Rethinking Exchange Rate Exposure in Equity Markets Through International Trade Networks*

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Abstract

The prevailing view in the empirical literature suggests that goods-market channels do not explain currency exposure in equity markets. This paper argues the disconnect reflects mis-measurement, not a missing channel. Decomposing trade-weighted currency returns into export-destination and import-origin components using international trade networks, we show that local currency appreciation against export destinations reduces stock prices, while appreciation against import origins raises prices. These effects hold at the country-industry and country levels, and firm-level panel regressions confirm the revenue and cost channels. The relative strength of these two channels, measured by corporate profit margin, explains cross-country variation in USD currency betas.

1 Introduction

Exchange rate movements directly transmit macroeconomic shocks to stock returns by instantly repricing the value of foreign revenues and import costs. An appreciation against currencies of export destinations lowers revenue by making goods more expensive abroad. Conversely, an appreciation against currencies of import origin reduces input costs, improving profit margins. Classical international economics (Shapiro, 1975; Dumas, 1978) predicts that the net effect of these opposing forces on equity returns depends on whether firms in a country are, on average, net exporters or importers.

While this theoretical mechanism is intuitive, the empirical literature has largely concluded that the mechanism does not reliably explain currency exposure in equity markets. Jorion (1991) and Bartov and Bodnar (1994), for example, focusing on the U.S. sample, find no detectable exchange rate exposure, while Dominguez and Tesar (2006) and Cenedese, Payne, Sarno, and Valente (2016) document that the exposure varies both over time and across countries. Hau and Rey (2006) report a negative relationship for developed economies, attributing the link to portfolio rebalancing rather than to trade linkages. Cho, Choi, Kim, and Kim (2016), by contrast, find that this relationship is positive in emerging markets. Figure 1 captures this exact pattern. When country equity excess returns are regressed on USD currency returns, emerging markets (e.g., Brazil and Indonesia) tend to have higher slopes compared to developed economies (e.g., Japan, Germany, and the UK).

This paper argues that this obscure relationship stems from mis-measurement rather than the absence of a real economic mechanism. When currency returns are measured against a single benchmark such as the USD, export and import channels partially cancel. For example, the equity market of a country that imports from Japan and exports to Germany suffers when the euro weakens and gains when the yen weakens, yet both movements are averaged if currency returns are measured against a single basket. However, once currency returns are decomposed bilaterally, separately weighted by export-destination and import-origin trade shares, the two returns have opposite effects as predicted by the classical international goods market theory.

This paper demonstrates that, under this granular measurement, the cross-country difference in the USD beta can be explained by firm fundamentals. The opposing forces in classical theory operate through two distinct channels: a *revenue channel*, under which a stronger home currency erodes export competitiveness and lowers foreign revenue, and a *cost channel*, under which the same appreciation lowers the price of imported inputs. Therefore, countries with higher corporate profit margins exhibit more negative USD currency betas because the revenue channel dominates. Lower-margin economies are more sensitive to the cost channel, pushing their betas positively. The cross-country difference in profit margin is a strong predictor of the currency risk exposure in global equity markets.

This paper develops a partial-equilibrium model of bilateral trade and currency exposure that formalizes these channels through a closed-form decomposition of the currency beta into revenue and cost components. The decomposition connects cross-country variation in currency betas directly to the average corporate profitability of listed firms. Specifically, the model demonstrates that for high-margin firms, the negative revenue channel dominates, driving a negative currency beta, whereas lower margins amplify the positive cost channel.

These predictions are strongly confirmed at the country-industry level. Using the inter-country input-output table provided by the Organization for Economic Co-operation and Development (OECD), measured at the country-industry level, the analysis assesses each industry's stock exposure to currency fluctuations relative to its input and output partners. A currency appreciation influences stock returns differently depending on whether the currency appreciates relatively more against export or import partners. Economically, a one-percent monthly appreciation of the local currency against its export destinations lowers value-weighted country-industry stock returns by about 4 basis points, while the same appreciation against its import origins raises them by roughly 6 basis points.

Moreover, the bilateral currency effects increase with trade intensity both across industries and countries. Within the pooled panel, industries with higher trade shares exhibit larger sensitivities to both export- and import-weighted currency returns. At the country level, the spread between import and export currency betas widens monotonically with a country's overall trade openness. Ultimately, an industry's net export position determines the relative dominance of its export and import channels, so the USD beta becomes systematically more negative for industries relying heavily on foreign markets for output and more positive for those that rely on foreign inputs.

Firm-level panel regressions confirm that these equity-market patterns are driven directly by the underlying real trade channels, with operating revenues and costs reacting precisely as the framework predicts. Moreover, cumulative impulse response functions demonstrate that these opposing currency effects are highly persistent, lasting for several years.

While these long-run effects are persistent, their short-run transmission is moderated by the choice of invoicing currency. Consistent with the dominant currency paradigm, dollar invoicing temporarily attenuates the pass-through of exchange rate shocks, but it does so asymmetrically. The import side only has a cost channel, so the short-run protection against bilateral currency returns is almost complete. On the export side, because foreign buyers also adjust the order volumes, the attenuation effect is only partial. In the longer term, when nominal contracts eventually reprice, firms must absorb the deferred accumulated shock, which will drive a sharp reversal. Fundamentally, because equity values are the discounted sum of all future cash flows, dollar invoicing effects account for only a fraction of total firm value, leaving aggregate currency exposure heavily weighted toward the long-run, flexible-price bilateral trade network.

Finally, the analysis extends to the country level. An appreciation against export partners is associated with lower country-level stock returns, whereas an appreciation against import partners is associated with higher returns, mirroring the country-industry evidence. Across countries, higher corporate profit margins translate into more negative USD betas, as a high margin weakens the positive cost channel and strengthens the negative revenue channel. Consistent with previous literature, countries with larger net foreign asset positions also exhibit more negative betas, consistent with a valuation channel (e.g., Gourinchas and Rey, 2007; Lane and Shambaugh, 2010; Bénétrix, Lane, and Shambaugh, 2015) operating alongside the trade channel. However, profit margin is the primary driver, which remains a statistically significant predictor even when net exports and net foreign assets are jointly controlled. Together, these results show that the cross-country dispersion in currency risk exposure follows directly from the profitability and trade networks of the firms within a country.

This paper makes three contributions relative to prior work. First, it introduces a bilateral decomposition of trade-weighted currency returns, separating export-destination and import-origin exposures. This decomposition recovers the classical trade channel, which previous literature concluded does not exist. Second, it provides a unified framework that explains the cross-country dispersion in USD currency betas, tracing it to firm fundamentals. Third, the same bilateral trade mechanism is shown to operate consistently across three levels of analysis — country-industry stock returns, firm-level revenues and costs, and aggregate country returns — suggesting that the channel is a robust feature of the data rather than an artifact of a particular level of aggregation.

This paper is most directly related to the empirical literature on currency exposure in equity markets. Pavlova and Rigobon (2007) provide a general equilibrium model that jointly determines exchange rates and equity prices, with the sign of currency exposure driven by the balance between aggregate demand and output shocks. Empirically, however, the trade channel has been largely abandoned as an explanation. Hau and Rey (2006) document a negative relationship for developed economies but attribute it to portfolio rebalancing rather than trade, a channel formalized in equilibrium by Camanho, Hau, and Rey (2022) and extended to institutional hedging flows by Ben Zeev and Nathan (2024). Bartram, Brown, and Minton (2010) and Amiti, Itskhoki, and Konings (2014), by contrast, argue that the apparent disconnect between currency movements and equity returns reflects incomplete pass-through and operational hedging at the firm level. This paper shows that the trade channel has not failed and shows that the sign difference across countries is explained by firm fundamentals.[1]

A related literature study how bilateral trade networks affect the currency risk premium. Richmond (2019) finds that trade-network centrality drives the cross-section of currency risk premia, Hassan, Loualiche, Pecora, and Ward (2023) show that bilateral trade structure shapes exchange rate systematic risk, and Hou, Sarno, and Ye (2025) link trade-imbalance centrality to currency returns. A separate literature (e.g., Forbes, 2004; Albuquerque, Ra-

[1] See also Bodnar, Simon, and Gentry (1993), Chow, Lee, and Solt (1997), Griffin and Stulz (2001), and Lilley and Rinaldi (2018), among others, for related stock-currency return evidence.

madorai, and Watugala, 2015; Huang, Lin, Liu, and Tang, 2023; Pyun and Sulaeman, 2026) studies how trade networks transmit shocks in stock prices across countries. We study the relationship between the two, showing that exchange rate shocks reach equity values through asymmetric revenue and cost channels that aggregate through profit margins into equity market currency betas.

This paper is directly related to the findings of Welch and Zhou (2024) and Adams and Verdelhan (2025), who show that because hedging is limited, currency fluctuations directly impact firm revenues, costs, and profits. The present paper builds on this operational foundation but makes two key departures. First, instead of using a single currency benchmark, we separate exchange rate movements into distinct export and import channels to isolate their opposing effects. Second, we focus on the firm's long-run, structural exposure rather than short-term accounting measures. These two steps advance the theoretical framework of Bodnar, Dumas, and Marston (2002), which relates exchange rate exposure to market share and export substitutability. We demonstrate that corporate profit margins determine which of the two bilateral channels dominates. Aggregating this effect across firms successfully explains the cross-country dispersion in the currency betas of equity markets.

The remainder of this paper is organized as follows. Section 2 presents a simple framework that illustrates the intuition. Section 3 explains the data and construction of currency returns. Section 4 provides the country-industry level result, followed by the country-level analysis in Section 5. The paper concludes in Section 6.

2 A simple model

To build intuition for our main empirical findings, this section provides a partial-equilibrium model of bilateral trade and currency exposure. In this two-country model, a Home firm imports an intermediate input from a Foreign firm. The exchange rate shocks are given exogenously and affect firm profitability through trade channels.

2.1 Setup

Consider one firm in each of the two countries: Home (the importing country) and Foreign (the exporting country). The Home firm produces a final good using one unit of an imported intermediate input supplied by the Foreign firm. The Home firm is a monopolist in its domestic market, facing a linear inverse demand curve:

$$P_{F,t} = a - b\, X_t, \tag{1}$$

where $a > 0$, $b > 0$, and X_t and $P_{F,t}$ represent the quantity and price of the final good in the Home currency.[2] The Foreign firm produces the intermediate good with a constant marginal cost w denominated in the Foreign currency and applies a constant markup $\mu \geq 1$ over its marginal cost, a pricing parameter specific to the Foreign firm alone.

Let $e_{H,t}$ and $e_{F,t}$ denote the USD value of the Home and Foreign currencies, respectively. The bilateral exchange rate is defined as $q_t = e_{H,t}/e_{F,t}$, which measures the value of the Home currency in units of the Foreign currency. A higher q_t implies a stronger Home currency.

[2] a is assumed to be sufficiently large, so that there is always sufficient demand for the final good.

2.2 The long-run price benchmark

First, consider the long-run benchmark, where prices are fully flexible and adjust freely to exchange rate movements. Assume that the price of the imported intermediate good in foreign currency is $P_B^* = \mu w$. The Home firm's unit cost in its local currency is determined entirely by the bilateral exchange rate:

$$c_t^{LR} = \frac{\mu w}{q_t}. \tag{2}$$

Given this cost, the Home firm chooses the quantity of goods produced (X_t) to maximize its profit. The optimal quantity and the resulting long-run profits for the importer (Π_I) and exporter(Π_E) are:

$$X_t^{LR^*} = \frac{a - \mu w/q_t}{2b}, \tag{3}$$

$$\Pi_{I,t}^{LR^*} = \frac{(a - \mu w/q_t)^2}{4b}, \tag{4}$$

$$\Pi_{E,t}^{LR^*} = (\mu - 1)w\left(\frac{a - \mu w/q_t}{2b}\right). \tag{5}$$

This long-run equilibrium demonstrates that the fundamental exchange rate exposure of both firms depends strictly on the bilateral rate q_t. An appreciation of the Home currency (an increase in q_t) unambiguously lowers the importer's input cost, increases the quantity demanded, and raises the profits of both the importing and exporting firms.

To further understand the mechanism, consider the sensitivity of the Foreign (exporting) firm's revenue. The revenue in its local currency is higher when the Home currency appreciates against the Foreign currency:

$$S_{E,t}^{LR^*} = \frac{\mu w \cdot a}{2b} - \frac{\mu^2 w^2}{2bq_t}, \tag{6}$$

which is increasing in q_t. A higher q_t increases the quantity demanded, raising the exporter's revenue.

Similarly, the Home (importing) country firm's total cost:

$$C_{I,t}^{LR^*} = \frac{1}{2b}\left(\frac{a \cdot \mu w}{q_t} - \frac{\mu^2 w^2}{q_t^2}\right) \tag{7}$$

is decreasing in q_t. Although a stronger Home currency induces higher output, the overall total cost declines because the direct cost savings dominate the effect of this quantity expansion, assuming that there is sufficiently high market demand.

This model has two theoretical implications. First, currency fluctuations affect firms through two distinct channels that have opposite effects. For a firm that both imports and exports, appreciation of its own currency lowers import costs through the cost channel but reduces export competitiveness through the revenue channel, so the two channels act in opposite directions. Second, because stock returns fundamentally reflect long-term profits, invoicing rigidities matter less for stock returns. However, to explain short-term cash flows and their effect on stock prices, we next consider short-run pricing frictions.

2.3 The short-run effect of currency invoicing

In the short run, invoice prices are preset in a given currency before exchange rates are realized, introducing nominal rigidity. In practice, a large share of global trade is invoiced in a small number of currencies, most notably the US dollar, alongside the producer's currency (Gopinath, Boz, Casas, Díez, Gourinchas, and Plagborg-Møller, 2020; Boz, Casas, Georgiadis, Gopinath, Le Mezo, Mehl, and Nguyen, 2022). Motivated by this empirical fact, trade invoicing is modeled as a mixture of Producer Currency Pricing (PCP) and Dominant Currency Pricing (DCP). While prices are fixed, the Home firm can still adjust its production quantity X_t in response to exchange rate shocks, so currency movements affect profit margins even in the short run.

Assume that $\bar{P}_B^F = \mu w$ is the preset price under PCP, denominated in the Foreign currency, and $\bar{P}_B^{USD} = \mu w \cdot e_{F,0}$ is the equivalent price under DCP in USD, where $e_{F,0}$ denotes the USD value of the Foreign currency at the time of contracting. By construction, both preset prices are equivalent at inception. Let $\alpha_{IM} \in [0,1]$ represent the share of imported inputs invoiced in USD. The importer's effective short-run unit cost is a weighted average of the two:

$$c_t^{SR} = (1-\alpha_{IM})\left(\frac{\bar{P}_B^F}{q_t}\right) + \alpha_{IM}\left(\frac{\bar{P}_B^{USD}}{e_{H,t}}\right). \tag{8}$$

Because the Home firm can flexibly adjust quantity, the optimal short-run quantity and profit mirror the long-run structure but with c_t^{SR} replacing c_t^{LR}:

$$X_t^{SR*} = \frac{a - c_t^{SR}}{2b}, \tag{9}$$

$$\Pi_{I,t}^{SR*} = \frac{(a - c_t^{SR})^2}{4b}. \tag{10}$$

Similarly, for the exporting firm, let $\alpha_{EX} \in [0,1]$ represent the share of exports invoiced in USD. The exporter's effective short-run per-unit revenue in its local currency is:

$$s_t^{SR} = (1-\alpha_{EX})\bar{P}_B^F + \alpha_{EX}\left(\frac{\bar{P}_B^{USD}}{e_{F,t}}\right). \tag{11}$$

The exporter's short-run profit is then:

$$\Pi_{E,t}^{SR^*} = (s_t^{SR} - w) \cdot X_t^{SR^*}. \tag{12}$$

Under pure PCP ($\alpha_{EX} = \alpha_{IM} = 0$), the importer's cost is driven entirely by the bilateral exchange rate (q_t). That determines the final volume produced, and therefore, both the importer's and exporter's profits are determined by the bilateral exchange rate. Specifically, an appreciation of the importer's currency against the exporter's currency reduces the importer's cost, increasing the profits of both the importing (reduced cost) and exporting firm (through a higher export volume). Therefore, the implications for firm profitability are similar to the long-run case.

Under pure DCP ($\alpha_{IM} = \alpha_{EX} = 1$), the effects on importers and exporters are asymmetric. First, the importer's short-run profit no longer depends on the bilateral exchange rate (q_t). Instead, it depends entirely on the exchange rate against USD ($e_{H,t}$). Hence, in the short run, fluctuations in the exporter's currency no longer affect the importer's input costs or profits.

Second, the exporter's short-run profit has two components: the per-unit margin ($s_t^{SR} - w$) and the quantity sold ($X_t^{SR^*}$), as shown in Equation (12). Similar to the import side, the per-unit margin is set in dollars, so an appreciation of the exporter's currency against the dollar reduces the local-currency value of each unit sold. However, unlike the import side, the volume of goods demanded by the importer still depends on the importer's currency against the dollar, so bilateral exchange rate shocks continue to reach the exporter through this channel.

These results imply an asymmetric role of dollar invoicing on the two sides. On the import side, the cost channel is the only route through which bilateral shocks reach profitability. Dollar invoicing provides the importer with complete short-run insulation against bilateral fluctuations. On the export side, dollar invoicing weakens the margin channel related to q_t, just like the import side, but the trading partner's currency returns against the invoicing currency affect the volume. Export-side invoicing, therefore, insulates at most one of two channels, yielding only partial protection. This asymmetry between full import-side and partial export-side effects is consistent with the import pass-through mechanism documented by Amiti, Itskhoki, and Konings (2014, 2022). Because price stickiness is temporary, however, this short-run component accounts for only a small share of total firm value, as formalized in the next subsection.

2.4 Firm value

Let $\beta \in (0, 1)$ denote the discount factor, and assume exchange rates follow a random walk. Invoice prices are sticky for H periods and flexible thereafter. A firm's value V_t is the discounted sum of all future profits, which can be decomposed into short-run and long-run components:

$$V_t = \omega_{SR} \cdot \Pi_t^{SR} + \omega_{LR} \cdot \Pi_t^{LR}, \tag{13}$$

where $\omega_{SR} = \frac{1-\beta^H}{1-\beta}$ and $\omega_{LR} = \frac{\beta^H}{1-\beta}$. This decomposition suggests that the present-value share of the short-run component is relatively small ($\lambda \equiv 1 - \beta^H$).[3]

Therefore, while DCP may attenuate the importance of bilateral exchange rates between import and export partners, the ultimate exchange rate exposure of a firm's stock prices is heavily weighted toward the long-run flexible-price component. This result provides a theoretical foundation for our main empirical finding that trade-weighted bilateral exchange rates are the primary drivers of stock return variation across countries.

2.5 The currency beta

The preceding sections establish that a firm's fundamental exchange rate exposure is inherently bilateral, driven by the distinct currency compositions of its export revenues and import costs. However, the standard approach in the empirical asset pricing literature is to estimate currency risk using a single aggregate benchmark, typically against the US dollar. To understand the empirical puzzle of why these aggregate USD betas differ across countries, we examine what happens when a firm's complex bilateral trade network is evaluated through a single-benchmark regression.

Because the flexible-price component accounts for the dominant share of firm value, the following derivation simplifies the equity beta to only reflect long-run profits. To map our framework to the aggregate empirical literature, we make two adjustments to the baseline setup. First, we consider a representative firm in country c that simultaneously imports intermediate inputs and exports final goods, meaning its total long-run profit is $\Pi_c = S_c - C_c$.

[3]For standard calibrations — an annual discount factor of $\beta = 0.95$ and price stickiness of $H = 1$ year, consistent with the 11–13 month median invoice duration estimated by Gopinath and Rigobon (2008) — $\lambda \equiv 1 - \beta^H \approx 0.05$, so the short-run component accounts for roughly 5 percent of total firm value.

Second, we define q_c from country c's own perspective against a single benchmark currency, rather than against a specific trading partner.

Under this convention, measuring exposure against a single benchmark mathematically averages the opposing channels. An appreciation of q_c lowers aggregate import costs, but simultaneously reduces total firm revenue by weakening export competitiveness. Therefore, when measuring the firm's overall sensitivity to this single benchmark, both effects are present concurrently within the aggregate profit function. The revenue channel ($\partial S_c/\partial q_c < 0$) measures the loss in export competitiveness against the benchmark, while the cost channel ($\partial C_c/\partial q_c < 0$) measures the reduction in aggregate import costs.

To formalize how these two forces aggregate into a single equity exposure, let P_c denote the firm's market capitalization. Its stock return is[4]

$$R_c = \frac{d\Pi_c}{P_c}, \tag{14}$$

where Π_c is the long-run profit of firm c.

Let S_c and C_c denote the firm's long-run revenue and costs — the counterparts to $S^{LR}_{E,t}$ and $C^{LR}_{I,t}$ in the two-firm model above. The currency beta is then:

$$\beta_q \equiv \frac{1}{P_c}\frac{\partial \Pi_c}{\partial q_c}. \tag{15}$$

[4]The analysis abstracts from discount rate shocks; all variation in Π_c is driven by variation in long-run profits.

This beta can be decomposed into three key components:

$$\beta_{c,q} = \underbrace{\frac{S_c}{P_c}}_{\text{Sales-to-Price}} \left(\underbrace{\frac{1}{S_c}\frac{\partial S_c}{\partial q_c}}_{\text{Revenue Channel}} - \underbrace{\frac{C_c}{S_c}}_{\text{Cost Share}} \cdot \underbrace{\frac{1}{C_c}\frac{\partial C_c}{\partial q_c}}_{\text{Cost Channel}} \right). \tag{16}$$

The sign of the currency beta is dictated by the term in parentheses, which represents a trade-off between the revenue and cost channels. Since the sales-to-price ratio is positive, the sign depends on the remaining three terms.

Revenue channel ($\frac{1}{S_c}\frac{\partial S_c}{\partial q_c} < 0$): When country c's own currency appreciates, the importer's purchasing power falls, reducing the quantity demanded and hence their export revenue. This term is negative, consistent with standard trade theory.

Cost channel ($\frac{1}{C_c}\frac{\partial C_c}{\partial q_c} < 0$): A local currency appreciation lowers the cost of imported inputs. This term is also negative, pushing the overall beta in the positive direction since it enters with a minus sign.

Profit margin (cost share) (C_c/S_c): This term scales the importance of the cost channel. A firm with a low profit margin (high C_c/S_c) assigns greater weight to the cost channel, pushing the beta toward positive values.

Evaluating this decomposition, the sign and magnitude of this aggregate currency beta are determined by three sources. First, the firm's profit margin determines the internal balance between the cost and revenue channels. A low margin amplifies the cost-saving benefits of a local currency appreciation, pushing the aggregate beta toward positive values. Conversely, a high profit margin allows the negative revenue channel to dominate. Second, the fundamental direction of the net exposure is determined by the firm's net export position, with net exporters naturally having a more negative sensitivity. Finally, the overall magnitude scales systematically with the firm's total trade intensity. Firms that rely heavily on international trade have larger absolute sensitivities.

3 Data

3.1 Data sources

Currency returns against the USD are obtained from Datastream (135 currencies) and supplemented with Compustat Global, where Datastream coverage is unavailable, particularly for pre-Euro European currencies. Currencies with annualized volatility above 40% are dropped. Bilateral trade-flow weights are computed from the OECD Inter-Country Input-Output Tables (ICIO), which report inter-industry flows in basic prices and current values for both intermediate and final goods and services.[5] The ICIO panel spans 1995–2022, and because prior-year trade weights are matched to the following year of returns, the full sample covers 1996–2023.

When quantifying trade flows at the country level, a distinct approach is taken for imports versus exports to align with their impact on corporate profits. For trade inflows, we exclude final consumption expenditures by households (HFCE), non-profit institutions serving households (NPISH), and general government (GGFC). This is because only intermediate goods and services, used in production, directly influence a corporation's costs and profitability. However, for export-volume weighted currency returns, we include all trade flows. All goods and services exported contribute to the revenues of firms in a focal country,

[5] Gross fixed capital formation (GFCF) and changes in inventories (INVNT) are excluded from the trade flow measures. Capital formation reflects one-time investment spending rather than recurring trade relationships, and inventory changes are volatile and often negative, introducing noise into the trade weights.

regardless of whether they are for final consumption or intermediate use by end-users abroad. The ability to disaggregate trade flows by sector and final demand category is a key feature of the ICIO database.

As an alternative source of bilateral trade flows, the Direction of Trade Statistics (DOTS) database obtained from the IMF is also used. DOTS provides comprehensive country-to-country trade data with broader country coverage and a longer historical time series than the OECD ICIO. However, DOTS differs from the ICIO in two important dimensions. First, it is based on customs records rather than national accounts, and it covers merchandise trade only, excluding services. Second, it does not offer industry-level disaggregation, so it is used exclusively for country-level analysis.[6]

The dependent variables are stock returns at the country-industry and country levels. For country-industry returns, stock-level data from Datastream are used, covering 109,764 unique global stocks across 105 countries. Country-months with fewer than 100 listed firms are excluded, ending up with 38 unique countries. These individual stock returns are aggregated to the country-industry level using equally and value-weighted averages. Since Datastream uses SIC codes as industry identifiers, SIC codes are converted to the corresponding ISIC Rev. 4 classification. Lagged annual trade flow data are matched to the stock returns of the subsequent year. Country-level stock returns are MSCI total returns indexes, benchmarked against the MSCI World Developed market index.

Firm-level financial statement data — revenue, cost of goods sold (COGS), and breakdown of revenue by industry — are from Worldscope, at annual frequency and expressed in local currency, where firm stock and currency returns are accumulated over each firm's

[6]Import values in DOTS are recorded CIF (cost, insurance, and freight). We convert the CIF values by applying a 6% CIF-FOB margin as derived from the OECD International Transport and Insurance Costs database (Marini, Dippelsman, and Stanger, 2018).

fiscal year. The share of exports and imports invoiced in US dollars ($\text{Inv}^{EX}_{c,t}$ and $\text{Inv}^{IM}_{c,t}$) is taken from Boz, Casas, Georgiadis, Gopinath, Le Mezo, Mehl, and Nguyen (2022) and is interpolated.

3.2 Variable construction

Currency returns of individual countries and country-industries are measured in several ways. First, the currency return of country c relative to the USD is denoted by $\Delta e_{c,t}$, where a higher value indicates a relative appreciation of country c's currency against the US dollar. In addition to the currency returns against USD, import- and export-volume weighted currency returns are also constructed for each country and country-industry. Denoting the volume of flow from country-industry c, i to country d as $v_{c,i,d}$ and the input volume of flow originating from country d as $u_{c,i,d}$, the export-partner and import-partner currency baskets are:

$$\Delta e^{EX}_{c,i,t} = \sum_{d \in \Omega^{EX}_{c,i}} \nu_{c,i,d} \Delta e_{d,t} \tag{17}$$

and

$$\Delta e^{IM}_{c,i,t} = \sum_{d \in \Omega^{IM}_{c,i}} \omega_{c,i,d} \Delta e_{d,t}, \tag{18}$$

where $\Omega^{EX}_{c,i}$ and $\Omega^{IM}_{c,i}$ are the set of export and import partners of country-industry (c, i), respectively, and the weights $\nu_{c,i,d} = \frac{v_{c,i,d}}{\sum_{j \in \Omega^{EX}_{c,i}} v_{c,i,j}}$, and $\omega_{c,i,d} = \frac{u_{c,i,d}}{\sum_{j \in \Omega^{IM}_{c,i}} u_{c,i,j}}$ are the shares of trade with each partner d. In computing these currency returns, flows originating from and flowing into an industry of the same country as the focal country are excluded. In addition, countries sharing a common currency are treated as a single domestic area. Trade flows between euro-area members after the Euro formation, for instance, are excluded from the partner sets.[7] Trade weights $\nu_{c,i,d}$ and $\omega_{c,i,d}$ are taken from the ICIO table of the prior calendar year.

The export-based and import-based currency returns are defined as the difference between the focal country's return and the basket of its trading partners:

$$\Delta q^{EX}_{c,i,t} = \Delta e_{c,t} - \Delta e^{EX}_{c,i,t} \tag{19}$$
$$\Delta q^{IM}_{c,i,t} = \Delta e_{c,t} - \Delta e^{IM}_{c,i,t},$$

where a high value implies a strengthening currency of the focal country-industry. The export-to-import currency value is also defined as the value of the export destination currency relative to the import origin currency, which can be written as:

$$\Delta q^{XM}_{c,i,t} = \Delta e^{EX}_{c,i,t} - \Delta e^{IM}_{c,i,t}. \tag{20}$$

Country-industry level import- and export-weighted currency returns are then used to compute firm-level import- and export-volume weighted currency returns. Worldscope provides revenue data segmented by industry (SIC code), which is used to construct export-weighted and import-weighted currency returns at the firm level. Since cost breakdowns by sector are unavailable, the cost of each sector within a firm is assumed to be proportional to the revenue generated from that sector. All firms within a given country-industry are also assumed to share a homogeneous trade network.

[7]The Appendix reports results under an alternative construction that treats each country as a distinct trading partner regardless of currency union membership. The findings are qualitatively unchanged.

For example, for a firm j operating in country c with sectors i_0 and i_1 with revenue s_0 and s_1, the firm-level export-weighted currency returns is:

$$\Delta q_{c,j,t}^{EX,F} = \frac{s_0}{s_0 + s_1} \Delta q_{c,i_0,t}^{EX} + \frac{s_1}{s_0 + s_1} \Delta q_{c,i_1,t}^{EX}, \tag{21}$$

where the superscript "F" denotes firm-level variables. The import-weighted currency returns and the export-to-import currency returns are defined analogously.

3.3 Summary statistics

Table 1 describes the main sample of the analysis. Panel A reports country-level means of monthly value-weighted stock returns and the main currency returns. Panel B summarizes the means and standard deviations of the variables used in the analysis, broken down by emerging and developed economies. The panel shows that the mean equity and currency returns are similar across the two groups, while USD currency betas and profit margins differ in sign. The export-weighted and import-weighted currency returns $\Delta q_{c,i,t}^{EX}$ and $\Delta q_{c,i,t}^{IM}$ are strongly correlated with each other (pairwise correlation of 0.94), as both capture a relative appreciation of the domestic currency against trading partners. This collinearity reflects the geographic overlap between a country's export destinations and import origins. The partial correlation between the two measures after controlling for USD currency returns remains 0.83 (not reported in the table), motivating the use of the export-to-import currency returns $\Delta q_{c,i,t}^{XM}$ as an alternative specification.

4 Empirical Results

The analysis begins at the country-industry level, where industry-specific trade patterns provide the granularity needed to separate export and import dynamics. Country-level results follow.

4.1 Stock return and currency fluctuations

We now test the core predictions of the framework regarding bilateral exposure using a pooled panel regression, where the focal country-industry stock returns in local currency are used as the dependent variable, and the currency returns relative to export and import partners are used as independent variables. The regression specification is:

$$R_{c,i,t} = \alpha_{c,i} + \beta_{EX}\Delta q^{EX}_{c,i,t} + \beta_{IM}\Delta q^{IM}_{c,i,t} + \mathbf{Controls}_{c,i,t} + \epsilon_{c,i,t}, \tag{22}$$

where $\Delta q^{EX}_{c,i,t}$ and $\Delta q^{IM}_{c,i,t}$ are the two trade-weighted currency returns. $\mathbf{Controls}_{c,i,t}$ includes the world MSCI stock returns, country-level MSCI total index returns in local currency, and the country and industry fixed effects.

The framework delivers strong and opposite predictions about the relative fluctuations between export destination and import origin currencies. While both forces operate simultaneously through a country-industry's trade network, the two measures are empirically highly correlated. We therefore consider the specification with $\Delta q^{XM}_{c,i,t}$, which captures their joint effect in a single measure. The alternative regression specification is:

$$R_{c,i,t} = \alpha_{c,i} + \gamma_{USD}\Delta e_{c,t} + \beta_{XM}\Delta q^{XM}_{c,i,t} + \mathbf{Controls}_{c,i,t} + \epsilon_{c,i,t}, \tag{23}$$

where the variables are as defined previously.

Table 2 describes the results of this panel regression. Panel A uses the export- and import-weighted bilateral currency returns as independent variables. Panel B presents the alternative specification using the export-to-import currency return and USD currency returns. Each panel reports results for both value-weighted (left columns) and equally-weighted (right columns) country-industry returns.

Across both panels, the signs are consistent with theoretical predictions: export-weighted appreciation reduces stock returns, import-weighted appreciation increases them, and their difference (Δq^{XM}) enters positively throughout. Results hold for both value-weighted and equally-weighted returns across all specifications significantly, and the effect is also economically significant with a coefficient magnitude in the range of 0.04–0.06% per 1% changes in currency values. These results are robust to treating euro-area member countries as distinct trading partners rather than as a single currency area (see Appendix Table A1).

Comparing the magnitude of the coefficients across weighting schemes, the equally-weighted portfolios tend to exhibit a stronger sensitivity to the import-weighted currency returns than the value-weighted portfolios. This difference implies that smaller firms are more exposed to the import cost channel than the largest firms in the economy. This difference is consistent with both financial and operational hedging constraints. It may be that large firms have the scale to use financial derivatives to hedge currency risk, or as Amiti, Itskhoki, and Konings (2014) show, apply a natural operational hedge that reduces the net exposure. Smaller firms, conversely, often rely on imported intermediate inputs but lack both access to financial hedging and the offsetting foreign revenue streams, leaving their profits fully exposed to bilateral import currency shocks.

4.2 Currency beta and trade exposure

In practice, international trade intensity differs significantly across industrial sectors. While some may be almost entirely domestic, others heavily rely on both imported inputs and export revenues. The current trade-weighted currency returns reflect the composition of trade partners but do not incorporate the intensity of trade activities for a given sector. For example, a sector with a 50% trade share will be far more sensitive to trade-partner currencies than a sector with a 5% foreign trade share.

The framework emphasizes the importance of a firm's input and output networks as determinants of the currency exposure of stock returns. If this is indeed the case, the magnitude of these exposures should vary systematically with firms' global trade intensity. Specifically, the positive exposure to the import-weighted currency returns should be stronger for firms that import a higher fraction of their inputs, while the negative exposure to the export-weighted returns should be more pronounced if they rely more on the international market for their revenue.

This hypothesis is tested by interacting the bilateral currency returns with sector-specific trade intensity measures. The regression is:

$$\begin{aligned} R_{c,i,t} = \alpha_{c,i} + \beta \Delta q^{EX}_{c,i,t} + \gamma \Delta q^{IM}_{c,i,t} + \iota_{EX} \Delta q^{EX}_{c,i,t} \times \% Exp^{-}_{c,i,t} \\ + \iota_{IM} \Delta q^{IM}_{c,i,t} \times \% Imp^{-}_{c,i,t} + \mathbf{Controls}^{-}_{c,i,t} + \epsilon_{c,i,t}, \end{aligned} \tag{24}$$

where $\% Exp^{-}_{c,i,t}$ is the ratio of exports to total output and $\% Imp^{-}_{c,i,t}$ is the ratio of imports to total input, both at the country-industry level and measured in the previous year (denoted by the superscript $^{-}$). The coefficients of interest are ι_{EX} and ι_{IM}, which capture how trade intensity determines the currency betas. If trade intensity strengthens the proposed channel, ι_{EX} is expected to be negative and ι_{IM} positive. An analogous specification is considered using the export-to-import currency return $\Delta q_{c,i,t}^{XM}$ interacted with the overall trade openness ($\%Trade_{c,i,t}^{-}$), defined as the volume of exports and imports as a fraction of total input and output.

Table 3 reports the results. In Panel A, the interaction $\Delta q_{c,i,t}^{EX} \times \%Exp_{c,i,t}^{-}$ is consistently negative and significant, and $\Delta q_{c,i,t}^{IM} \times \%Imp_{c,i,t}^{-}$ is positive and significant, confirming that trade intensity amplifies the bilateral currency exposures. Panel B finds the same pattern for the composite interaction $\Delta q_{c,i,t}^{XM} \times \%Trade_{c,i,t}^{-}$, which is positive and significant across all eight columns.

Table A2 in Appendix provides a discrete version of this test by splitting the sample into tradable versus non-tradable industries (Panel A) and into goods versus service-sector industries (Panel B). In both splits, the bilateral currency return coefficients are strong and statistically significant with a sign that is consistent with the predictions in the trade-intensive industries but is economically small and/or statistically insignificant for the less-traded sample. These sample-split results confirm that the bilateral currency effects operate primarily through sectors with meaningful international trade exposure.

Figure 2 provides complementary cross-country evidence by examining how trade openness is related to the differential sensitivity to export and import currency returns. First, we estimate the panel regression (22) controlling for world stock returns separately for each country. Then, the spread $\hat{\beta}_m - \hat{\beta}_x$ is plotted against each country's average trade openness. This figure suggests a strong positive cross-country relationship. Countries with greater trade openness exhibit a larger spread between the two coefficients. This cross-country pattern thus mirrors the cross-industry evidence in Table 3, with trade intensity amplifying the trade-based bilateral exchange rates as a determinant of stock returns.

4.3 Dollar risk exposure and net export

The results above establish that export- and import-weighted currency returns affect stock prices in opposite directions. A natural implication is that the sensitivity to USD movements is determined by the relative scale of its export revenues and import costs. When exports dominate, a local currency depreciation against the USD raises foreign revenue in domestic terms, pushing the USD beta negative. When imports dominate, the same depreciation raises input costs, pushing the USD beta positive. The net export position thus acts as the key determinant of which channel prevails: a net exporter should exhibit a more negative USD beta, and a net importer a more positive one.

This section tests that prediction directly at the country-industry level by interacting the USD currency return with the lagged net export position:

$$R_{c,i,t} - R_{US,t} = \alpha_{c,i} + \beta \Delta e_{c,t} + \gamma \Delta e_{c,t} \times NX^{-}_{c,i,t} + \delta NX^{-}_{c,i,t} + \mathbf{Controls}_{c,i,t} + \epsilon_{c,i,t}, \qquad (25)$$

where $NX^{-}_{c,i,t} = (EXP_{c,i} - IMP_{c,i})/(EXP_{c,i} + IMP_{c,i})$ is the scaled net export position of country-industry (c, i) measured in the prior year, with $EXP_{c,i}$ and $IMP_{c,i}$ denoting cross-border export and import volumes from the OECD IO Tables. As in Hau and Rey (2006), stock returns are measured in excess of US returns because the currency return $\Delta e_{c,t}$ is defined against the USD. The coefficient of interest is γ. If the net export position determines the sign of the USD beta as predicted, γ should be negative.

Table 4 summarizes the results of these regressions. Panel A presents the net export interaction, and Panel B adds the interaction of the export-to-import currency return with the trade openness ($\%Trade_{c,i,t}$). Since the export-to-import return is likely to be more critical for country-industries with greater trade exposure, their interaction term with the trade share is expected to be positive. Each panel reports results for both value-weighted and equally-weighted country-industry returns.

Focusing on Panel A, the impact of $\Delta e_{c,t}$ on stock returns in excess of US returns is negative and highly significant. The interaction term of $\Delta e_{c,t}$ with the net export is consistently negative and significant across all specifications, confirming that industries with higher net export positions experience a more pronounced negative impact from local currency appreciation. Adding the country index return as a control maintains this pattern. Panel B extends this analysis by adding the interaction with trade openness, alongside net export. Both interaction terms are statistically significant, providing further confirmation that the stock return's currency exposure is fundamentally shaped by its position within the global trade network.

4.4 Firm's profitability, revenue, cost structure, and currency returns

The findings so far suggest that a stock's currency risk exposure is determined as standard international trade theory predicts. We further validate this mechanism using firm-level revenue and cost data. One challenge of this approach is that the trade flow data is available at the country-industry level, while firm revenue and cost information are at the firm level. To bridge this gap, we utilize the industry breakdown provided by Worldscope, as described in the data section, to reconstruct the export, import, and export-to-import weighted currency returns at the firm level.

The framework predicts that a firm's financial performance should be directly affected by currency movements based on its trade exposure. The predictions are tested using the following firm-level panel regression:

$$PM_{c,j,t} = \alpha_j + \sum_{k=0}^{K} \left[\beta_{EX,k} \Delta q_{c,j,t-k}^{EX,F} + \beta_{IM,k} \Delta q_{c,j,t-k}^{IM,F} + \beta_{USD,k} \Delta e_{c,t-k} \right] + \mathbf{Control}_{c,j,t} + \epsilon_{c,j,t}, \tag{26}$$

where $PM_{c,j,t}$ is the profit margin, defined as the revenue minus the cost of goods sold (COGS) divided by revenue for firm j in country c in year t, α_j is the firm fixed effect, and $K \in \{0, 1, 2\}$. Control variables include the lagged profit margin, the contemporaneous and lagged profit margins aggregated to the global level.

Panel A of Table 5 confirms that a local currency appreciation relative to export partners significantly reduces firm profit margins, while an appreciation relative to import origins increases them. Panels B and C decompose this effect. The margin contraction can be driven by a drop in revenues (Panel B) or by an increase in the cost of goods sold (Panel C). These effects are highly persistent, remaining statistically significant at least at the first lag.[8]

The persistence of these effects is further examined. Figure 3 reports cumulative impulse response functions for firm-level profitability at horizons up to eight years, estimated via

[8] In our model, when prices are flexible, the revenue channel entirely works through the quantity of goods sold, and the cost channel functions through the unit cost. Since COGS is the product of the quantity and unit cost, it should be a conservative measure of the cost channel, as the estimates in Panel C are likely to understate the true cost effect.

local projections (Jordà, 2005). This method directly regresses the outcome variable at each horizon h on the contemporaneous shock, without imposing a VAR structure. The left panel confirms that a currency appreciation relative to export partners reduces firm profitability persistently over longer horizons. The right panel shows that an appreciation relative to import partners increases profitability over multiple periods.

Figure 4 further decomposes the channels into revenue and cost channels. Panel (a) shows cumulative log revenue responses to the export-weighted bilateral currency shock, and Panel (b) shows cumulative log COGS responses to the import-weighted bilateral currency shock. Both panels confirm that the revenue and cost effects of bilateral currency shocks are persistent, with opposite signs on export and import channels remaining clearly distinguishable.

4.5 Currency invoicing and the revenue-cost channel

As the model's short-run analysis establishes, a high USD invoicing share can attenuate the pass-through of bilateral exchange rate shocks to firm revenue and costs (Gopinath, Boz, Casas, Díez, Gourinchas, and Plagborg-Møller, 2020). We test whether this attenuation is detectable by interacting the bilateral currency returns with the country's USD invoicing share. For revenue, we interact the export-weighted bilateral currency return $\Delta q_{c,j,t}^{EX,F}$ with the share of exports invoiced in USD ($\text{Inv}_{c,t}^{EX}$). For COGS, we interact the import-weighted bilateral currency return $\Delta q_{c,j,t}^{IM,F}$ with the share of imports invoiced in USD ($\text{Inv}_{c,t}^{IM}$).

Table 6 presents the results. Panel A examines log revenue, and Panel B examines log COGS. Each panel reports four columns in two pairs: log levels (columns 1–2) and contemporaneous log growth (columns 3–4). The first column in each pair is the baseline specification, and the second adds the USD invoicing share and its interaction. The baseline results are somewhat weaker than in the previous table but directionally consistent; the smaller subsample for which invoicing data are available is the likely explanation.

The coefficient on $\Delta q^{EX,F}_{c,j,t} \times \text{Inv}^{EX}_{c,t}$ in Panel A is positive and statistically significant in both specifications, indicating that at higher export USD invoicing shares, the sensitivity of firm revenue to the export-weighted currency return is attenuated. Panel B shows the same pattern on the cost side: the coefficient on $\Delta q^{IM,F}_{c,j,t} \times \text{Inv}^{IM}_{c,t}$ is positive and significant in the contemporaneous log-growth specification (column 4), so a higher USD invoicing share on imports weakens the cost channel as well. The attenuation is concentrated at shorter horizons, consistent with Gopinath and Rigobon (2008), who document median invoice price durations of 10.6 months for U.S. imports and 12.8 months for exports.

Figure 5 traces how these attenuation effects evolve over a multi-year horizon. During the first two years, the cumulative interaction coefficient is positive in both panels, confirming that high USD invoicing temporarily shields both revenue and cost growth from bilateral exchange rate shocks. However, this short-run protection is highly asymmetric. On the cost side, USD invoicing effectively blocks bilateral pass-through until input contracts expire. On the revenue side, USD invoicing only fixes the profit margin. The volume component remains fully exposed to bilateral rates. Because foreign buyers continue to adjust their order quantities, the export-side attenuation disappears faster.

At a longer horizon, the interaction slope naturally reverses. This reversal captures the realization of deferred pass-through. Once nominal rigidity wears off and contracts reprice, firms must absorb the accumulated shock, driving a sharp correction back toward flexible-price fundamentals. This asymmetric, time-varying dynamic is consistent with the imported-input pass-through mechanism of Amiti, Itskhoki, and Konings (2014, 2022).

5 Country-level analysis

5.1 The currency beta and the trade intensity

While the main analysis focuses on country-industry variation of stock and currency returns, the proposed logic should be applicable at the country level. Although aggregating across industries may obscure some of the granular dynamics, a country's overall trade relationships should still affect stock index returns through changes in currency value relative to its aggregate trading partners. This section tests whether the results reported at the country-industry level aggregate to the country level.

To this end, we run an analysis analogous to Equation (22) using MSCI country index returns as the dependent variable. The export- and import-weighted currency returns are constructed at the country level, weighting by the market capitalization, so that industries with larger weights in the equity index contribute more to the aggregate measure. This weighting scheme ensures that the constructed currency exposure measure aligns with the market-capitalization structure of the MSCI country index, the dependent variable, so that industries that are larger in equity markets also carry greater weight in the aggregate FX measure. The export-to-import currency returns, measuring the value of a country's export destination currency relative to its import origin currency, are constructed analogously.

The regressions considered are:

$$R_{c,t} = \alpha_c + \beta_c \Delta q^{EX}_{c,t} + \gamma_c \Delta q^{IM}_{c,t} + \eta_c R_{WLD,t} + \epsilon_{c,t}, \tag{27}$$
$$R_{c,t} = \alpha_c + \beta_c \Delta q^{XM}_{c,t} + \gamma_c \Delta e_{c,t} + \eta_c R_{WLD,t} + \epsilon_{c,t},$$

where $\Delta q^{EX}_{c,t}$, $\Delta q^{IM}_{c,t}$, $\Delta q^{XM}_{c,t}$, $\Delta e_{c,t}$, and $R_{WLD,t}$ are defined as earlier but measured at the country level. Panel A of Table 7 reports the baseline results using ICIO-based trade weights. Since DOTS provides only country-level bilateral trade flows without industry disaggregation, the currency returns in Panel B are weighted by aggregate trade inflows and outflows instead.

One consequence of aggregation is that $\Delta q^{EX}_{c,t}$ and $\Delta q^{IM}_{c,t}$ become more highly correlated at the country level (0.984 for ICIO, 0.965 for DOTS) than at the country-industry level (0.936). At the country-industry level, industry-specific trade patterns create enough variation to separate the two measures. However, at the country level, aggregation pulls the export and import baskets toward a common set of trading partners, so the two measures become more collinear. Therefore, the specification using the export-to-import return $\Delta q^{XM}_{c,t}$ provides a cleaner single-coefficient summary of the net effect.

The first two columns of Panel A display the results using OECD ICIO-based trade weights. The columns show that the export-weighted currency return shows a negative and statistically significant coefficient, while the import-weighted currency return is positive. The difference in signs confirms that the opposing bilateral forces established in the framework successfully scale to the aggregate macro level.

The next four columns use the export-to-import currency return $\Delta q^{XM}_{c,t}$ alongside the USD currency return $\Delta e_{c,t}$ as a single-measure summary of the net trade exposure. Columns 3–4 omit the world return control, while columns 5–6 restore it. Across both sets of columns, $\Delta q^{XM}_{c,t}$ is positive and statistically significant, confirming that a stronger export-destination currency relative to import-origin currency benefits country stock returns. The USD currency return enters with a negative coefficient only when we control for the world stock index, consistent with the ambiguous signs reported in earlier studies. Panel B replicates all specifications using DOTS and yields qualitatively similar results across all interactions.

5.2 Net export, profit margin, and the currency beta

Next, we examine the determinants of the USD currency beta at the country level. The framework points to two key country characteristics: trade intensity and corporate profit margins. The analysis tests whether countries with higher net export positions and higher profit margins exhibit more negative currency betas, as both channels predict a stronger negative sensitivity to local currency appreciation.

Table 8 tests these predictions by interacting the USD currency return with lagged export shares ($\%EXP^{-}_{c,t}$), import shares ($\%IMP^{-}_{c,t}$), and scaled net exports ($NX^{-}_{c,t}$). Because a country's equity index return is most influenced by its largest industries, the baseline results in columns 1–4 use value-weighted trade measures that weight each industry's trade shares by its market capitalization share. The coefficients on $\Delta e_{c,t} \times \%EXP^{-}_{c,t}$ are negative and significant, while those on $\Delta e_{c,t} \times \%IMP^{-}_{c,t}$ are positive and significant, confirming that higher export intensity amplifies and higher import intensity attenuates the negative currency beta. The interaction $\Delta e_{c,t} \times NX^{-}_{c,t}$ is negative and significant.

The next two columns (5–6) replicate the analysis using aggregate ICIO trade flows without market-cap weighting, and columns 7–8 use DOTS trade data. The results in columns 5–6 are somewhat weaker, which is likely to be a result of misalignment in weighting the trade exposure and country index return. The DOTS results in columns 7–8 are broadly consistent with the value-weighted baseline, confirming the robustness of the main findings.

We turn next to the profit margin hypothesis. The decomposition in Equation (16) predicts that countries with higher profit margins should exhibit a more negative USD currency beta, as the cost channel becomes relatively more important when profit margins are lower. The following regression is tested:

$$R_{c,t} - R_{US,t} = \alpha_c + \left(\beta_c + \gamma_1 PM^-_{c,t} + \gamma_2 NX^-_{c,t} + \gamma_3 NIIP^-_{c,t}\right) \times \Delta e_{c,t} + \eta_c R_{WLD,t} + \epsilon_{c,t}, \quad (28)$$

where $R_{c,t} - R_{US,t}$ is the country stock index return in excess of US return, $PM^-_{c,t}$, $NX^-_{c,t}$, and $NIIP^-_{c,t}$ denote lagged profit margin, value-weighted net exports, and net international investment position, respectively.

Table 9 reports the results of this regression. Panel A uses the OECD ICIO sample and Panel B shows the result using DOTS. In the first two columns of Panel A, only the interaction of USD currency returns with profit margin is included. The consistently negative and highly significant coefficient on $\Delta e_{c,t} \times PM^-_{c,t}$ confirms that countries with higher profit margins exhibit a more negative currency beta, precisely as the framework predicts. The next two columns add a control for the world stock return, and the profit margin interaction remains negative and significant. Columns 5–6 further add the interaction with the value-weighted net export ($NX^-_{c,t}$). The profit margin interaction remains negative and significant, while the NX interaction is negative but statistically insignificant in the ICIO sample, suggesting that the information in net export is partially subsumed by the profit margin once both are included jointly.

Beyond the trade channel, prior literature suggests that a country's external financial position is also a determinant of its currency-equity relationship. Hau and Rey (2006) and Camanho, Hau, and Rey (2022) show that cross-border equity holdings generate a portfolio rebalancing channel linking currency movements to equity returns, while Gourinchas and Rey (2007), Lane and Shambaugh (2010), and Bénétrix, Lane, and Shambaugh (2015) document that the size and currency composition of a country's net foreign asset position generate substantial valuation effects from currency movements. Motivated by this literature, the net international investment position ($NIIP^{-}_{c,t}$) is added as a further interaction in columns 7–8. The coefficient on $\Delta e_{c,t} \times NIIP^{-}_{c,t}$ is negative and significant, indicating that countries with larger net foreign asset positions tend to have a more negative USD currency beta, while the profit margin interaction remains negative and significant. Panel B replicates all specifications using DOTS and yields qualitatively similar results across all interactions.

These findings provide strong evidence that a country's aggregate profit margin is a significant determinant of its stock market's currency beta. Together with the net export and NIIP channels, these results deepen the understanding of how fundamental financial characteristics and trade structures interact to shape the observed cross-country variation in currency risk exposure.

5.3 The cross-country variation in the currency beta

Previous research suggests that the sign and cross-country variation in currency beta are difficult to explain using firm fundamental variables. In this section, we investigate to what extent the two measures considered in the previous section – profit margin and net export – can explain the cross-country variation in the currency beta.

We further analyze this subject by considering the currency beta of country index returns estimated as the slope of the regression:

$$R_{c,t} - R_{US,t} = \alpha_c + \beta_c \Delta e_{c,t} + e_t,$$

where $R_{c,t}$ is the stock index returns of country c, and $\Delta e_{c,t}$ represents the currency returns against the USD.

This slope is then plotted against the profit margin, calculated by aggregating the revenue and COGS of all firms incorporated in country c.

Figure 6 plots the estimated currency beta against the average profit margin computed over the sample period, with Panel (a) using the entire industry and Panel (b) using industries that exclude energy and financial sectors. We find that the relationship between the two measures is highly negative in both panels, suggesting that countries that earn more relative to their costs exhibit a negative currency risk exposure against the USD. The correlation between the two measures is approximately -0.42, and when excluding the two industries, it is -0.51.

The slope is also compared with the net export. Because equity index returns are most influenced by the largest firms, we compute a value-weighted net export measure (NX_c^{vw}) that weights each country-industry's net export position by its share of total market capitalization, excluding imports used by households, non-profit institutions, and the government. As expected, the average net export measure is positive for almost all countries.

Figure 7 illustrates the relationship between the estimated currency beta and the value-weighted net exports, again with ICIO-based betas in Panel (a) and DOTS-based betas in Panel (b). Both panels reveal a negative relationship, but with only a weakly negative correlation coefficient. Together, these two scatter plots suggest that profit margin is a central predictor of USD currency betas across countries, while net export position plays a supporting role.

6 Conclusion

The longstanding empirical failure to cleanly link exchange rate movements to equity valuations has often been interpreted as a disconnect between macroeconomic fundamentals and financial markets. The literature prematurely concluded that the goods-market channel of currency exposure is negligible. This paper demonstrates that the classical goods-market channel is highly active, but has been obscured by the reliance on single currency benchmarks and aggregated trade flows.

By decomposing trade-weighted exchange rates into distinct bilateral export-destination and import-origin components, we recover the opposing forces predicted by classical international trade theory. We show that the direction and magnitude of a market's aggregate currency exposure are not arbitrary, but are fundamentally anchored in its micro-level trade network. Crucially, corporate profit margins dictate which of these opposing channels dominates. In high-margin economies, the negative revenue effects of currency appreciation outweigh the cost-saving benefits, driving the aggregate USD currency beta negative. Conversely, lower margins amplify the cost channel, pushing the beta positive.

While DCP temporarily attenuates these dynamics by providing asymmetric, reducing the risk exposure in the short-run on the cost and margin side, equity values are ultimately determined by the present value of all future cash flows. Over a multi-year horizon, as contracts reprice and order volumes adjust, the underlying flexible-price trade network becomes the primary driver of currency exposure.

This framework scales up to the aggregate country level when bilateral returns are weighted by market capitalization. The cross-country dispersion in the aggregate USD currency beta is fundamentally driven by corporate profitability and trade structure. Countries with high profit margins exhibit more negative currency betas. Additionally, large net export positions and net foreign asset holdings push betas further negative, demonstrating that trade and valuation channels jointly shape a country's aggregate currency exposure.

These findings have rich implications for investors and risk managers. For investors, bilateral trade-weighted currency returns are a more informative measure of currency risk than standard USD returns. For risk managers, profit margins and net export positions provide signals for the currency risk exposure.

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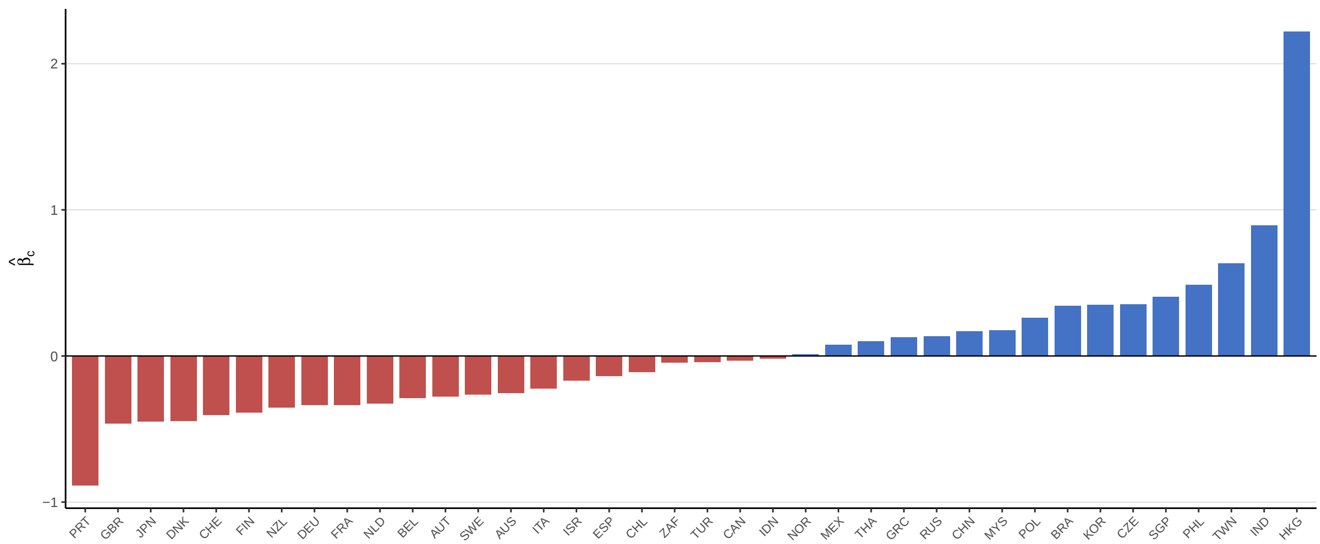


Figure 1: Currency beta of country index excess returns by country

This figure displays the slope coefficients $\hat{\beta}_c$ from the country-by-country OLS regression

$$R_{c,t} - R_{US,t} = \alpha_c + \beta_c \Delta e_{c,t} + \varepsilon_t,$$

where R_c is the MSCI stock index return of country c, R_{US} is the S&P 500 Index return, and $\Delta e_{c,t}$ is the return of country c's currency against the US dollar. The sample covers 38 countries from 1996 to 2023. Countries are sorted in ascending order of $\hat{\beta}_c$. Blue bars indicate countries with a positive beta (local currency appreciation associated with higher relative stock returns) and red bars indicate countries with a negative beta.

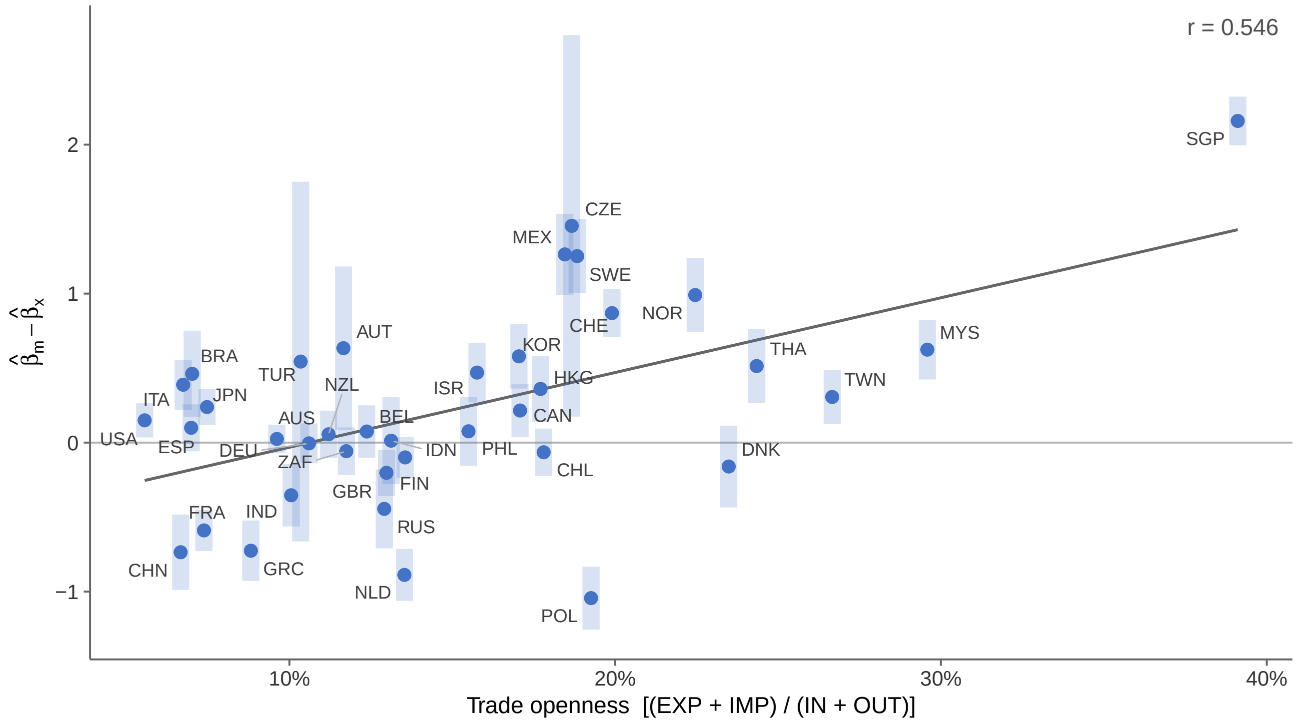


Figure 2: Differential currency sensitivity $\hat{\beta}_m - \hat{\beta}_x$ versus trade openness by country

This figure plots the estimated differential currency sensitivity $\hat{\beta}_m - \hat{\beta}_x$ against its average trade openness. The panel regression is estimated separately for each country:

$$R_{c,i,t} = \alpha + \beta_x \, \Delta q^{EX}_{c,i,t} + \beta_m \, \Delta q^{IM}_{c,i,t} + \gamma \, R_{\text{World},t} + \varepsilon_{c,i,t}$$

pooling all industry-month observations for that country, where $R_{c,i}$ is the value-weighted return of industry i in country c, $\Delta q^{EX}_{c,i,t}$ is the export-weighted currency return, $\Delta q^{IM}_{c,i}$ is the import-weighted currency return, and R_{World} is the World MSCI equity return. The difference of the slopes $(\hat{\beta}_m - \hat{\beta}_x)$ measures the net spread in currency sensitivity between the import and export channels. A larger positive value indicates that the trade channel is more important as a determinant of stock returns. Trade openness is defined as $(\text{EXP}_c + \text{IMP}_c)/(\text{IN}_c + \text{OUT}_c)$, where EXP and IMP denote export and import values, measured as trade flows crossing currency boundaries (e.g., within the euro area are excluded), and IN and OUT denote total input and output calculated from the OECD Input-Output Tables, all averaged over the entire sample period. The bars represent 90% confidence intervals for the difference in slopes, and the line represents the cross-country OLS fit.

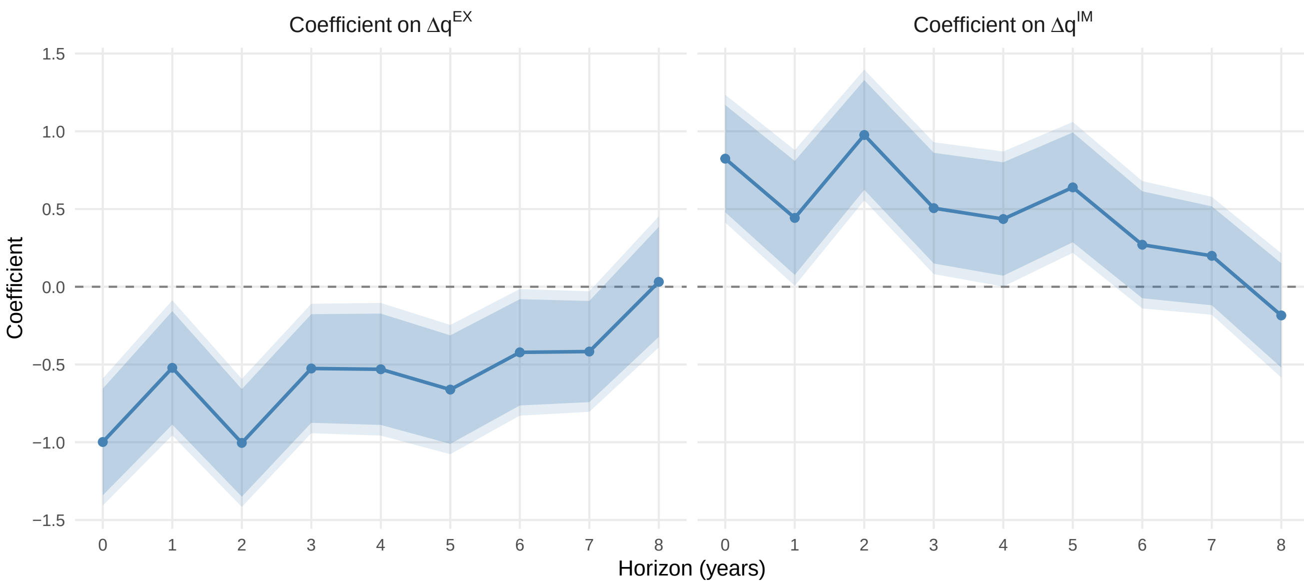
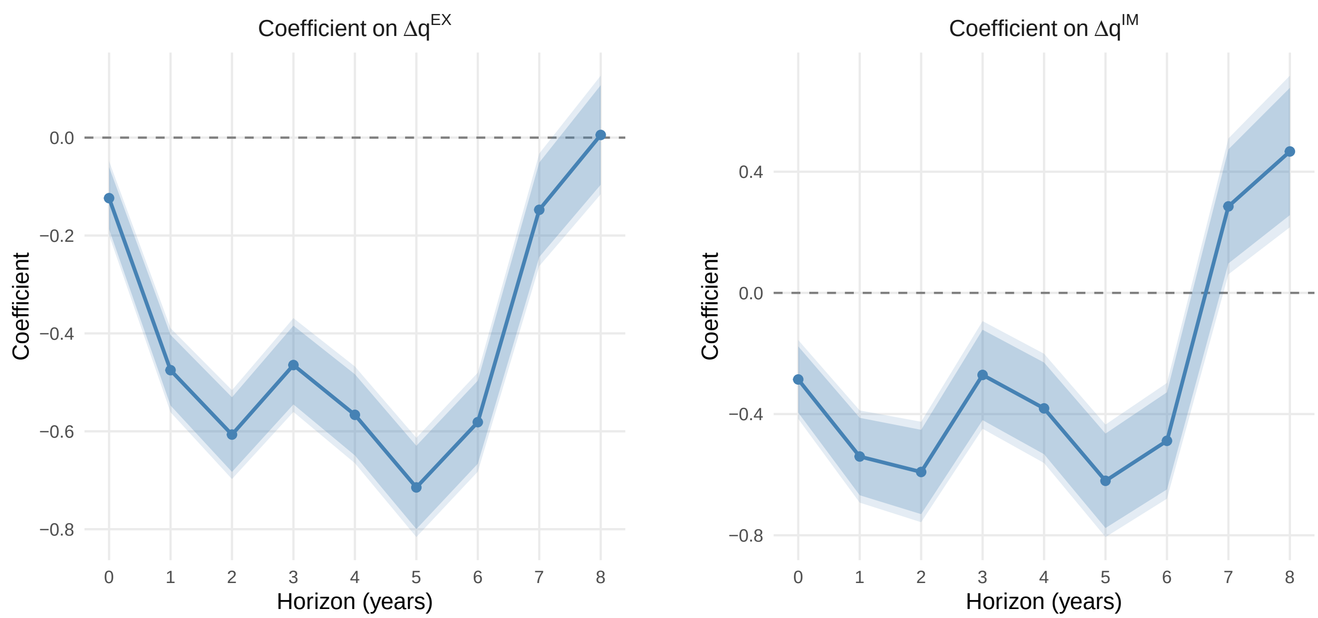


Figure 3: Impulse-response of firm profitability to bilateral currency shocks

This figure reports local projection impulse response functions (IRFs) for firm-level profit margin at horizons $h = 0, 1, \ldots, 8$ years. At each horizon h, the estimated specification is:

$$\mathrm{PM}_{j,t+h} = \alpha_j + \beta_h^{EX} \Delta q_{c,j,t}^{EX,F} + \beta_h^{IM} \Delta q_{c,j,t}^{IM,F} + \gamma \mathrm{PM}_{j,t-1} + \delta \bar{g}_t + \delta_1 \bar{g}_{t-1} + \varepsilon_{j,t+h},$$

where $\mathrm{PM}_{j,t} = (\mathrm{Revenue}_{j,t} - \mathrm{COGS}_{j,t})/\mathrm{Revenue}_{j,t}$ is the profit margin of firm j, $\Delta q_{c,j,t}^{EX,F}$ is the export-weighted and $\Delta q_{c,j,t}^{IM,F}$ is the import-weighted currency return of firm j, and $\bar{g}_t$ is the global cross-sectional mean of firm level profit margin. The model includes firm fixed effects. The left ($\hat{\beta}_h^{EX}$) and the right ($\hat{\beta}_h^{IM}$) represent the response to year t export- and import-weighted currency returns, respectively, on year $t + h$'s profit margin. Shaded bands represent 90% and 95% confidence intervals computed using two-way clustered standard errors.

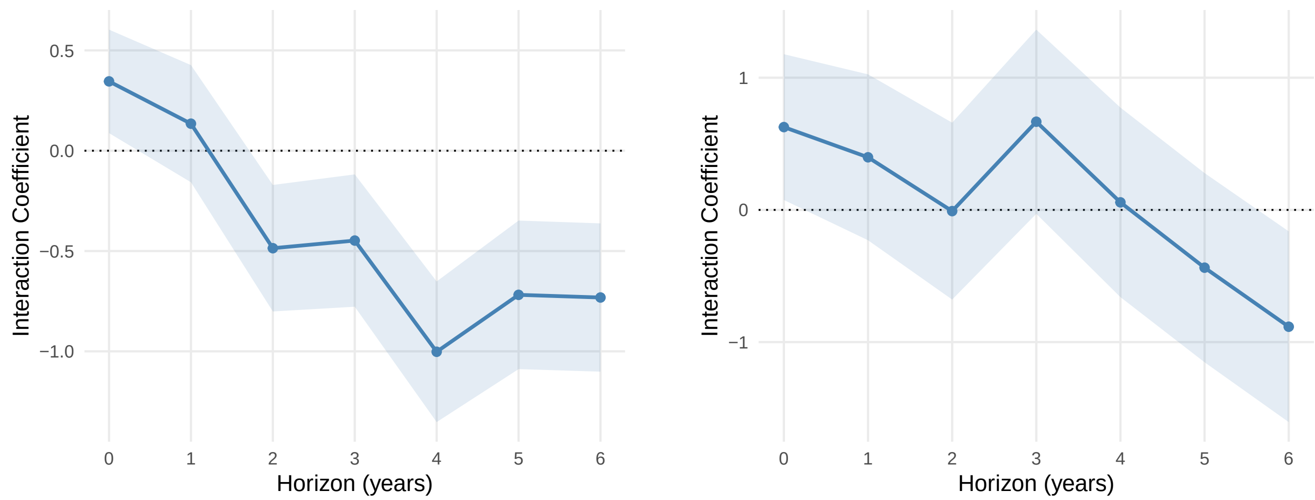


(a) Response of firm revenue

(b) Response of cost of goods sold

Figure 4: Impulse-response of firm revenue and cost to bilateral currency shocks

This figure reports IRFs for firm-level log revenue and log cost of goods sold at horizons $h = 0, 1, \ldots, 8$ years. The dependent variable is the log level $y_{j,t+h}$, where y is log revenue $(\log(1 + \text{Revenue})_{j,t+h})$ in Panel (a) and log cost $(\log(1 + \text{COGS})_{j,t+h})$ in Panel (b). Panel (a) regresses log revenue on export-weighted currency returns, currency returns against the USD, lagged log revenue, global log revenue, and its lag. Panel (b) regresses log cost on import-weighted currency returns, currency returns against the USD, lagged log COGS, global log COGS, and its lag. The coefficient at horizon h measures the response to the dependent variable at year $t + h$ of a currency shock in year t. Shaded bands represent 90% and 95% confidence intervals computed using two-way clustered standard errors, respectively.



(a) Response of firm log revenue

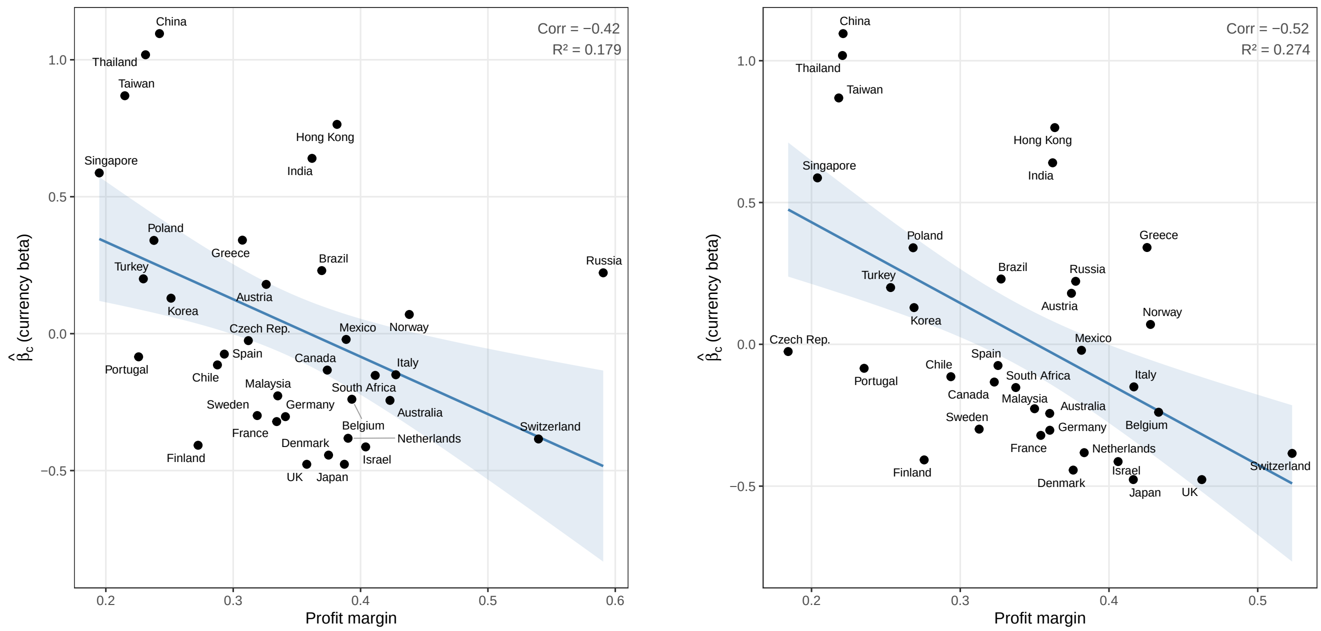
(b) Response of log COGS

Figure 5: Impulse-response of firm revenue and cost to bilateral currency shocks, by USD invoicing share

This figure reports interactive IRFs for firm-level log revenue and log cost of goods sold at horizons $h = 0, 1, \ldots, 6$ years. The dependent variable is the log level $y_{j,t+h}$, where y is log revenue in Panel (a) and log COGS in Panel (b). Panel (a) estimates

$$y_{j,t+h} = \alpha_j + (\beta_h + \gamma_h \mathrm{Inv}^{EX}_{c,t})\, \Delta q^{EX,F}_{c,j,t} + (\phi_h + \psi_h \mathrm{Inv}^{EX}_{c,t})\, \Delta e_{c,t} + \theta_h \mathbf{X}_{j,t} + \varepsilon_{j,t+h},$$

where $\Delta q^{EX,F}_{c,j}$ is the export-weighted bilateral currency return, $\mathrm{Inv}^{EX}_{c,t}$ is the share of exports invoiced in USD, and $\mathbf{X}_{j,t}$ includes lagged log revenue, contemporaneous global aggregate log revenue, and its lag. Panel (b) is analogous, with $\Delta q^{IM,F}_{c,j,t}$ and $\mathrm{Inv}^{IM}_{c,t}$ on the import side. Each panel describes the interaction coefficient, which measures how USD invoicing attenuates the pass-through of the bilateral currency shocks at t to revenue and cost at year $t + h$. Shaded bands are 90% confidence intervals from two-way clustered standard errors.



(a) Full Sample

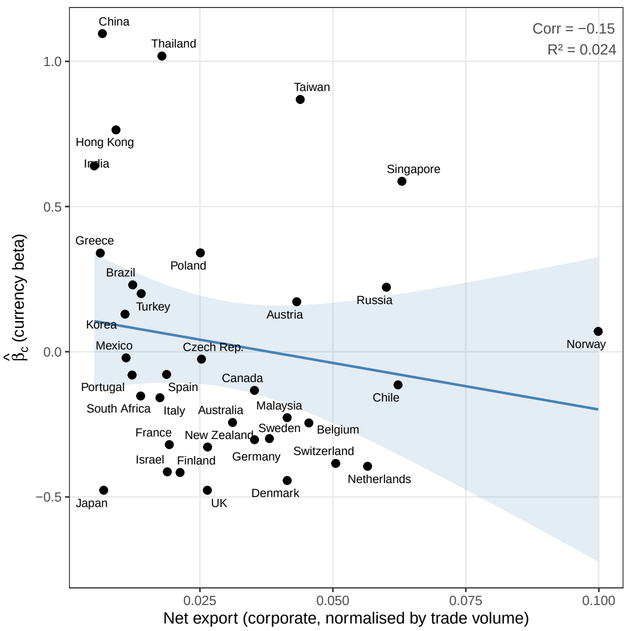
(b) Excluding Financial and Energy

Figure 6: Currency beta versus aggregate profit margin by country

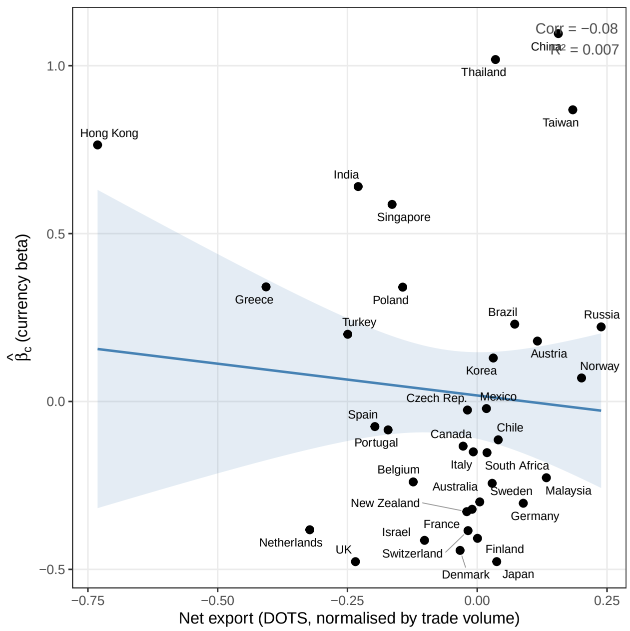
This figure plots $\hat{\beta}_c$ against the aggregate profit margin of country c. $\hat{\beta}_c$ is estimated from the country-by-country OLS regression $R_{c,t} - R_{US,t} = \alpha_c + \beta_c \Delta e_{c,t} + \varepsilon_t$, where $R_{c,t}$ is the country c's MSCI equity index return, $R_{US,t}$ is the S&P 500 return, and $\Delta e_{c,t}$ is country c's currency return against the USD. The profit margin is computed as

$$\text{Profit margin}_c = \frac{\sum_{j \in \Omega_c} \text{Revenue}_j - \sum_{j \in \Omega_c} \text{COGS}_j}{\sum_{j \in \Omega_c} \text{Revenue}_j},$$

where Ω_c is the set of all firms incorporated in country c and the summation pools all firm-years in the sample. Revenue and COGS are obtained from Worldscope. Panel (a) uses the entire industry, while Panel (b) excludes financial and energy sectors. The solid line is the OLS fit, and the shaded band is the 90% confidence interval.



(a) Input-Output Tables



(b) DOTS

Figure 7: Currency beta versus corporate net export by country

This figure plots $\hat{\beta}_c$ estimated as in Figure 6 against the time-series average corporate net export position of country c. Panel (a) uses the OECD Input-Output Table, where net export is defined as the market-cap weighted average of the difference between a country-industry's export and import divided by the sum of imports and exports. Panel (b) uses aggregate bilateral trade flows from the IMF Direction of Trade Statistics (DOTS). The solid line is the OLS fit, and the shaded band is the 90% confidence interval.

Table 1: Summary statistics

This table summarizes the sample used in this paper. Panel A presents the monthly averages of value-weighted stock returns (R^{VW}) in local currency, currency returns of countries against USD (Δe), and export (Δq^{EX}) and import weighted currency returns (Δq^{IM}) for each country. The sample period spans 1996–2023 (differs by country). N is the number of industry months for each country. Country-month observations are restricted to those with non-missing country index returns and at least 100 firms. Panel B describes the mean and standard deviations (shown in parentheses) of country-level, industry-level, and firm-level variables, categorized by whether the economy is emerging or developed. Profit margin is calculated as gross profit divided by revenue. Revenue and COGS are expressed in millions of USD. Stock returns' USD beta is the slope of a univariate regression of stock returns on currency returns against the USD.

Panel A. Equity and currency returns of countries

Country	R^{VW}	Δe	Δq^{EX}	Δq^{IM}	N	Country	R^{VW}	Δe	Δq^{EX}	Δq^{IM}	N
Australia	0.81%	−0.03%	0.04%	0.02%	16,128	Korea	0.76%	−0.15%	−0.08%	−0.10%	16,128
Austria	0.20%	0.17%	0.15%	0.11%	3,290	Malaysia	0.58%	−0.18%	−0.10%	−0.12%	16,128
Belgium	0.75%	−0.07%	0.03%	0.03%	14,968	Mexico	1.31%	−0.08%	−0.01%	−0.04%	9,695
Brazil	0.96%	−0.41%	−0.30%	−0.30%	10,091	Netherlands	0.92%	−0.06%	0.04%	0.04%	15,385
Canada	0.93%	0.01%	0.05%	0.03%	16,128	New Zealand	0.93%	0.00%	0.07%	0.02%	14,874
Chile	0.88%	−0.23%	−0.12%	−0.16%	15,957	Norway	0.95%	−0.14%	−0.05%	−0.07%	15,876
China	0.76%	0.05%	0.07%	0.06%	14,880	Philippines	0.98%	−0.08%	−0.09%	−0.08%	14,900
Czech Republic	−0.13%	−0.49%	0.12%	0.14%	3,243	Poland	0.59%	−0.04%	0.00%	0.03%	14,906
Denmark	1.09%	−0.06%	0.03%	0.03%	15,123	Portugal	2.29%	−0.36%	−0.08%	−0.05%	819
Finland	1.13%	−0.06%	0.11%	0.10%	15,211	Russia	1.34%	−0.53%	−0.42%	−0.47%	10,494
France	0.90%	−0.06%	0.03%	0.03%	16,128	Singapore	0.60%	0.02%	0.12%	0.10%	14,112
Germany	0.80%	−0.06%	0.02%	0.04%	15,792	South Africa	1.08%	−0.48%	−0.41%	−0.43%	16,128
Greece	1.04%	−0.08%	0.05%	0.07%	15,937	Spain	0.78%	−0.06%	0.04%	0.03%	15,973
Hong Kong	0.68%	−0.00%	0.06%	0.04%	14,796	Sweden	1.09%	−0.13%	−0.04%	−0.05%	15,976
India	1.55%	−0.26%	−0.18%	−0.19%	16,106	Switzerland	0.74%	0.09%	0.17%	0.17%	15,413
Indonesia	1.31%	−0.15%	−0.14%	−0.16%	14,902	Taiwan	0.79%	−0.03%	0.03%	0.02%	16,033
Israel	1.08%	−0.04%	0.05%	0.05%	15,271	Thailand	0.78%	−0.10%	−0.02%	−0.04%	15,662
Italy	0.81%	−0.03%	0.08%	0.09%	15,682	Turkey	5.42%	−2.73%	−2.57%	−2.63%	5,156
Japan	0.44%	−0.09%	−0.03%	−0.04%	16,128	USA	0.89%	0.00%	0.09%	0.08%	16,128

Panel B. Summary statistics classified by the development of the economy

	Emerging market			Developed economy		
	Country level	Industry level	Firm level	Country level	Industry level	Firm level
R^{VW}	0.010	0.011		0.008	0.009	
	(0.073)	(0.094)		(0.054)	(0.076)	
Δe	−0.002	−0.002		−0.000	−0.000	
	(0.035)	(0.035)		(0.027)	(0.027)	
Δq^{EX}	−0.002	−0.002		0.000	0.000	
	(0.031)	(0.031)		(0.018)	(0.018)	
Δq^{IM}	−0.002	−0.002		0.000	0.000	
	(0.031)	(0.031)		(0.018)	(0.018)	
Stock's USD beta	0.822	0.838		0.346	0.276	
	(0.507)	(0.572)		(0.887)	(0.929)	
Profit margin	0.042		0.129	0.157		0.266
	(0.222)		(1.992)	(0.238)		(1.636)
Revenue (Million USD)	2,371		2,132	3,260		4,118
	(1,918)		(10,287)	(1,741)		(16,235)
COGS (Million USD)	1,483		1,148	1,994		2,416
	(973)		(6,627)	(1,144)		(11,401)

Table 2: Stock returns and currency returns against import-export benchmarks

This table provides the estimates of the regression

$$R_{c,i,t} = \alpha_{c,i} + \beta_{EX}\Delta q^{EX}_{c,i,t} + \beta_{IM}\Delta q^{IM}_{c,i,t} + \delta R_{c,t} + \eta R_{WLD,t} + FE_{c,i} + \epsilon_{c,i,t},$$

where $\Delta e_{c,t}$, $\Delta q^{EX}_{c,i,t}$ and $\Delta q^{IM}_{c,i,t}$ are the US dollar, export- and import-weighted currency returns for country-industry c, i, $\Delta q^{XM}_{c,i,t}$ is the export-to-import currency return, $R_{c,t}$ is the country index return, and $R_{WLD,t}$ is the World MSCI return. $FE_{c,i}$ are country×industry fixed effects. Panel A presents results using export/import weighted returns, and Panel B uses export-to-import currency returns. The t-statistics estimated using country-industry and time cluster-robust standard errors are reported in parentheses.

Panel A. Using export/import weighted returns

	Value-weighted returns				Equally-weighted returns			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\Delta q^{EX}_{c,i,t}$	−0.035	−0.035	−0.035	−0.036	−0.039	−0.038	−0.050	−0.049
	(−2.51)	(−2.50)	(−2.71)	(−2.76)	(−2.59)	(−2.51)	(−3.47)	(−3.36)
$\Delta q^{IM}_{c,i,t}$	0.051	0.061	0.055	0.060	0.125	0.136	0.111	0.119
	(3.62)	(4.32)	(4.18)	(4.53)	(8.12)	(8.88)	(7.47)	(8.05)
$\Delta e_{c,t}$			0.002	0.001			0.029	0.025
			(0.38)	(0.15)			(4.30)	(3.77)
$R_{c,t}$			0.676	0.676			0.594	0.593
			(344.19)	(344.64)			(278.23)	(278.91)
$R_{WLD,t}$	0.813	0.813	0.225	0.225	0.765	0.765	0.243	0.245
	(386.96)	(387.74)	(80.55)	(80.80)	(332.14)	(335.58)	(77.73)	(78.68)
Country × Industry FE	N	Y	N	Y	N	Y	N	Y
R^2	0.229	0.228	0.415	0.413	0.181	0.181	0.306	0.307
N	513,342	513,342	513,342	513,342	513,342	513,342	513,342	513,342

Panel B. Using export-to-import currency returns

	Value-weighted returns				Equally-weighted returns			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\Delta q^{XM}_{c,i,t}$	0.043	0.047	0.044	0.046	0.079	0.084	0.076	0.078
	(3.08)	(3.41)	(3.48)	(3.66)	(5.28)	(5.59)	(5.40)	(5.59)
$\Delta e_{c,t}$			0.016	0.017			0.071	0.073
			(4.81)	(5.21)			(18.74)	(19.54)
$R_{c,t}$			0.677	0.677			0.595	0.595
			(345.33)	(345.82)			(279.47)	(280.25)
$R_{WLD,t}$	0.814	0.815	0.222	0.222	0.771	0.772	0.236	0.236
	(390.15)	(391.34)	(84.03)	(84.10)	(336.88)	(340.48)	(79.66)	(80.32)
Country × Industry FE	N	Y	N	Y	N	Y	N	Y
Adj-R^2	0.229	0.230	0.415	0.415	0.180	0.183	0.306	0.310
N	513,342	513,342	513,342	513,342	513,342	513,342	513,342	513,342

Table 3: Currency exposure and trade intensity

This table describes the results of interactive regressions, where country-industry stock returns are regressed on export and import weighted currency returns, interacted with the trade share or the export/import fraction. Panel A interacts the bilateral currency returns with the export fraction ($\%Exp_{c,i,t}$, export-to-output ratio) and the import fraction ($\%Imp_{c,i,t}$ import-to-input ratio), both measured at the country-industry level from the OECD Input-Output Tables. Panel B interacts the export-to-import currency return (Δq^{XM}) with the trade share ($\%Trade$), defined as the sum of imports and exports divided by the sum of total input and output. Countries sharing the same currency are treated as domestic for the purpose computing these fractions. The t-statistics estimated using two-way cluster-robust standard errors are reported in parentheses.

Panel A. Using gross export/import weighted returns

	Value-weighted returns				Equally-weighted returns			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\Delta q^{EX}_{c,i,t} \times \%Exp^{-}_{c,i,t}$	−0.153	−0.159	−0.133	−0.138	−0.107	−0.116	−0.092	−0.101
	(−6.38)	(−6.61)	(−5.54)	(−5.76)	(−4.07)	(−4.43)	(−3.49)	(−3.83)
$\Delta q^{IM}_{c,i,t} \times \%Imp^{-}_{c,i,t}$	0.284	0.274	0.225	0.213	0.282	0.274	0.237	0.227
	(7.19)	(6.92)	(5.68)	(5.38)	(6.49)	(6.32)	(5.45)	(5.24)
$\Delta q^{EX}_{c,i,t}$	0.004	0.005	0.087	0.089	−0.009	−0.006	0.053	0.059
	(0.28)	(0.33)	(6.19)	(6.34)	(−0.61)	(−0.43)	(3.45)	(3.80)
$\Delta q^{IM}_{c,i,t}$	−0.010	0.002	0.137	0.152	0.066	0.078	0.177	0.193
	(−0.67)	(0.11)	(8.61)	(9.54)	(3.91)	(4.65)	(10.08)	(11.06)
$\Delta e_{c,t}$			−0.217	−0.221			−0.163	−0.169
			(−32.53)	(−33.16)			(−22.25)	(−23.23)
$R_{WLD,t}$	0.813	0.813	0.853	0.854	0.765	0.765	0.795	0.796
	(386.04)	(386.11)	(350.89)	(351.21)	(329.78)	(332.29)	(296.82)	(299.44)
Country × Industry FE	N	Y	N	Y	N	Y	N	Y
R^2	0.229	0.228	0.231	0.229	0.181	0.181	0.182	0.182
N	513,318	513,318	513,318	513,318	513,318	513,318	513,318	513,318

Panel B. Using export-to-import currency returns and trade share

	Value-weighted returns				Equally-weighted returns			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\Delta q^{XM}_{c,i,t} \times \%Trade^{-}_{c,i,t}$	0.274	0.270	0.234	0.233	0.299	0.307	0.306	0.319
	(3.05)	(3.00)	(2.59)	(2.59)	(3.10)	(3.19)	(3.18)	(3.31)
$\Delta q^{XM}_{c,i,t}$	−0.011	−0.005	0.001	0.005	0.022	0.024	0.020	0.021
	(−0.52)	(−0.26)	(0.05)	(0.26)	(0.94)	(1.05)	(0.85)	(0.89)
$\Delta e_{c,t}$			−0.054	−0.049			0.010	0.016
			(−13.63)	(−12.37)			(2.26)	(3.75)
$R_{WLD,t}$	0.815	0.815	0.828	0.827	0.771	0.772	0.769	0.768
	(389.96)	(391.13)	(362.96)	(363.50)	(336.79)	(340.37)	(308.05)	(310.99)
Country × Industry FE	N	Y	N	Y	N	Y	N	Y
R^2	0.229	0.230	0.230	0.231	0.180	0.183	0.180	0.183
N	513,342	513,342	513,342	513,342	513,342	513,342	513,342	513,342

Table 4: Currency exposure, net export, and trade openness

This table summarizes the results of the regression where country-industry stock returns in excess of US returns are regressed on USD currency returns interacted with the scaled net export (NX), defined as the difference between a country-industry's export and import divided by the sum of imports and exports. Panel A presents the net export interaction. Panel B adds the interaction of the export-to-import currency return (Δq^{XM}) with the trade openness ($\%Trade$). The t-statistics estimated using country-industry and time cluster-robust standard errors are reported in parentheses.

Panel A. Net export interaction

	Dependent Variable: $R_{c,i,t} - R_{US,t}$							
	Value-weighted returns				Equally-weighted returns			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\Delta e_{c,t}$	−0.031	−0.034	−0.212	−0.209	−0.006	−0.008	−0.150	−0.146
	(−8.43)	(−9.11)	(−60.12)	(−59.58)	(−1.56)	(−2.08)	(−38.88)	(−38.02)
$\Delta e_{c,t} \times NX^{-}_{c,i,t}$		−0.048	−0.038	−0.038		−0.033	−0.025	−0.026
		(−6.73)	(−5.77)	(−5.84)		(−4.29)	(−3.41)	(−3.59)
$NX^{-}_{c,i,t}$		0.000	0.000	0.003		0.001	0.001	0.004
		(2.38)	(2.59)	(4.48)		(4.31)	(4.49)	(6.04)
$R_{c,t}$			0.377	0.376			0.301	0.299
			(227.09)	(227.10)			(165.95)	(166.33)
Country × Industry FE	N	N	N	Y	N	N	N	Y
R^2	0.000	0.000	0.110	0.110	0.000	0.000	0.058	0.058
N	513,342	513,342	513,342	513,342	513,342	513,342	513,342	513,342

Panel B. Net export and trade openness interaction

	Dependent Variable: $R_{c,i,t} - R_{US,t}$							
	Value-weighted returns				Equally-weighted returns			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\Delta e_{c,t}$	−0.031	−0.034	−0.212	−0.209	−0.007	−0.008	−0.150	−0.146
	(−8.48)	(−9.01)	(−59.96)	(−59.43)	(−1.66)	(−1.95)	(−38.72)	(−37.91)
$\Delta q^{XM}_{c,i,t}$	0.031	−0.022	−0.011	−0.008	0.062	−0.007	0.002	0.003
	(2.17)	(−1.03)	(−0.53)	(−0.37)	(4.02)	(−0.30)	(0.08)	(0.13)
$\Delta e_{c,t} \times NX^{-}_{c,i,t}$		−0.047	−0.037	−0.038		−0.032	−0.024	−0.025
		(−6.65)	(−5.70)	(−5.76)		(−4.10)	(−3.23)	(−3.41)
$\Delta q^{XM}_{c,i,t} \times \%Trade^{-}_{c,i,t}$		0.243	0.157	0.158		0.336	0.267	0.279
		(2.63)	(1.76)	(1.77)		(3.40)	(2.77)	(2.89)
$R_{c,t}$			0.377	0.376			0.301	0.299
			(227.07)	(227.11)			(165.96)	(166.33)
Country × Industry FE	N	N	N	Y	N	N	N	Y
R^2	0.000	0.000	0.110	0.110	0.000	0.000	0.058	0.058
N	513,342	513,342	513,342	513,342	513,342	513,342	513,342	513,342

Table 5: Firm's cost-revenue structure and the currency exposure

This table presents estimates of firm-level regressions where profit margin, log revenue, and log COGS are regressed on export- and import-weighted currency returns. Panel A presents regressions where profit margin is the dependent variable, defined as (Revenue – COGS)/Revenue. Regressors include the contemporaneous and first-lagged $\Delta q^{EX,F}$, $\Delta q^{IM,F}$, net export-to-import return ($\Delta q^{XM,F}$) computed at the firm level, and the USD currency return ($\Delta e_{c,t}$). Controls include the one-period lagged profit margin, as well as the contemporaneous global cross-sectional mean of firm profitability and its one-period lag. Panels B and C present regressions for the level and growth rate of log revenue and log COGS respectively. In all specifications, the control variables include the lagged firm-level log outcome along with the contemporaneous and lagged global aggregate log outcome. All specifications include firm fixed effects. The t-statistics estimated using firm and time cluster-robust standard errors are reported in parentheses.

Panel A. Dependent variable: Profit margin

	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta q^{EX,f}_{c,f,t}$	−1.079	−0.724	−1.103	−0.730		
	(−5.17)	(−3.33)	(−5.25)	(−3.34)		
$\Delta q^{IM,f}_{c,f,t}$	0.869	1.019	0.881	1.030		
	(4.14)	(4.82)	(4.17)	(4.84)		
$\Delta q^{EX,f}_{c,f,t-1}$			−0.125	−0.028		
			(−0.60)	(−0.13)		
$\Delta q^{IM,f}_{c,f,t-1}$			0.027	0.014		
			(0.13)	(0.07)		
$\Delta q^{XM,f}_{c,f,t}$					0.902	0.909
					(4.36)	(4.37)
$\Delta q^{XM,f}_{c,f,t-1}$						0.015
						(0.07)
$\Delta q^{USD}_{c,t}$		−0.474		−0.490	−0.302	−0.314
		(−5.83)		(−6.00)	(−6.03)	(−6.24)
$\Delta q^{USD}_{c,t-1}$				−0.113		−0.118
				(−1.43)		(−2.39)
Control	Y	Y	Y	Y	Y	Y
Firm FE	Y	Y	Y	Y	Y	Y
R-squared	0.137	0.137	0.137	0.137	0.137	0.137
N	99,697	99,697	99,697	99,697	99,697	99,697

Panel B. Dependent variable: Revenue

	Log level		Log growth	
	(1)	(2)	(3)	(4)
$\Delta q^{EX,f}_{c,f,t}$	−0.127	−0.124	−0.058	−0.058
	(−3.16)	(−3.10)	(−2.01)	(−2.01)
$\Delta q^{EX,f}_{c,f,t-1}$		−0.274		−0.281
		(−6.69)		(−9.65)
$\Delta q^{USD}_{c,t}$	0.078	0.056	−0.015	−0.037
	(2.56)	(1.82)	(−0.68)	(−1.69)
$\Delta q^{USD}_{c,t-1}$		0.158		0.146
		(4.80)		(6.26)
Control	Y	Y	Y	Y
Firm FE	Y	Y	Y	Y
R^2	0.520	0.521	0.168	0.169
N	99,697	99,697	99,697	99,697

Panel C. Dependent variable: COGS

	Log level		Log growth	
	(1)	(2)	(3)	(4)
$\Delta q^{IM,f}_{c,f,t}$	−0.287	−0.284	−0.040	−0.042
	(−3.71)	(−3.67)	(−1.51)	(−1.58)
$\Delta q^{IM,f}_{c,f,t-1}$		−0.205		−0.306
		(−2.63)		(−11.45)
$\Delta q^{USD}_{c,t}$	0.292	0.278	−0.051	−0.077
	(5.02)	(4.75)	(−2.58)	(−3.85)
$\Delta q^{USD}_{c,t-1}$		0.186		0.147
		(3.06)		(7.08)
Control	Y	Y	Y	Y
Firm FE	Y	Y	Y	Y
R^2	0.368	0.368	0.074	0.076
N	99,697	99,697	99,697	99,697

Table 6: Currency invoicing and the exposure of firm revenue and cost

This table examines whether the relationship between firm revenue/cost and currency returns vary with the share of trade invoiced in USD. Panel A presents regressions for log revenue and Panel B for log COGS. Levels and growth rates are used as the dependent variable in both panels. For the revenue panel (Panel A), the country's share of exports invoiced in USD (Inv^{EX}) is interacted with the export-weighted currency return ($\Delta q^{EX,F}$) and the USD currency return (Δe). For the COGS panel (Panel B), the country's share of imports invoiced in USD (Inv^{IM}) is interacted with the import-weighted currency return ($\Delta q^{IM,F}$) and the USD currency return. The corresponding lagged firm-level log variable, as well as the contemporaneous and lagged global aggregate counterparts are used as control. All specifications include firm fixed effects. The t-statistics estimated using firm and time cluster-robust standard errors are reported in parentheses.

Panel A. Dependent variable: firm revenue

	Log $\text{Rev}_{c,f,t}$		Log growth	
$\Delta q^{EX,f}_{c,f,t}$	−0.087	−0.217	−0.072	−0.212
	(−1.91)	(−2.34)	(−2.26)	(−3.26)
$\Delta e_{c,t}$	0.015	0.141	−0.057	0.007
	(0.46)	(2.49)	(−2.47)	(0.19)
$\text{Inv}^{EX}_{c,t}$		−0.297		−0.197
		(−4.20)		(−3.98)
$\Delta q^{EX,f}_{c,f,t} \times \text{Inv}^{EX}_{c,t}$		0.346		0.298
		(2.15)		(2.63)
$\Delta e_{c,t} \times \text{Inv}^{EX}_{c,t}$		−0.327		−0.159
		(−2.92)		(−2.03)
Control	Y	Y	Y	Y
Firm FE	Y	Y	Y	Y
R^2	0.491	0.491	0.173	0.174
N	72,045	72,045	72,045	72,045

Panel B. Dependent variable: Cost of goods sold

	Log $\text{COGS}_{c,f,t}$		Log growth	
$\Delta q^{IM,f}_{c,f,t}$	−0.313	−0.601	−0.063	−0.335
	(−3.18)	(−2.73)	(−2.00)	(−4.80)
$\Delta e_{c,t}$	0.214	0.334	−0.120	−0.013
	(3.08)	(2.46)	(−5.43)	(−0.30)
$\text{Inv}^{IM}_{c,t}$		−0.378		−0.192
		(−4.00)		(−6.40)
$\Delta q^{IM,f}_{c,f,t} \times \text{Inv}^{IM}_{c,t}$		0.626		0.556
		(1.62)		(4.52)
$\Delta e_{c,t} \times \text{Inv}^{IM}_{c,t}$		−0.305		−0.249
		(−1.11)		(−2.86)
Control	Y	Y	Y	Y
Firm FE	Y	Y	Y	Y
R^2	0.328	0.328	0.070	0.071
N	67,271	67,271	67,271	67,271

Table 7: Country index returns and the exposure to trade-weighted currency returns

This table presents regression results where country-level stock index returns are regressed on export- and import-weighted currency returns (Δq^{EX}, Δq^{IM}), the USD currency return (Δe), and the export-to-import currency return (Δq^{XM}), controlling for the world MSCI return (R_{WLD}). Panel A uses the market cap to weight the industry level trade-weighted currency returns constructed from the Input-Output table, while Panel B uses the aggregate trading volume of IMF Direction of Trade Statistics (DOTS). The t-statistics estimated using Driscoll-Kraay standard errors with three lags are reported in parentheses.

Panel A. OECD Input-Output Table Sample

	Dependent variable: Country index returns					
	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta q_{c,t}^{EX}$	−0.618	−0.636				
	(−2.43)	(−2.50)				
$\Delta q_{c,t}^{IM}$	0.605	0.634				
	(2.36)	(2.48)				
$\Delta e_{c,t}$			0.475	0.483	−0.102	−0.096
			(5.93)	(6.06)	(−3.10)	(−2.91)
$\Delta q_{c,t}^{XM}$			1.636	1.666	0.553	0.582
			(3.19)	(3.22)	(2.24)	(2.37)
$R_{WLD,t}$	0.874	0.874			0.899	0.898
	(24.21)	(24.27)			(23.36)	(23.39)
Country FE	N	Y	N	Y	N	Y
R^2	0.390	0.394	0.049	0.054	0.392	0.395
N	10,951	10,951	10,951	10,951	10,951	10,951

Panel B. IMF DOTS Sample

	Dependent variable: Country index returns					
	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta q_{c,t}^{EX}$	−0.704	−0.728				
	(−3.10)	(−3.24)				
$\Delta q_{c,t}^{IM}$	0.715	0.753				
	(3.21)	(3.41)				
$\Delta e_{c,t}$			0.483	0.492	−0.061	−0.053
			(5.66)	(5.82)	(−1.86)	(−1.64)
$\Delta q_{c,t}^{XM}$			0.797	0.841	0.647	0.685
			(2.21)	(2.34)	(2.94)	(3.15)
$R_{WLD,t}$	0.873	0.872			0.891	0.889
	(23.65)	(23.75)			(23.00)	(23.11)
Country FE	N	Y	N	Y	N	Y
R^2	0.368	0.373	0.052	0.058	0.368	0.373
N	11,385	11,385	11,385	11,385	11,385	11,385

Table 8: Net export and country-level currency risk exposure

This table presents an analysis of whether the sensitivity of country-level stock returns to USD depreciation depends on the country's export share ($\%EXP$), import share ($\%IMP$), and net export position (NX). The dependent variable is country stock index returns in excess of the US return. First six sample uses the OECD Input-Output Table sample, and the latter two uses the DOTS aggregated trade data. Columns (1)–(4) use value-weighted trade shares, while columns (5)–(6) use aggregated trade measures from the Input-Output sample. The t-statistics estimated using Driscoll-Kraay standard errors with three lags are reported in parentheses.

	Dependent variable: $R_{c,t} - R_{US,t}$							
Sample:	IOT Sample						DOTS	
Trade measures:	Value-weighted				Aggregated			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\Delta e_{c,t}$	0.046	0.058	0.046	0.050	0.058	0.069	0.046	0.053
	(0.77)	(1.01)	(1.19)	(1.28)	(0.91)	(1.07)	(1.18)	(1.39)
$\Delta e_{c,t} \times \%EXP^{-}_{c,t}$	−2.000	−2.087						
	(−5.02)	(−5.28)						
$\Delta e_{c,t} \times \%IMP^{-}_{c,t}$	1.978	2.036						
	(3.43)	(3.53)						
$\Delta e_{c,t} \times NX^{-}_{c,t}$			−0.615	−0.549	−0.165	−0.191	−0.476	−0.532
			(−3.06)	(−2.97)	(−0.80)	(−0.92)	(−2.08)	(−2.39)
$NX^{-}_{c,t}$			0.008	0.024	0.008	0.027	0.014	0.040
			(2.11)	(1.94)	(1.58)	(1.87)	(2.08)	(2.00)
$\%EXP^{-}_{c,t}$	0.012	0.028						
	(1.14)	(1.18)						
$\%IMP^{-}_{c,t}$	−0.008	−0.006						
	(−0.69)	(−0.20)						
$R_{WLD,t}$	−0.104	−0.105	−0.106	−0.106	−0.103	−0.104	−0.112	−0.114
	(−2.28)	(−2.31)	(−2.31)	(−2.33)	(−2.27)	(−2.30)	(−2.47)	(−2.52)
Country FE	N	Y	N	Y	N	Y	N	Y
R^2	0.011	0.017	0.010	0.016	0.008	0.014	0.008	0.016
N	10,951	10,951	10,951	10,951	10,951	10,951	11,385	11,385

Table 9: Currency risk exposure and profit margin

This table presents an analysis of whether the sensitivity of country-level stock returns to USD depreciation is conditional upon the country's aggregate profit margin (PM), net export position (NX), and net international investment position (NIIP). The dependent variable is defined as the country stock index return in excess of the US. Independent variable includes the currency return against the USD interacted with PM, NX and NIIP. The analysis utilizes the OECD Input-Output table sample for Panel A and the IMF DOTS for Panel B. NX in Panel A uses the market-cap weighted trade measures as described in Table 8. The t-statistics are provided in parentheses and are derived from Driscoll-Kraay standard errors with three lags.

Panel A. OECD Input-Output table sample

	Dependent variable: $R_{c,t} - R_{US,t}$							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\Delta e_{c,t}$	0.259	0.255	0.346	0.343	0.297	0.302	0.190	0.195
	(3.61)	(3.53)	(4.71)	(4.65)	(4.01)	(3.93)	(2.49)	(2.50)
$\Delta e_{c,t} \times PM^{-}_{c,t}$	−0.622	−0.602	−0.662	−0.643	−0.530	−0.533	−0.425	−0.433
	(−4.99)	(−4.96)	(−5.23)	(−5.23)	(−4.10)	(−3.98)	(−3.39)	(−3.36)
$\Delta e_{c,t} \times NX^{-}_{c,t}$					−0.441	−0.372	−0.306	−0.223
					(−2.08)	(−1.85)	(−1.42)	(−1.12)
$\Delta e_{c,t} \times NIIP^{-}_{c,t}$							−0.019	−0.020
							(−2.53)	(−2.87)
$PM^{-}_{c,t}$	0.001	0.006	0.001	0.006	0.000	0.005	−0.002	0.002
	(0.29)	(0.72)	(0.41)	(0.82)	(−0.04)	(0.65)	(−0.55)	(0.25)
$NX^{-}_{c,t}$					0.008	0.023	0.009	0.025
					(2.08)	(1.91)	(2.15)	(1.96)
$NIIP^{-}_{c,t}$							0.000	0.000
							(0.44)	(−1.07)
$R_{WLD,t}$			−0.106	−0.107	−0.107	−0.108	−0.102	−0.103
			(−2.33)	(−2.36)	(−2.34)	(−2.37)	(−2.21)	(−2.23)
Country FE	N	Y	N	Y	N	Y	N	Y
R^2	0.003	0.009	0.010	0.016	0.011	0.017	0.012	0.019
N	10,940	10,940	10,940	10,940	10,940	10,940	10,236	10,236

Panel B. IMF DOTS sample

	Dependent variable: $R_{c,t} - R_{US,t}$							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\Delta e_{c,t}$	0.218	0.217	0.314	0.314	0.319	0.318	0.188	0.187
	(3.32)	(3.25)	(4.68)	(4.61)	(4.86)	(4.80)	(2.43)	(2.44)
$\Delta e_{c,t} \times PM^{-}_{c,t}$	−0.491	−0.474	−0.552	−0.537	−0.556	−0.542	−0.401	−0.387
	(−4.98)	(−4.78)	(−5.30)	(−5.13)	(−5.47)	(−5.31)	(−3.26)	(−3.22)
$\Delta e_{c,t} \times NX^{-}_{c,t}$					0.145	0.093	0.313	0.250
					(1.14)	(0.74)	(2.22)	(1.73)
$\Delta e_{c,t} \times NIIP^{-}_{c,t}$							−0.022	−0.021
							(−3.42)	(−3.39)
$PM^{-}_{c,t}$	0.006	0.008	0.006	0.009	0.007	0.009	0.003	0.005
	(1.62)	(1.12)	(1.75)	(1.22)	(2.02)	(1.26)	(0.81)	(0.66)
$NX^{-}_{c,t}$					0.007	0.010	0.007	0.020
					(2.92)	(1.17)	(2.77)	(2.05)
$NIIP^{-}_{c,t}$							0.000	0.000
							(1.16)	(0.13)
$R_{WLD,t}$			−0.105	−0.107	−0.105	−0.107	−0.103	−0.104
			(−2.29)	(−2.33)	(−2.29)	(−2.33)	(−2.16)	(−2.21)
Country FE	N	Y	N	Y	N	Y	N	Y
R^2	0.002	0.009	0.010	0.017	0.011	0.017	0.014	0.020
N	12,929	12,929	12,929	12,929	12,929	12,929	12,024	12,024

A Internet Appendix

This appendix presents robustness exercises for the baseline results of the paper. Table A1 addresses the treatment of euro-area countries. In the baseline specification, intra-euro-area trade flows are excluded from the partner sets Ω^{EX} and Ω^{IM} because no bilateral exchange rate variation exists between countries sharing a common currency. Table A1 instead treats each country as a distinct trading partner regardless of currency union membership. The results are quantitatively similar to the baseline: the export-weighted currency return enters negatively and significantly, the import-weighted return enters positively and significantly, and the export-to-import measure Δq^{XM} is positive and significant throughout.

Table A2 examines whether the bilateral currency effects vary across sectors with different degrees of trade exposure. Panel A splits the sample at the median industry-level trade share into tradable and non-tradable sectors. The export channel (Δq^{EX}) is strongly negative and significant for tradable industries but is economically small and statistically insignificant for non-tradable industries. The import channel (Δq^{IM}) is positive and significant in both subsamples, though larger in magnitude for tradable industries. Looking into export-to-import returns, the effect is stronger for the tradable industries. Panel B reports an analogous split between goods-producing and service-sector industries. The pattern is similar: the export channel is concentrated in goods-producing industries, while services show no significant export-side sensitivity. These subsample results provide further support for a genuine bilateral trade-channel interpretation of the main findings.

Table A3 replicates the country-level regressions from the main text, treating each country as a distinct trading partner regardless of currency union membership . Both the OECD Input-Output Table (Panel A) and DOTS (Panel B) results are qualitatively similar to the baseline, confirming that the country-level findings are robust to the treatment of intra-currency-union trade flows.

Table A1: Robustness (I): Euro-area countries as distinct trading partners

This table replicates Table 2 using an alternative construction of the trade-weighted currency returns in which each country is treated as a distinct trading partner regardless of currency union membership. The regression estimated is

$$R_{c,i,t} = \alpha_{c,i} + \beta_{EX}\Delta q^{EX}_{c,i,t} + \beta_{IM}\Delta q^{IM}_{c,i,t} + \delta R_{c,t} + \eta R_{WLD,t} + FE_{c,i,t} + \epsilon_{c,i,t},$$

where $\Delta q^{EX}_{c,i}$ and $\Delta q^{IM}_{c,i}$ are the export- and import-weighted currency returns,, R_c is the country index return, and R_{WLD} is the World MSCI return. $FE_{c,i}$ are country×industry fixed effects. Panel A presents results using export/import weighted returns, and Panel B uses export-to-import currency returns ($\Delta q^{XM}_{c,i}$) and the USD returns (Δe_c) as defined in the main text. The t-statistics estimated using two-way cluster-robust standard errors are reported in parentheses.

Panel A. Using export/import weighted returns

	Value-weighted returns				Equally-weighted returns			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\Delta q^{EX}_{c,i,t}$	−0.048	−0.049	−0.041	−0.043	−0.054	−0.054	−0.053	−0.053
	(−3.21)	(−3.25)	(−2.99)	(−3.11)	(−3.37)	(−3.37)	(−3.49)	(−3.50)
$\Delta q^{IM}_{c,i,t}$	0.095	0.107	0.093	0.099	0.178	0.191	0.168	0.177
	(6.30)	(7.09)	(6.64)	(7.09)	(10.95)	(11.83)	(10.76)	(11.45)
$\Delta q^{USD}_{c,t}$			−0.017	−0.018			−0.001	−0.005
			(−3.00)	(−3.28)			(−0.24)	(−0.78)
$R_{c,t}$			0.676	0.676			0.593	0.592
			(343.52)	(343.95)			(277.45)	(278.09)
$R_{WLD,t}$	0.811	0.811	0.228	0.228	0.763	0.763	0.249	0.250
	(386.19)	(386.96)	(82.49)	(82.77)	(331.39)	(334.84)	(80.25)	(81.21)
Country × Industry FE	N	Y	N	Y	N	Y	N	Y
R^2	0.229	0.231	0.415	0.415	0.181	0.185	0.306	0.31
N	513,342	513,342	513,342	513,342	513,342	513,342	513,342	513,342

Panel B. Using export-to-import currency returns

	Value-weighted returns				Equally-weighted returns			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\Delta q^{XM}_{c,i,t}$	0.068	0.073	0.062	0.065	0.107	0.112	0.100	0.103
	(4.60)	(4.97)	(4.65)	(4.91)	(6.71)	(7.08)	(6.73)	(7.01)
$\Delta q^{USD}_{c,t}$			0.016	0.017			0.071	0.074
			(4.85)	(5.25)			(18.81)	(19.61)
$R_{c,t}$			0.677	0.677			0.595	0.595
			(345.33)	(345.81)			(279.47)	(280.25)
$R_{WLD,t}$	0.814	0.815	0.222	0.222	0.771	0.772	0.236	0.236
	(390.24)	(391.43)	(84.03)	(84.10)	(336.97)	(340.57)	(79.67)	(80.32)
Country × Industry FE	N	Y	N	Y	N	Y	N	Y
R^2	0.229	0.228	0.415	0.415	0.180	0.180	0.306	0.307
N	513,342	513,342	513,342	513,342	513,342	513,342	513,342	513,342

Table A2: Tradable vs. Non-tradable and Goods vs. Services sector decomposition

This table presents the baseline country-industry stock return regressions from Table 2 estimated separately for the tradable and non-tradable sectors (Panel A), and the goods and services sectors (Panel B). Industry tradability is determined by splitting the sample at the median trade share by country. The goods sector consists of industries corresponding to primary goods and manufacturing, while the remaining industries comprise the services sector. Odd columns report the estimates using export and import-weighted currency returns (Δq^{EX} and Δq^{IM}), and even columns use the export-to-import currency return (Δq^{XM}) alongside the USD return (Δq^{USD}). The regressions use value-weighted (Columns 1–4) and equally-weighted (Columns 5–8) returns. All specifications include country×industry fixed effects. The t-statistics estimated using two-way cluster-robust standard errors are reported in parentheses.

Panel A. Tradable and Non-tradable sectors

	Value-weighted returns				Equally-weighted returns			
	Tradable		Non-tradable		Tradable		Non-tradable	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\Delta q^{EX}_{c,i,t}$	−0.081		0.007		−0.083		0.009	
	(−4.02)		(0.37)		(−3.95)		(0.40)	
$\Delta q^{IM}_{c,i,t}$	0.072		0.054		0.156		0.113	
	(3.59)		(2.81)		(7.44)		(5.10)	
$\Delta q^{XM}_{c,i,t}$		0.071		0.026		0.120		0.040
		(3.58)		(1.38)		(5.79)		(1.84)
$\Delta q^{USD}_{c,t}$		−0.070		−0.033		0.010		0.021
		(−11.98)		(−6.24)		(1.65)		(3.59)
$R_{WLD,t}$	0.847	0.863	0.780	0.793	0.785	0.788	0.745	0.749
	(272.98)	(256.32)	(275.81)	(257.91)	(240.32)	(222.89)	(234.08)	(216.88)
Country × Industry FE	Y	Y	Y	Y	Y	Y	Y	Y
R^2	0.226	0.228	0.231	0.230	0.185	0.185	0.177	0.176
N	254,963	254,963	258,379	258,379	254,963	254,963	258,379	258,379

Panel B. Goods and Service sectors

	Value-weighted returns				Equally-weighted returns			
	Goods Sector		Service Sector		Goods Sector		Service Sector	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\Delta q^{EX}_{c,i,t}$	−0.083		0.035		−0.063		0.000	
	(−4.68)		(1.56)		(−3.29)		(0.00)	
$\Delta q^{IM}_{c,i,t}$	0.053		0.057		0.126		0.138	
	(2.96)		(2.57)		(6.55)		(5.54)	
$\Delta q^{XM}_{c,i,t}$		0.068		0.020		0.091		0.065
		(3.87)		(0.93)		(4.87)		(2.64)
$\Delta q^{USD}_{c,t}$		−0.067		−0.028		0.014		0.016
		(−12.08)		(−5.07)		(2.49)		(2.68)
$R_{WLD,t}$	0.831	0.846	0.794	0.807	0.770	0.770	0.760	0.765
	(279.28)	(262.51)	(268.31)	(251.56)	(243.11)	(225.14)	(230.31)	(214.23)
Country × Industry FE	Y	Y	Y	Y	Y	Y	Y	Y
R^2	0.221	0.222	0.236	0.236	0.179	0.179	0.184	0.182
N	272,650	272,650	240,692	240,692	272,650	272,650	240,692	240,692

Table A3: Robustness (II): Euro-area countries as distinct trading partners

This table replicates Table 7 treating each country as a distinct trading partner regardless of currency union membership . Country-level stock index returns are regressed on export- and import-weighted currency returns (Δq^{EX}, Δq^{IM}), the USD currency return (Δe), and the export-to-import currency return (Δq^{XM}), controlling for the world MSCI return (R_{WLD}). Panel A uses the market cap to weight the industry-level trade-weighted currency returns constructed from the Input-Output table, while Panel B uses the aggregate trading volume of IMF Direction of Trade Statistics (DOTS). The t-statistics estimated using Driscoll-Kraay standard errors with three lags are reported in parentheses.

Panel A. OECD Input-Output Table Sample

	Dependent variable: Country index returns					
	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta q^{EX}_{c,t}$	−0.699	−0.718				
	(−2.66)	(−2.75)				
$\Delta q^{IM}_{c,t}$	0.716	0.747				
	(2.72)	(2.85)				
$\Delta q^{USD}_{c,t}$			0.478	0.486	−0.101	−0.095
			(5.99)	(6.11)	(−3.07)	(−2.88)
$\Delta q^{XM}_{c,t}$			1.655	1.689	0.628	0.660
			(3.17)	(3.20)	(2.49)	(2.63)
$R_{WLD,t}$	0.872	0.872			0.899	0.898
	(24.22)	(24.29)			(23.39)	(23.43)
Country FE	N	Y	N	Y	N	Y
R^2	0.390	0.394	0.049	0.054	0.392	0.395
N	10,951	10,951	10,951	10,951	10,951	10,951

Panel B. IMF DOTS Sample

	Dependent variable: Country index returns					
	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta q^{EX}_{c,t}$	−1.152	−1.182				
	(−5.17)	(−5.27)				
$\Delta q^{IM}_{c,t}$	1.203	1.247				
	(5.41)	(5.57)				
$\Delta e_{c,t}$			0.505	0.515	−0.046	−0.037
			(5.77)	(5.93)	(−1.35)	(−1.12)
$\Delta q^{XM}_{c,t}$			1.535	1.590	1.064	1.110
			(3.79)	(3.89)	(4.71)	(4.89)
$R_{WLD,t}$	0.871	0.870			0.889	0.887
	(23.86)	(23.97)			(23.14)	(23.26)
Country FE	N	Y	N	Y	N	Y
R^2	0.369	0.373	0.055	0.061	0.370	0.372
N	11,385	11,385	11,385	11,385	11,385	11,385