since both $\vec{c}^{T}_{(-1)}\ (k+1)\Delta^{-1}_{(-1)}(k+1)\vec{c}_{(-1)}(k+1)$ and $\vec{c}^{T}_{(-1)}\ (k)\Delta^{-1}_{(-1)}(k)\vec{c}_{(-1)}(k)$ are non-positive (due to negative semi-definiteness of corresponding Δ matrices) we get:

$$\left|\ \vec{c}^{T}_{(-1)}\ (k+1)\Delta^{-1}_{(-1)}(k+1)\vec{c}_{(-1)}(k+1)\right| \ge \left|\vec{c}^{T}_{(-1)}\ (k)\Delta^{-1}_{(-1)}(k)\vec{c}_{(-1)}(k)\right| \qquad (A2.39)$$

Q.E.D.

Appendix A3: Additional Robustness Checks for Political β

Table A3.1: Diversification: Political β. Fixed 2006 pre-ranking Non-bootstrapped

	(1)	(2)	(3)	(4)
	Dependent variable: log exports			
	Panel A: Value-weighted portfolio			
Affinity index(t-1) X political β of country	0.091***	0.091***	0.090***	0.091***
	(0.033)	(0.033)	(0.032)	(0.032)
Affinity index(t-1)	0.390**		0.415**	
	(0.157)		(0.172)	
Political β of country	0.131***	0.132***	0.134***	0.135***
	(0.021)	(0.021)	(0.020)	(0.020)
Log firm assets	0.186***	0.186***	0.000	
	(0.019)	(0.019)	(0.000)	
Log country GDP	0.127		0.232	
	(0.248)		(0.181)	
Log country population	0.654***		0.607**	
	(0.225)		(0.271)	
Observations	111,708	111,630	111,074	110,986
R-squared	0.501	0.506	0.556	0.560
	Panel B: Equally-weighted portfolio			
Affinity index(t-1) X political β of country	0.060***	0.061***	0.059***	0.060***
	(0.011)	(0.011)	(0.011)	(0.011)
Affinity index(t-1)	0.358**		0.380**	
	(0.155)		(0.173)	
Political β of country	0.040***	0.041***	0.041***	0.041***
	(0.005)	(0.005)	(0.006)	(0.006)
Log firm assets	0.184***	0.185***	0.000	
	(0.018)	(0.018)	(0.000)	
Log country GDP	0.112		0.212	
	(0.250)		(0.184)	
Log country population	0.648***		0.582**	
	(0.220)		(0.263)	
Observations	111,708	111,630	111,074	110,986
R-squared	0.495	0.500	0.550	0.554
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Firm X year FE	No	No	Yes	Yes
Country X year FE	No	Yes	No	Yes

Notes: Sample consists of a company-by-destination country export observations in Russia over 2001-2011. Sample excludes exports into localities/affiliated territories that do not have formal representation in the UN and companies with no information about value of assets. Additionally, sample in specifications 2,3, and 4 is further restricted to exporting firms trading in a given year with 1-5, 6-10, more than 10 countries, respectively. Dependent variable is log of total amount of exports (in current USD) of (all, homogeneous, differentiated) goods being sent by a given firm into a given destination country. Classification of goods into homogeneous and differentiated is done according to Rauch (1999). Political Affinity is Gartzke (2010) Affinity of National Index calculated on the basis of similarity of country's votes with Russia in a given year. Firm assets are obtained from SPARK-Interfax database, log country GDP (chained real GDP) and log country population are from PennWorld Tables. All specifications are estimated by OLS. Log exporting firm assets, log country GDP, log country population are included in all regressions, but not reported. Country fixed effects, firm fixed effects, and time fixed effects are included in all regressions but not reported. Standard errors clustered at the exporting firm level are reported in parenthesis. ***, **, * indicate statistical significance at 1%, 5%, and 10%, respectively.

Table A3.2. Subsamples analysis w.r.t. political β

	(1)	(2)	(3)	(4)
	Dependent variable: log exports			
	Panel A: value weighted $\|\beta\|<5$			
Affinity index(t-1) X political β of country	0.120**	0.126**	0.135***	0.142***
	(0.047)	(0.049)	(0.041)	(0.044)
Affinity index(t-1)	0.328*		0.391**	
	(0.167)		(0.168)	
Political β of country	0.190***	0.194***	0.193***	0.198***
	(0.027)	(0.028)	(0.025)	(0.026)
Observations	134,258	134,183	133,495	133,411
R-squared	0.506	0.511	0.561	0.566
	Panel B: Value-weighted $\beta > 0$			
Affinity index(t-1) X political β of country	0.270***	0.333***	0.314***	0.421***
	(0.073)	(0.079)	(0.073)	(0.074)
Affinity index(t-1)	0.177		0.347	
	(0.231)		(0.282)	
Political β of country	0.145***	0.174***	0.169***	0.226***
	(0.044)	(0.053)	(0.043)	(0.057)
Observations	96,242	96,166	92,057	91,975
R-squared	0.531	0.537	0.591	0.598
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Firm X year FE	No	No	Yes	Yes
Country X year FE	No	Yes	No	Yes
Log firm assets, log GDP and log population	Yes	Yes	Yes	Yes

Notes: Sample consists of a company-by-destination country export observations in Russia over 2001-2011. Sample excludes exports into localities/affiliated territories that do not have formal representation in the UN and companies with no information about value of assets. Additionally, sample in specifications 2,3, and 4 is further restricted to exporting firms trading in a given year with 1-5, 6-10, more than 10 countries, respectively. Dependent variable is log of total amount of exports (in current USD) of (all, homogeneous, differentiated) goods being sent by a given firm into a given destination country. Classification of goods into homogeneous and differentiated is done according to Rauch (1999). Political Affinity is Gartzke (2010) Affinity of National Index calculated on the basis of similarity of country's votes with Russia in a given year. Firm assets are obtained from SPARK-Interfax database, log country GDP (chained real GDP) and log country population are from PennWorld Tables. All specifications are estimated by OLS. Log exporting firm assets, log country GDP, log country population are included in all regressions, but not reported. Country fixed effects, firm fixed effects, and time fixed effects are included in all regressions but not reported. Standard errors clustered at the exporting firm level are reported in parenthesis. ***, **, * indicate statistical significance at 1%, 5%, and 10%, respectively.

Table A3.3: Diversification: Political Covariance Instead of β. Non-bootstrapped

	(1)	(2)	(3)	(4)
	Dependent variable: log exports			
	Panel A: Value-weighted portfolio			
Affinity index(t-1) X political COV of country	22.870***	26.259***	27.834***	31.066***
	(6.514)	(7.043)	(7.147)	(7.754)
Affinity index(t-1)	0.277*		0.356**	
	(0.164)		(0.167)	
Political COV of country	55.319***	57.159***	58.053***	59.770***
	(4.500)	(4.783)	(4.328)	(4.583)
Log firm assets	0.176***	0.177***	0.000	0.000
	(0.017)	(0.018)	(0.000)	(0.000)
Log country GDP	0.491*		0.550***	
	(0.250)		(0.204)	
Log country population	1.392***		1.267***	
	(0.300)		(0.292)	
Observations	134,676	134,601	133,923	133,839
R-squared	0.509	0.514	0.564	0.569
	Panel B: Equally-weighted			
Affinity index(t-1) X political COV of country	29.026***	32.213***	36.528***	39.970***
	(4.873)	(5.298)	(4.876)	(5.382)
Affinity index(t-1)	0.304*		0.361**	
	(0.158)		(0.156)	
Political COV of country	35.878***	37.748***	38.617***	40.547***
	(3.491)	(3.819)	(3.442)	(3.735)
Log firm assets	0.174***	0.175***	0.000	
	(0.017)	(0.017)	(0.000)	
Log country GDP	0.344		0.412**	
	(0.256)		(0.203)	
Log country population	1.019***		0.924***	
	(0.234)		(0.276)	
Observations	134,676	134,601	133,923	133,839
R-squared	0.497	0.502	0.552	0.556
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Firm X year FE	No	No	Yes	Yes
Country X year FE	No	Yes	No	Yes

Notes: Sample consists of a company-by-destination country export observations in Russia over 2006-2011. Sample excludes exports into localities/affiliated territories that do not have formal representation in the UN and companies with no information about value of assets. Dependent variable is log of total amount of exports (in current USD) being sent by a given firm into a given destination country. Political Affinity is Gartzke (2010) Affinity of National Index calculated on the basis of similarity of country's votes in the UNGA with Russia in a given year. Firm assets are obtained from SPARK-Interfax database, log country GDP (chained real GDP) and log country population are from PennWorld Tables. All specifications are estimated by OLS. Log exporting firm assets, log country GDP, log country population are included in all regressions, but not reported. Country fixed effects, firm fixed effects, and time fixed effects are included in all regressions but not reported. In addition, specifications 3, 4 include firm X year fixed effects, and specifications 2,4 include country X year fixed effects. Standard errors (in parentheses) are calculated by bootstrap with 1000 repetitions (with two-way clustering at the firm and country levels). ***, **, * indicate statistical significance at 1%, 5%, and 10%, respectively.

Appendix A4: FOREX robustness checks

Table A4.1: FX rate included

	(1)	(2)	(3)	(1)	(2)	(3)
	Dependent variable: log exports					
Political affinity (t-1)	0.381***	0.267***	0.293***	0.407***	0.260***	0.293***
	(0.070)	(0.071)	(0.069)	(0.086)	(0.088)	(0.086)
Political affinity (t-2)		0.118*	0.139**		0.131	0.152*
		(0.066)	(0.067)		(0.082)	(0.083)
Political affinity (t)			-0.134*			-0.140
			(0.070)			(0.085)
Log FX rate	0.006	0.010	0.009	0.010	0.014	0.013
	(0.018)	(0.018)	(0.018)	(0.020)	(0.020)	(0.020)
Log firm assets	0.223***	0.224***	0.224***			
	(0.008)	(0.008)	(0.008)			
Log country GDP	0.334***	0.329***	0.329***	0.371***	0.367***	0.367***
	(0.033)	(0.035)	(0.035)	(0.041)	(0.043)	(0.043)
Log country population	-0.370***	-0.402***	-0.385***	-0.303**	-0.323**	-0.307**
	(0.114)	(0.115)	(0.116)	(0.129)	(0.130)	(0.131)
Observations	315,991	313,433	313,433	251,039	248,482	248,482
R-squared	0.516	0.516	0.516	0.558	0.558	0.558
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm X Year FE	No	No	No	Yes	Yes	Yes

Notes: Sample consists of a company-by-destination country export observations in Russia over 2001-2011. Export observations below $1,000 value are dropped. Sample excludes exports into localities/affiliated territories that do not have formal representation in the UN and companies with no information about value of assets. Dependent variable is log of total amount of exports (in current USD) being sent by a given firm into a given destination country. Political Affinity is Gartzke (2010) Affinity of National Index calculated on the basis of similarity of country's votes with Russia in a given year. Firm assets are obtained from SPARK-Interfax database, log country GDP (chained real GDP) and log country population are from PennWorld Tables. All specifications are estimated by OLS. Country fixed effects, firm fixed effects, and time fixed effects are included in all regressions but not reported. Standard errors clustered at the exporting firm level are reported in parenthesis. ***, **, * indicate statistical significance at 1%, 5%, and 10%, respectively.

Table A4.2: Product-level Heterogeneity and FOREX

	(1)	(2)	(3)	(4)	(5)	(6)
	Dependent variable: log trade in $					
	Panel A: Homogeneous goods					
Political affinity (t-1)	0.399***	0.243**	0.247**	0.581***	0.388***	0.345**
	(0.111)	(0.112)	(0.110)	(0.141)	(0.144)	(0.142)
Political affinity (t-2)		0.313***	0.317***		0.409***	0.380***
		(0.106)	(0.108)		(0.142)	(0.145)
Political affinity (t)			-0.025			0.180
			(0.116)			(0.151)
	-0.025	-0.025	-0.025	-0.017	-0.018	-0.016
	(0.030)	(0.030)	(0.030)	(0.033)	(0.033)	(0.033)
Observations	122,460	121,353	121,353	90,318	89,206	89,206
R-squared	0.643	0.643	0.643	0.660	0.660	0.660
	Panel B: Differentiated goods					
Political affinity (t-1)	0.312***	0.190**	0.222***	0.258**	0.116	0.173*
	(0.083)	(0.084)	(0.082)	(0.103)	(0.106)	(0.105)
Political affinity (t-2)		0.103	0.131*		0.077	0.114
		(0.077)	(0.077)		(0.096)	(0.096)
Political affinity (t)			-0.172**			-0.242**
			(0.082)			(0.103)
	0.014	0.018	0.017	0.016	0.021	0.019
	(0.023)	(0.023)	(0.023)	(0.026)	(0.026)	(0.026)
Observations	218,980	217,305	217,305	168,913	167,258	167,258
R-squared	0.473	0.474	0.474	0.527	0.527	0.527
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE						
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Sample consists of a company-by-destination country export observations in Russia over 2001-2011. Sample excludes exports into localities/affiliated territories that do not have formal representation in the UN and companies with no information about value of assets. Dependent variable is log of total amount of exports (in current USD) of (homogeneous, differentiated) goods being sent by a given firm into a given destination country. Classification of goods into homogeneous and differentiated is done according to Rauch (1999). Political Affinity is Gartzke (2010) Affinity of National Index calculated on the basis of similarity of country's votes with Russia in a given year. Firm assets are obtained from SPARK-Interfax database, log country GDP (chained real GDP) and log country population are from PennWorld Tables. All specifications are estimated by OLS. Country fixed effects, firm fixed effects, and time fixed effects are included in all regressions but not reported. Standard errors clustered at the exporting firm level are reported in parenthesis. ***, **, * indicate statistical significance at 1%, 5%, and 10%, respectively.

Table A4.3: Heterogeneity by # of Trading Partners controlling for FOREX

	(1)	(2)	(3)	(4)
	Dependent variable: log trade			
	Panel A: All goods			
Number of trading partners	*Any*	*1-5*	*6-10*	*10+*
Political affinity (t-1)	0.407***	-0.019	0.663***	0.862***
	(0.086)	(0.130)	(0.117)	(0.161)
Log FX rate	0.010	0.024	0.011	0.029
	(0.020)	(0.035)	(0.024)	(0.030)
Observations	251,039	120,237	121,647	66,309
R-squared	0.558	0.640	0.495	0.477
	(6)	(7)	(8)	(9)
	Panel B: homogeneous goods			
Number of trading partners	*Any*	*1-5*	*6-10*	*10+*
Political affinity (t-1)	0.581***	0.029	0.885***	0.978***
	(0.141)	(0.258)	(0.177)	(0.223)
Log FX rate	-0.017	0.113*	-0.041	-0.037
	(0.033)	(0.067)	(0.037)	(0.042)
Observations	90,318	35,695	51,007	31,609
R-squared	0.660	0.746	0.611	0.583
	(11)	(12)	(13)	(14)
	Panel C: differentiated goods			
Number of trading partners	*Any*	*1-5*	*6-10*	*10+*
Political affinity (t-1)	0.258**	-0.028	0.354**	0.456**
	(0.103)	(0.153)	(0.143)	(0.206)
Log FX rate	0.016	-0.022	0.039	0.046
	(0.026)	(0.041)	(0.032)	(0.040)
Observations	168,913	81,174	81,294	41,690
R-squared	0.527	0.594	0.484	0.481
Year FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
FirmXYear FE	Yes	Yes	Yes	Yes
Log firm assets	Yes	Yes	Yes	Yes
Log country GDP, log population	Yes	Yes	Yes	Yes

Notes: Sample consists of a company-by-destination country export observations in Russia over 2001-2011. Sample excludes exports into localities/affiliated territories that do not have formal representation in the UN and companies with no information about value of assets. Additionally, sample in specifications 2,3, and 4 is further restricted to exporting firms trading in a given year with 1-5, 6-10, more than 10 countries, respectively. Dependent variable is log of total amount of exports (in current USD) of (all, homogeneous, differentiated) goods being sent by a given firm into a given destination country. Classification of goods into homogeneous and differentiated is done according to Rauch (1999). Political Affinity is Gartzke (2010) Affinity of National Index calculated on the basis of similarity of country's votes with Russia in a given year. Firm assets are obtained from SPARK-Interfax database, log country GDP (chained real GDP) and log country population are from PennWorld Tables. All specifications are estimated by OLS. Log exporting firm assets, log country GDP, log country population are included in all regressions, but not reported. Country fixed effects, firm fixed effects, and time fixed effects are included in all regressions but not reported. Standard errors clustered at the exporting firm level are reported in parenthesis. ***, **, * indicate statistical significance at 1%, 5%, and 10%, respectively.

Table A4.4: Political beta with FX rate and political sigma

	(1)	(2)	(3)	(4)	(7)	(8)
			Dependent variable: log exports			
Affinity index(t-1) X country political σ	2.232***	2.613***	0.808	0.953	1.195	1.430
	(0.856)	(0.913)	(0.894)	(0.951)	(0.896)	(0.951)
Affinity index(t-1) X country political β			0.117***	0.131***	0.045***	0.048***
			(0.012)	(0.014)	(0.010)	(0.011)
Affinity index(t-1)	0.140	0.146	0.248*	0.292*	0.207	0.232
	(0.141)	(0.154)	(0.147)	(0.160)	(0.147)	(0.160)
Log FX rate	0.089***	0.090***	0.097***	0.101***	0.097***	0.098***
	(0.028)	(0.029)	(0.029)	(0.030)	(0.029)	(0.030)
Country political σ	0.408	0.059	-0.798	-1.232**	-0.369	-0.716
	(0.573)	(0.611)	(0.591)	(0.628)	(0.598)	(0.635)
Country political β			0.175***	0.179***	0.063***	0.064***
			(0.008)	(0.008)	(0.007)	(0.007)
Log firm assets	0.191***		0.169***		0.171***	
	(0.015)		(0.016)		(0.016)	
Log country GDP	0.206***	0.246***	0.371***	0.444***	0.309***	0.386***
	(0.064)	(0.071)	(0.066)	(0.074)	(0.066)	(0.073)
Log country population	0.728***	0.658***	1.092***	1.099***	0.965***	0.915***
	(0.228)	(0.247)	(0.243)	(0.263)	(0.239)	(0.259)
Observations	144,304	143,337	134,059	133,241	134,059	133,241
R-squared	0.498	0.554	0.505	0.561	0.496	0.551
Measurement country political β	NA	NA	*Value-weighted*		*Equally-weighted*	
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm X year FE	No	Yes	No	Yes	No	Yes

Notes: Sample consists of a company-by-destination country export observations in Russia over 2006-2011. Sample excludes exports into localities/affiliated territories that do not have formal representation in the UN and companies with no information about value of assets. Dependent variable is log of total amount of exports (in current USD) being sent by a given firm into a given destination country. Political Affinity is Gartzke (2010) Affinity of National Index calculated on the basis of similarity of country's votes in the UNGA with Russia in a given year. Country political β in Panel A (B) is calculated by a rolling pre-ranking value-weighted (equally-weighted) approach, as described in the main text. Country political σ is a past 12 period's variance of Affinity index for a given country. Firm assets are obtained from SPARK-Interfax database, log country GDP (chained real GDP) and log country population are from PennWorld Tables. All specifications are estimated by OLS. Country fixed effects, firm fixed effects, and time fixed effects are included in all regressions but not reported. In addition, specifications 2, 4 and 6 include firm X year fixed effects. Standard errors (in parentheses) are calculated by bootstrap with 1000 repetitions (with two-way clustering at the firm and country levels). ***, **, * indicate statistical significance at 1%, 5%, and 10%, respectively.

Table A4.5: Forex Beta: Country X Year FE included

	(1)	(2)	(3)	(4)
	Dependent variable: log exports			
	Panel A: Value-weighted portfolios			
Affinity index(t-1) X political β of country	0.046***	0.052***	-0.000	0.001
	(0.002)	(0.003)	(0.004)	(0.004)
Log FX rate X FX β	0.050***	0.052***	0.043***	0.044***
	(0.012)	(0.013)	(0.012)	(0.013)
Political β of country	0.447***	0.487***	0.569***	0.623***
	(0.011)	(0.012)	(0.013)	(0.014)
FX β	0.159***	0.164***	0.154***	0.159***
	(0.008)	(0.008)	(0.008)	(0.008)
Observations	132,979	132,172	132,452	131,624
R-squared	0.524	0.579	0.526	0.582
	Panel B: Equally-weighted portfolios			
Affinity index(t-1) X political β of country	0.021***	0.024***	0.001	-0.000
	(0.002)	(0.002)	(0.004)	(0.004)
Log FX rate X FX β	0.033***	0.034***	0.032***	0.033***
	(0.010)	(0.012)	(0.010)	(0.012)
Political β of country	0.180***	0.196***	0.236***	0.265***
	(0.009)	(0.010)	(0.011)	(0.013)
FX β	0.064***	0.066***	0.064***	0.065***
	(0.007)	(0.007)	(0.007)	(0.007)
Observations	132,979	132,172	131,742	130,902
R-squared	0.502	0.556	0.503	0.558
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Firm X year FE	Yes	Yes	Yes	Yes
Country X year FE	No	Yes	No	Yes
Log firm assets	Yes	Yes	NA	NA
Log country GDP, population	Absorbed	Absorbed	Absorbed	Absorbed
FX β condition	Any	Any	FX $\|\beta\|<5$	FX $\|\beta\|<5$

Appendix A5: Subsamples Analysis:

A5.1 Value of exports above $10,000

Table A5.1.1: Heterogeneity by # of Trading Partners FIRM X YEAR ONLY

	(1)	(2)	(3)	(4)
	Dependent variable: log trade			
	Panel A: All goods			
Number of trading partners	*Any*	*1-5*	*6-10*	*10+*
Political affinity (t-1)	0.490***	0.062	0.826***	0.825***
	(0.081)	(0.119)	(0.114)	(0.164)
Observations	205,895	103,745	94,312	49,977
R-squared	0.544	0.634	0.462	0.425
	(6)	(7)	(8)	(9)
	Panel B: homogeneous goods			
Number of trading partners	*Any*	*1-5*	*6-10*	*10+*
Political affinity (t-1)	0.638***	-0.134	1.070***	0.953***
	(0.135)	(0.243)	(0.172)	(0.219)
Observations	71,799	29,019	39,714	24,781
R-squared	0.590	0.710	0.514	0.467
	(11)	(12)	(13)	(14)
	Panel C: differentiated goods			
Number of trading partners	*Any*	*1-5*	*6-10*	*10+*
Political affinity (t-1)	0.340***	0.172	0.467***	0.375*
	(0.095)	(0.137)	(0.136)	(0.196)
Observations	128,567	66,364	57,369	27,719
R-squared	0.494	0.566	0.429	0.415
Year FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Log firm assets	Yes	Yes	Yes	Yes
Log country GDP, log population	Yes	Yes	Yes	Yes

Notes: Sample consists of a company-by-destination country export observations in Russia over 2001-2011. Sample excludes exports into localities/affiliated territories that do not have formal representation in the UN and companies with no information about value of assets. Additionally, sample in specifications 2,3, and 4 is further restricted to exporting firms trading in a given year with 1-5, 6-10, more than 10 countries, respectively. Dependent variable is log of total amount of exports (in current USD) of (all, homogeneous, differentiated) goods being sent by a given firm into a given destination country. Classification of goods into homogeneous and differentiated is done according to Rauch (1999). Political Affinity is Gartzke (2010) Affinity of National Index calculated on the basis of similarity of country's votes with Russia in a given year. Firm assets are obtained from SPARK-Interfax database, log country GDP (chained real GDP) and log country population are from PennWorld Tables. All specifications are estimated by OLS. Log exporting firm assets, log country GDP, log country population are included in all regressions, but not reported. Country fixed effects, firm fixed effects, and time fixed effects are included in all regressions but not reported. Standard errors clustered at the exporting firm level are reported in parenthesis. ***, **, * indicate statistical significance at 1%, 5%, and 10%, respectively.

Table A5.1.4: Diversification: Political β. Non bootstrapped

	(1)	(2)	(3)	(4)
	Dependent variable: log exports			
	Panel A: Value-weighted portfolio			
Affinity index(t-1) X political β of country	0.106***	0.115***	0.120***	0.130***
	(0.014)	(0.014)	(0.015)	(0.016)
Affinity index(t-1)	0.732***		0.715***	
	(0.118)		(0.135)	
Political β of country	0.161***	0.165***	0.163***	0.167***
	(0.008)	(0.008)	(0.009)	(0.009)
Observations	90,073	89,986	84,562	84,467
R-squared	0.530	0.536	0.574	0.580
	Panel B: Equally-weighted			
Affinity index(t-1) X political β of country	0.020*	0.029**	0.024*	0.033**
	(0.011)	(0.012)	(0.013)	(0.014)
Affinity index(t-1)	0.813***		0.779***	
	(0.116)		(0.132)	
Political β of country	0.033***	0.035***	0.033***	0.036***
	(0.007)	(0.008)	(0.008)	(0.008)
Observations	90,073	89,986	84,562	84,467
R-squared	0.519	0.525	0.563	0.568
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Firm X year FE	No	No	Yes	Yes
Country X year FE	No	Yes	No	Yes
Log firm assets	Yes	Yes	NA	NA
Log country GDP, population	Yes	No	Yes	No

Notes: Sample consists of a company-by-destination country export observations in Russia over 2006-2011. Sample excludes exports into localities/affiliated territories that do not have formal representation in the UN and companies with no information about value of assets. Dependent variable is log of total amount of exports (in current USD) being sent by a given firm into a given destination country. Political Affinity is Gartzke (2010) Affinity of National Index calculated on the basis of similarity of country's votes in the UNGA with Russia in a given year. Country political β in Panel A (B) is calculated by a rolling pre-ranking value-weighted (equally-weighted) approach as described in the main text. Firm assets are obtained from SPARK-Interfax database, log country GDP (chained real GDP) and log country population are from PennWorld Tables. All specifications are estimated by OLS. Log exporting firm assets, log country GDP, log country population are included in all regressions, but not reported. Country fixed effects, firm fixed effects, and time fixed effects are included in all regressions but not reported. In addition, specifications 3, 4 include firm X year fixed effects, and specifications 2,4 include country X year fixed effects. Standard errors (in parentheses) are calculated by bootstrap with 1000 repetitions (with two-way clustering at the firm and country levels). ***, **, * indicate statistical significance at 1%, 5%, and 10%, respectively.

Table A5.6: Diversification: Political β vs Political σ . Non bootstrapped

	(1)	(2)	(3)	(4)	(7)	(8)
			Dependent variable: log exports			
Affinity index(t-1) X country political σ	1.140	1.352	-0.149	-0.238	0.474	0.497
	(0.785)	(0.869)	(0.922)	(1.051)	(0.927)	(1.050)
Affinity index(t-1) X country political β			0.106***	0.121***	0.020*	0.024*
			(0.014)	(0.015)	(0.011)	(0.013)
Affinity index(t-1)	0.426***	0.412***	0.763***	0.753***	0.757***	0.720***
	(0.130)	(0.145)	(0.151)	(0.174)	(0.150)	(0.174)
Country political σ			0.162***	0.164***	0.033***	0.033***
			(0.008)	(0.009)	(0.007)	(0.008)
Country political β	0.410	0.405	-0.959	-1.197*	-0.075	-0.105
	(0.529)	(0.590)	(0.612)	(0.701)	(0.630)	(0.721)
Log firm assets	0.181***		0.172***		0.172***	
	(0.015)		(0.019)		(0.019)	
Log country GDP	0.128**	0.214***	0.237***	0.368***	0.110	0.237***
	(0.060)	(0.069)	(0.074)	(0.087)	(0.073)	(0.086)
Log country population	0.559**	0.413*	0.635**	0.555*	0.418	0.225
	(0.219)	(0.241)	(0.296)	(0.334)	(0.291)	(0.325)
Observations	126,104	123,229	90,073	84,562	90,073	84,562
R-squared	0.495	0.546	0.530	0.575	0.519	0.563
Measurement country political β	NA		NA	*Value-weighted*		*Equally-weighted*
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm X year FE	No	Yes	No	Yes	No	Yes

Notes: Sample consists of a company-by-destination country export observations in Russia over 2006-2011. Sample excludes exports into localities/affiliated territories that do not have formal representation in the UN and companies with no information about value of assets. Dependent variable is log of total amount of exports (in current USD) being sent by a given firm into a given destination country. Political Affinity is Gartzke (2010) Affinity of National Index calculated on the basis of similarity of country's votes in the UNGA with Russia in a given year. Country political β in Panel A (B) is calculated by a rolling pre-ranking value-weighted (equally-weighted) approach, as described in the main text. Country political σ is a past 12 period's variance of Affinity index for a given country. Firm assets are obtained from SPARK-Interfax database, log country GDP (chained real GDP) and log country population are from PennWorld Tables. All specifications are estimated by OLS. Country fixed effects, firm fixed effects, and time fixed effects are included in all regressions but not reported. In addition, specifications 2, 4 and 6 include firm X year fixed effects. Standard errors (in parentheses) are calculated by bootstrap with 1000 repetitions (with two-way clustering at the firm and country levels). ***, **, * indicate statistical significance at 1%, 5%, and 10%, respectively.

A5.2 Firm assets above 10m RUB (~$333,000)

Table A5.1.1: Heterogeneity by # of Trading Partners

	(1)	(2)	(3)	(4)
	Dependent variable: log trade			
	Panel A: All goods			
Number of trading partners	*Any*	*1-5*	*6-10*	*10+*
Political affinity (t-1)	0.490***	0.062	0.826***	0.825***
	(0.081)	(0.119)	(0.114)	(0.164)
Observations	205,895	103,745	94,312	49,977
R-squared	0.544	0.634	0.462	0.425
	(6)	(7)	(8)	(9)
	Panel B: homogeneous goods			
Number of trading partners	*Any*	*1-5*	*6-10*	*10+*
Political affinity (t-1)	0.638***	-0.134	1.070***	0.953***
	(0.135)	(0.243)	(0.172)	(0.219)
Observations	71,799	29,019	39,714	24,781
R-squared	0.590	0.710	0.514	0.467
	(11)	(12)	(13)	(14)
	Panel C: differentiated goods			
Number of trading partners	*Any*	*1-5*	*6-10*	*10+*
Political affinity (t-1)	0.340***	0.172	0.467***	0.375*
	(0.095)	(0.137)	(0.136)	(0.196)
Observations	128,567	66,364	57,369	27,719
R-squared	0.494	0.566	0.429	0.415
Year FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
FirmXYear FE FE	Yes	Yes	Yes	Yes
Log firm assets	Yes	Yes	Yes	Yes
Log country GDP, log population	Yes	Yes	Yes	Yes

Notes: Sample consists of a company-by-destination country export observations in Russia over 2001-2011. Sample excludes exports into localities/affiliated territories that do not have formal representation in the UN and companies with no information about value of assets. Additionally, sample in specifications 2,3, and 4 is further restricted to exporting firms trading in a given year with 1-5, 6-10, more than 10 countries, respectively. Dependent variable is log of total amount of exports (in current USD) of (all, homogeneous, differentiated) goods being sent by a given firm into a given destination country. Classification of goods into homogeneous and differentiated is done according to Rauch (1999). Political Affinity is Gartzke (2010) Affinity of National Index calculated on the basis of similarity of country's votes with Russia in a given year. Firm assets are obtained from SPARK-Interfax database, log country GDP (chained real GDP) and log country population are from PennWorld Tables. All specifications are estimated by OLS. Log exporting firm assets, log country GDP, log country population are included in all regressions, but not reported. Country fixed effects, firm fixed effects, and time fixed effects are included in all regressions but not reported. Standard errors clustered at the exporting firm level are reported in parenthesis. ***, **, * indicate statistical significance at 1%, 5%, and 10%, respectively.

Table A5.1.4: Diversification: Political β. Non bootstrapped

	(1)	(2)	(3)	(4)
	Dependent variable: log exports			
	Panel A: Value-weighted portfolio			
Affinity index(t-1) X political β of country	0.106***	0.115***	0.120***	0.130***
	(0.014)	(0.014)	(0.015)	(0.016)
Affinity index(t-1)	0.732***		0.715***	
	(0.118)		(0.135)	
Political β of country	0.161***	0.165***	0.163***	0.167***
	(0.008)	(0.008)	(0.009)	(0.009)
Observations	90,073	89,986	84,562	84,467
R-squared	0.530	0.536	0.574	0.580
	Panel B: Equally-weighted			
Affinity index(t-1) X political β of country	0.020*	0.029**	0.024*	0.033**
	(0.011)	(0.012)	(0.013)	(0.014)
Affinity index(t-1)	0.813***		0.779***	
	(0.116)		(0.132)	
Political β of country	0.033***	0.035***	0.033***	0.036***
	(0.007)	(0.008)	(0.008)	(0.008)
Observations	90,073	89,986	84,562	84,467
R-squared	0.519	0.525	0.563	0.568
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Firm X year FE	No	No	Yes	Yes
Country X year FE	No	Yes	No	Yes
Log firm assets	Yes	Yes	NA	NA
Log country GDP, population	Yes	No	Yes	No

Notes: Sample consists of a company-by-destination country export observations in Russia over 2006-2011. Sample excludes exports into localities/affiliated territories that do not have formal representation in the UN and companies with no information about value of assets. Dependent variable is log of total amount of exports (in current USD) being sent by a given firm into a given destination country. Political Affinity is Gartzke (2010) Affinity of National Index calculated on the basis of similarity of country's votes in the UNGA with Russia in a given year. Country political β in Panel A (B) is calculated by a rolling pre-ranking value-weighted (equally-weighted) approach as described in the main text. Firm assets are obtained from SPARK-Interfax database, log country GDP (chained real GDP) and log country population are from PennWorld Tables. All specifications are estimated by OLS. Log exporting firm assets, log country GDP, log country population are included in all regressions, but not reported. Country fixed effects, firm fixed effects, and time fixed effects are included in all regressions but not reported. In addition, specifications 3, 4 include firm X year fixed effects, and specifications 2,4 include country X year fixed effects. Standard errors (in parentheses) are calculated by bootstrap with 1000 repetitions (with two-way clustering at the firm and country levels). ***, **, * indicate statistical significance at 1%, 5%, and 10%, respectively.

Table A5.6: Diversification: Political β vs Political σ . Non bootstrapped

	(1)	(2)	(3)	(4)	(7)	(8)
			Dependent variable: log exports			
Affinity index(t-1) X country political σ	1.140	1.352	-0.149	-0.238	0.474	0.497
	(0.785)	(0.869)	(0.922)	(1.051)	(0.927)	(1.050)
Affinity index(t-1) X country political β			0.106***	0.121***	0.020*	0.024*
			(0.014)	(0.015)	(0.011)	(0.013)
Affinity index(t-1)	0.426***	0.412***	0.763***	0.753***	0.757***	0.720***
	(0.130)	(0.145)	(0.151)	(0.174)	(0.150)	(0.174)
Country political σ			0.162***	0.164***	0.033***	0.033***
			(0.008)	(0.009)	(0.007)	(0.008)
Country political β	0.410	0.405	-0.959	-1.197*	-0.075	-0.105
	(0.529)	(0.590)	(0.612)	(0.701)	(0.630)	(0.721)
Log firm assets	0.181***		0.172***		0.172***	
	(0.015)		(0.019)		(0.019)	
Log country GDP	0.128**	0.214***	0.237***	0.368***	0.110	0.237***
	(0.060)	(0.069)	(0.074)	(0.087)	(0.073)	(0.086)
Log country population	0.559**	0.413*	0.635**	0.555*	0.418	0.225
	(0.219)	(0.241)	(0.296)	(0.334)	(0.291)	(0.325)
Observations	126,104	123,229	90,073	84,562	90,073	84,562
R-squared	0.495	0.546	0.530	0.575	0.519	0.563
Measurement country political β	NA		NA	*Value-weighted*		*Equally-weighted*
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm X year FE	No	Yes	No	Yes	No	Yes

Notes: Sample consists of a company-by-destination country export observations in Russia over 2006-2011. Sample excludes exports into localities/affiliated territories that do not have formal representation in the UN and companies with no information about value of assets. Dependent variable is log of total amount of exports (in current USD) being sent by a given firm into a given destination country. Political Affinity is Gartzke (2010) Affinity of National Index calculated on the basis of similarity of country's votes in the UNGA with Russia in a given year. Country political β in Panel A (B) is calculated by a rolling pre-ranking value-weighted (equally-weighted) approach, as described in the main text. Country political σ is a past 12 period's variance of Affinity index for a given country. Firm assets are obtained from SPARK-Interfax database, log country GDP (chained real GDP) and log country population are from PennWorld Tables. All specifications are estimated by OLS. Country fixed effects, firm fixed effects, and time fixed effects are included in all regressions but not reported. In addition, specifications 2, 4 and 6 include firm X year fixed effects. Standard errors (in parentheses) are calculated by bootstrap with 1000 repetitions (with two-way clustering at the firm and country levels). ***, **, * indicate statistical significance at 1%, 5%, and 10%, respectively.