Corporate Dollar Debt and Global Trades

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Abstract

This paper investigates the role of dollar debt and firm heterogeneity in shaping the exchange rate pass-through to global trades. With a unique dataset that merges extensive firm-level balance sheet information with transaction-level Korean customs data, we find that firms with greater exposure to foreign currency debt tend to decrease their export quantities and increase their export prices following the devaluation at the end of 1997, particularly pronounced for smaller firms. On the other hand, larger exporters increase their export quantities and lower their export prices as they are more indebted in foreign currency. The heterogeneous price and quantity responses across firm size potentially arise from large firms, indebted in foreign currency, not facing the disruption in their production as much as smaller firms. On top of that, larger firms may increase their exports to generate more cashflows when they are more indebted in foreign currency as their production capacity is not restricted after the devaluation. We also find that exporters, indebted in foreign currency, reduce their sales to domestic markets more than domestic firms, especially when exporters are small facing tighter financial constraints. The panel data analysis from 2001-2020 confirms the relevance of the financial channel of dollar debt in the exchange rate pass-through to export prices and quantities in more recent periods.

JEL Classification Codes: F31, F34

Keywords: global trades, export prices, exchange rate pass-through, financial channel, foreign currency debt

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1 Introduction

A significant body of theoretical and empirical research has been devoted to exploring the potentially contractionary effects of exchange rate depreciation on banks, firms, and the domestic macroeconomy under the burden of dollar-denominated liabilities.[1] More surprisingly, recent studies, notably those by Bruno and Shin (2023), present strong evidence that the financial channel of dollar credit can have a sizable impact even on *exporters' activities*, showing that exports may *fall* with a domestic currency depreciation. This finding challenges the long-held view that a weaker domestic currency lowers the destination currency price of domestic goods exported, improving its trade competitiveness and fostering economic growth.[2] Therefore, to understand clearly how much the financial channel limits the expansionary effect from expenditure switching, we need to have a clear understanding about how the exchange rate passes through to export sales and their prices when firms are more indebted in dollars. Nevertheless, the past studies in the literature have not explored fully the critical question of how the effect of dollar debt on firms' balance sheets influences the exchange rate pass-through to exports and their *prices* and the potential role of firm heterogeneity— an area where our understanding remains incomplete.

Contributing to this discussion, in this paper, we seek to answer two key questions. First, how does domestic currency depreciation affect firms' international trade activities of firms that are heavily indebted in dollars? Secondly, what is the role of firm heterogeneity in the exchange rate pass-through to global trades? The insight we get from unraveling the financial channel of dollar debt in shaping the exchange rate pass-through would be of great importance to policymakers, especially in emerging markets, as their domestic currency often experiences a sudden depreciation against dollar and their liability is highly dollarized.

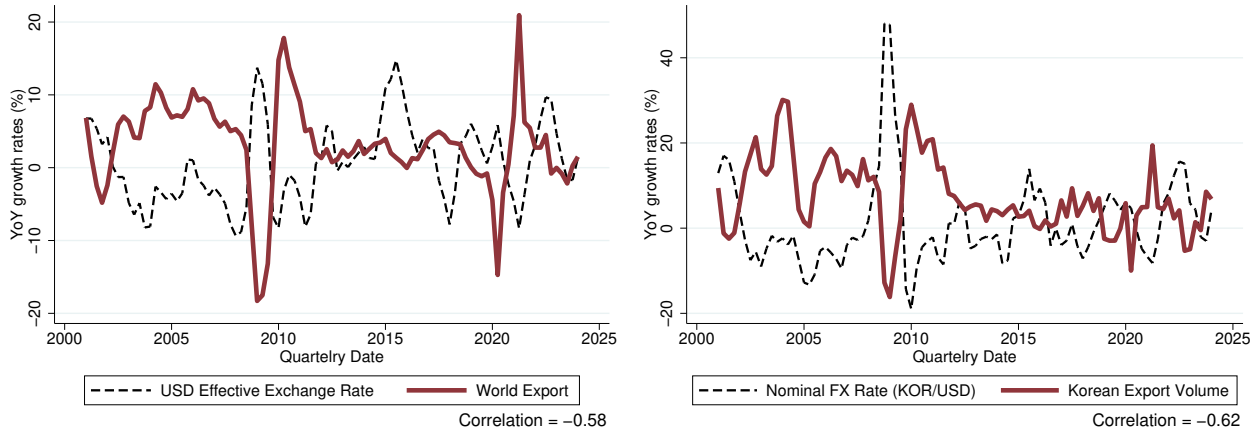
Figure 1 captures a surprising empirical relationship between the exchange rate and global trades. The figure on the left shows that world export volumes are negatively correlated with the broad dollar index. World exports decrease as the overall value of the U.S. dollar increases.

[1] See Krugman (1999), Céspedes et al. (2004), Kim et al. (2015), Kalemli-Ozcan et al. (2016), and Kim and Lee (2023).

[2] See Mundell (1965);Fleming (1962); and Obstfeld and Rogoff (1995).

Moreover, zooming into Korea – a country of exporting firms in our empirical study, we observe a similar pattern: Korean won depreciation against the U.S. dollar is associated with *lower* Korean exports. The estimated correlations for both sets of series are sizable at around -0.6. The negative co-movement in the export volumes and the strength of dollar at the aggregate level calls for a close investigation of whether the financial channel of dollar debt may account for this seemingly puzzling pattern of exports and the exchange rate, and which firms are driving forces of such patterns.

Figure 1: Export Quantities and Exchange Rates



Notes: The sample period is from 2001-2024. The left panel shows the year-over-year growth rates of quarterly world export volumes in a red line, and the year-over-year growth rates of quarterly U.S. dollar effective exchange rate in a black dashed line. The right panel shows the year-over-year quarterly Korean export volumes in a red line, and the year-over-year growth rates of Korean won price of dollar in a black dashed line.

To shed light on these questions, we exploit a large unexpected devaluation episode in Korea in 1997 to identify and analyze the balance sheet effect of foreign currency debt on export quantities and prices. During the last quarter of 1997, the value of the US dollar surged from about 917 to 1695 Korean won, taking market participants by surprise. The financial hedging in Korea was non-existent, as the exchange for trading financial derivatives was only set up in 1999 after the Asian Financial Crisis. Most foreign currency loans extended to firms were unhedged. The accumulation of short-term foreign currency liabilities by firms, without any hedging against currency risk, combined with a sudden and significant depreciation of the won, provides a valuable setting

to study the effects of negative balance sheets on exporters' production of goods and their price setting.

A unique dataset that merges the Korean firm-level balance sheet data (KIS) with the Korean customs data allows us to study the effect of corporate dollar credit on the exchange rate pass-through to global trades. The Korean firm-level balance sheet data are conducive to our identification in that (1) the dataset contains information about the currency composition of firms' debt; (2) it contains not only large listed firms but also small and medium-size firms; and (3) it contains a large set of other firm-level variables, which enables us to control for potential endogeneity bias. We combine the firm-level data with the Korean customs data in order to identify the balance sheet effect on exporting firms pricing and quantity adjustment decisions. The merged dataset contains rich information about 2,375 exporting firms, most importantly including its currency composition of debt and its exporting price and quantity at the HS10 product – destination country – year level. This dataset is very unique in that it combines the data on the currency composition of many balance sheet items under assets and liabilities at the firm-level and the customs data on exporting prices and quantities at a granular transaction level: firm-product-destination country level.

We first investigate the role of foreign currency debt on the annual changes in export prices and export quantities after a large devaluation at the end of 1997. Specifically, firms with higher exposure to foreign currency debt prior to the unexpected devaluation tend to reduce their export quantities and charge higher export prices. This balance sheet effect of dollar debt gets stronger for smaller firms: when firm size is smaller by one standard deviation, one reduces its exporting volumes more by 0.26 percentage points and increases export prices more by 0.058 percentage points. Moreover, we find that larger firms in fact increase their export volumes and lower their export prices as they are indebted more in foreign currency debt. The results potentially arise from the fact that large firms indebted in foreign currency debt do not face the balance sheet deterioration as much as smaller firms, and strategically adjust their quantities, responding to lower quantities sold at higher prices by smaller firms. On top of that, larger firms may also increase their exports to generate cashflows when they are more indebted in foreign currency as their production capacity

is not restricted after the devaluation, putting a downward pressure on the prices.

Further examining the quarterly dynamics of export quantities and prices before and after the devaluation, we find that the negative balance sheet effect on exporters becomes apparent after the devaluation, with no discernible differences before the exchange rate shock. This dynamic responses confirm that what we have observed with the annual data is not driven by different pre-devaluation trends in export quantities and their prices across firms with varying amount of foreign currency debt. Moreover, the dynamic responses show that the balance sheet of dollar debt has persistent effects on export quantities and export prices, having more lasting negative effects on quantities, potentially due to the price stickiness.

Moreover, we show that firms indebted in foreign currency have indeed suffered from a larger decline in net worth after the devaluation. They also have experienced a larger drop in the growth rates of total variables costs and capital. On top of that we see that both import quantities and import values have fallen more for those firms with higher foreign currency debt ratios. A larger decline in the amount of inputs employed by firms with large amounts of foreign currency debt, further supporting that firms with more foreign currency debt suffer from tighter financial constraints, which constrains on how much they can produce, reducing amount of inputs used and goods produced and sold.

Finally, with panel data from 2001-2020, we reaffirm the balance sheet effect of dollar debt on the exchange rate pass-through to export quantities and prices. The findings from the panel regressions are meaningful in that it shows that the financial channel of dollar debt is not only present in a particular moment in the history but also in more recent periods. It is evident that the balance sheet channel of dollar debt plays a critical role of shaping the exchange rate pass-through to international prices and international trade dynamics.

Related Literature. Our paper complements two strands of literature in open macroeconomy: one on the contractionary effects of liability dollarization on the macroeconomy and the other on the exchange rate pass-through to prices. We unravel the balance sheet channel of dollar debt through which the exchange rate shock passes through to export prices.

There is a large literature on the degree of exchange rate pass-through to prices.[3] Many papers have explored the the role of invoicing currency and its implications for the exchange rate pass-through to prices: Devereux and Engel (2002); Engel (2006);Goldberg and Tille (2008); Gopinath et al. (2010); Goldberg and Tille (2016); Corsetti et al. (2018); Drenik and Perez (2021) and Mukhin (2022). Others emphasize the role of imported inputs in shaping the degree of exchange rate pass-through to domestic prices: Goldberg and Campa (2010) and Amiti et al. (2019). Moreover, a large body of work focuses on the relationship between the nominal and the real exchange rate (see, for example, Engel (1993); Engel (1999); Burstein et al. (2005); Gopinath et al. (2011); Crucini and Telmer (2012); and Broda and Weinstein (2008)). Our paper complements this large literature by investigating the financial channel of dollar debt through which the exchange rate shock affects the exporters' price settings.

Many theoretical and empirical papers have documented the contractionary effects of liability dollarization on their macroeconomy in emerging market economies upon the depreciation of their domestic currencies (see, for example, Krugman (1999); Céspedes et al. (2004); Aguiar (2005); Gilchrist and Sim (2007); Kim et al. (2015); Kalemli-Ozcan et al. (2016); Desai et al. (2008); Korinek (2011) and Alfaro et al. (2019)). Importantly, recent papers investigate the role of dollar borrowing in shaping international trades, empirically in Bruno and Shin (2023); Casas et al. (2023) and Kohn et al. (2020).[4] Bruno and Shin (2023) explore how firms that rely more on credit from dollar-funded banks lower their exports more upon dollar appreciation. Our analysis explores a similar mechanism but focuses on the role of the actual currency composition of firms' liabilities and its interaction with firms' financial constraints proxied by firm size. Moreover, closest to our work is Casas et al. (2023), where the authors document that exporters in Colombia do not reduce their exports nor imports upon the devaluation even when firms have high foreign currency debt exposure. We believe that our empirical findings about firm heterogeneity may hint us why Casas et al. (2023) might have not identified the financial channel of dollar debt for an *average*

[3] See an extensive survey of this topic in Burstein and Gopinath (2014).

[4] More generally, the effect of financial shocks on exports is studied by Amiti and Weinstein (2011) and Niepmann and Schmidt-Eisenlohr (2017), focusing on the effect of a negative credit supply shock on firms' exports.

sized exporter in Colombia.[5] Moreover, both studies, notably, neglect on the implication of financial channel for the international prices, an area that is under-investigated in the literature, and we would like to fill the gap by exploring how firms' export quantities and prices change after a large devaluation depending on the indebtedness in dollars and how those effects vary across firm size.[6]

The rest of our paper is organized as follows. Section 2 describes our data and presents key descriptive statistics. Section 3 describes the baseline empirical analysis and highlights the role of foreign currency debt in shaping the export quantities and prices during the devaluation period. We also emphasize the importance of considering firm size heterogeneity in analyzing the impact of dollar credit on global trades. Section 3.3 then shows that firms indebted in foreign currency indeed have experienced the deterioration of their net worth and a large decline in their inputs used for their production such as variable inputs, capital stock and imported inputs. Section 5 examines more recent periods from 2006 to 2021 and shows that the results presented in Section 3 remain intact. The last section concludes.

2 Data

Identifying the negative balance sheet effect of dollar debt on export quantities and prices during a large unexpected devaluation episode in Korea in 1997, we employ a unique dataset that combines the Korean firm-level balance sheet data from the KISVALUE dataset with the Korean customs data.

The Korean firm-level balance sheet data include firms with assets larger than 6 billion won as they are required to report audited financial statements to the Financial Supervisory Commission.[7] The reported annual financial statements are then compiled by NICE (formerly the Korea Information Service Inc., KIS).

[5] Relatedly, exporting sectors in Colombia are primarily energy and agricultural sectors, while Korean exports are predominantly manufactured goods.

[6] A contemporaneous work by Ma and Schmidt-Eisenlohr (2023) explores a similar mechanism using aggregate import and export price indices for 54 countries.

[7] The asset threshold has changed over time: 7 billion KRW in 1998 and 10 billion KRW in 2009.

The KISVALUE dataset has a few attractive features that allow us to explore the role of firms' foreign currency debt in the exchange rate pass-through to exports and their prices. First, it covers a large number of both large listed and small, medium-sized non-listed firms, and the number of exporting firms that go into our sample in 1996 is 2,375. It is crucial to have smaller firms in the sample as we are interested in the effect of financial constraints on firms' price settings. Second, most importantly, it contains the information on the currency composition of debt, critical for constructing each firm's foreign currency debt exposure before an unexpected large devaluation. Lastly, a wide set of firm-level variables are included in the dataset, such as the currency composition of liquid assets, sales, total costs and total assets. We mitigate the concerns about endogeneity by controlling for the firm-level covariates documented in literature, which may affect the currency composition of debt.

We then combine the firm-level balance sheet data with the Korean customs data. The Korean customs data include around 25,000 observations for exports and around 21,000 observations for imports, and each observation is at the firm f - trade type k (export/import) - product HS10 code i - destination/origin country d - year t level. Each observation includes the export/import value and weight, which determine the price per kg.[8]

The merged dataset then contains rich information about 2,375 exporting firms, most importantly including its currency composition of debt and its exporting price and quantity at the HS10 product-destination country level.[9] This is one of the very few attempts in the literature to combine the data on the *currency composition of both assets and liabilities* at the firm-level and the customs data on exporting prices and quantities at a *granular transaction level*; firm - product - destination country level.

[8]We access the customs data from the Korea Trade Statistics Promotion Institute (KTSPI) with an approval of the Korea Customs Service with disclosure restrictions. We extract the balance sheet data of exporting firms in the KISVALUE dataset from 1996 to 1998. The KTSPI merges the KISVALUE dataset with its customs data within its facility. The merged dataset was not shared with us; however, the KTSPI executed data analyses under our close supervision and guidance. We extend our sincere gratitude to the staff members at the KTSPI and the Korea Customs Service for their support.

[9]Exporting price is defined by export value divided by export volume.

Table 1: FC Borrowing Among Exporters vs. Non-Exporters

	Share of Firms with FC Debt	FC Debt Ratios	FC Debt Ratio (>0)
Non-Exporters	20.6%	4.7%	22.9%
Exporters	57.6%	13.0%	22.6%

Notes: FC debt ratio is the foreign currency debt to total debt ratio. Exporters are the firms with positive exports in 1996. All variables are their values in 1996. The last column shows the average foreign currency debt ratio conditional on holding a positive amount of foreign currency debt.

To highlight the relevance of foreign currency debt among exporting firms, we summarize the patterns of foreign currency borrowing among exporters vs. non-exporters in Table 1. As we see in the table, the share of firms with positive foreign currency debt is 57.5% for exporters while 20.6% for non-exporters. In other words, at the extensive margin, we observe that foreign currency borrowing is indeed more pervasive among exporters. However, conditional on borrowing in foreign currency, the share of total debt denominated in foreign currency does not vary between exporters and domestic firms. Moreover, as shown in Table 2, we observe a slight difference in average export shares and no discernible difference in average import shares among exporters with foreign currency debt vs. without foreign currency debt. We believe that this observation is consistent with what one would expect if there is a certain fixed cost that firms need to pay to tap the international capital markets and imply that natural hedging is not the key determinant of the currency composition of debt.

Table 2: Export and Import Share Among FC Borrowers vs. Non-FC Borrowers

	Export Share	Import Share
Zero FC debt	12.9%	17.3%
Positive FC debt	16.4%	17.3%

Notes: This table shows the average export and import shares among exporters with and without foreign currency debt. Export share is the export to sales ratio. Import share is the share of imported inputs to total variable costs.

Moreover, we compute the firm-level correlations between foreign currency debt ratios and other firm-level characteristics in 1996. We clearly see that firm size has a strong positive correlation with the foreign currency debt to total debt ratio, much of it arising from an extensive margin of foreign currency debt issuance. Surprisingly, we find very little correlation with export to to-

tal sales ratio; so as aforementioned, there is little support of natural hedging motives behind the foreign currency debt issuance.

The summary statistics for the data used in regressions in Section 3 are summarized in Tables 12 and 13 in the Appendix.

Table 3: Firm-Level Correlations between FC debt and Other Firm-level Characteristics

	FC Debt Ratio	*FC Debt Ratio > 0*
	(1)	(2)
Import Share	0.11	0.18
Export Share	0.07	0.04
Size	0.28	0.12
Leverage	-0.04	-0.14
Short-term Debt Ratio	-0.20	-0.32
Cash Ratio	-0.01	0.09
FC Cash Ratio	0.14	0.12

Notes: The table shows how the foreign currency debt to total debt ratios are correlated with regressors in the regressions presented in Section 3. Regressors are their values in 1996 and include import share (the share of imported inputs to total variable costs); export to sales ratio; size (log of sales); leverage (total debt to total assets ratio); short-term debt ratio (short-term debt to total debt ratio); cash ratio (cash to total assets ratio); and FC cash ratio (FC cash to total cash ratio). Column 1 shows the correlation between variables in the whole sample, and Column 2 shows those with subsample of firms with positive FC debt.

3 Empirical Analysis: Exporters with Dollar Debt

3.1 Baseline Analysis: Annual Data

We begin our analysis by exploring the negative balance sheet effect on export prices and quantities during the 1997 large devaluation episode in Korea using annual customs data and balance sheet data. Specifically, we estimate the following equations for firm f, product HS10 code i, destination country d:

$$\Delta_{97-98} ln(y_{f,i,d})$$
$$= \alpha_{s(i),d} + \beta_0 FC\ Debt\ Ratio_{f,96} + \beta_1 FC\ Debt\ Ratio_{f,96} \times Size_{f,96} + \beta_2 X_{f,96} + \varepsilon_{f,i,d}, \quad (1)$$

where y is the export quantity or the export price in the destination currency. All the regressors are at their values in 1996. The main regressors in our analysis are FC debt ratio and the interaction between FC debt ratio and firm size. The interaction term reflects the idea that the balance sheet effect would be smaller for larger, financially less constrained firms, motivated by Kim and Lee (2023). We control for additional firm-level variables, X_f, in order to deal with a potential endogeneity issue. Specifically, X_f includes share of imported inputs to total variable costs, sales share (export sales of firm f selling product i to country d over total Korean firms' exports to a market, where a market is defined as product HS4 code by destination country), size, leverage (total debt to total assets ratio), short-term debt ratio (short-term debt to total debt ratio), cash to total assets ratio, FC cash to total cash ratio, and export to sales ratio. We also control for sector- and country-level fixed effects. Each sector is identified with a five-digit KSIC code (Korea Standard Industrial Classification).

From the baseline results in Table 3.1, we find strong evidence of negative balance sheet effect on the exporting firms. As seen in Column (1), firms with higher exposure to foreign currency debt experience a larger decline in export quantities, suggesting that even exporters suffer from the negative balance sheet effects of dollar debt. This impact is particularly pronounced for smaller firms, which face higher degree of financial constraints. Specifically, when a firm's size decreases by one standard deviation, the negative effect of foreign currency debt on export quantities increases by 0.26 percentage points.[10] Column (2) shows the how firm-level export price changes in response to the negative balance sheet effect during the large devaluation period. Firms with higher exposure to foreign currency debt tend to set higher export prices. This result suggests that higher foreign currency debt exposure constraints a firm's production capacity, increasing the price of goods exported. Similar to the quantity adjustments, the negative balance sheet effect is more stronger for smaller firms. Specifically, when a firm's size decreases by one standard deviation, the effect of dollar debt on export prices is larger in size by 0.06 percentage points.

Figure 2 also shows how the effect of foreign currency debt on export quantity and price

[10]The average and the standard deviation of firm sizes are 17.17 and 1.46, respectively.

Table 4: The Role of FC Debt: Export Quantities and Prices

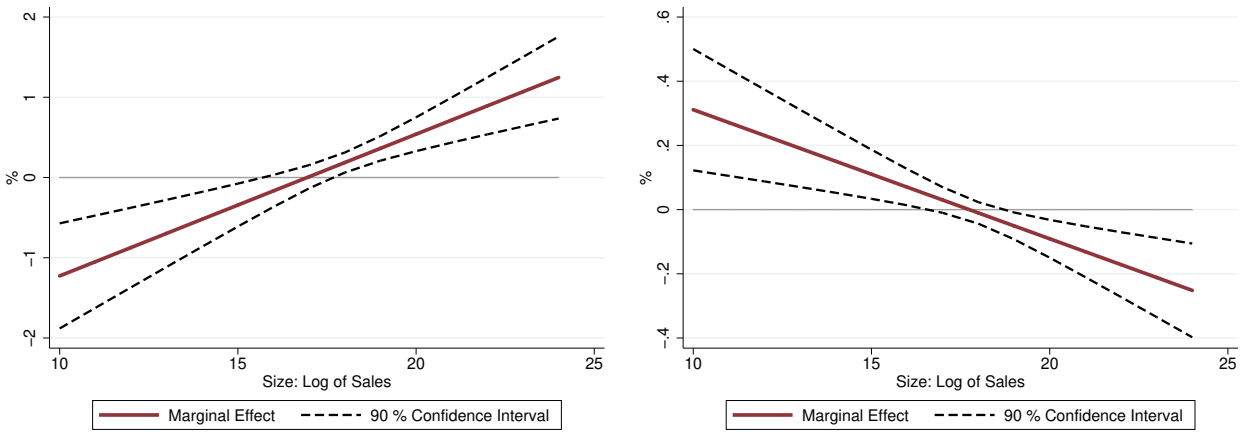
	ΔQ_{97-98}	Δp_{97-98}
	(1)	(2)
FC Debt Ratio	-2.9924***	0.7135***
	(0.8860)	(0.2557)
FC Debt Ratio × Size	0.1766***	-0.0402***
	(0.0493)	(0.0142)
Size	-0.0600	0.0164
	(0.0390)	(0.0111)
Adjusted R^2	0.0449	0.2898
Observations	25334	25334

Notes: Robust standard errors are reported in the parentheses. The dependent variables are growth rates of export quantities and prices from 1997 to 1998, reported in Columns 1 and 2, respectively. * p<0.1, ** p<0.05, *** p<0.01.

changes by firm size, computed based on the estimation results shown in Table 3.1. The figure shows the change in export quantities and prices from 1997 to 1998.[11] For the firms whose sales are at the bottom 10% in 1996, one percentage point increase in the foreign currency debt ratio leads to 0.24 percentage points larger decrease in export quantities and 0.09 percentage points higher increase in the export prices, compared to their prices in 1997. The effects of foreign currency debt exposure on export quantities and prices become smaller in size when firm size gets larger. Interestingly, we observe an opposite effect for larger firms: the positive effect of foreign currency debt on export quantity and negative effect on export prices for very large firms. Specifically, for firms at top 90% of the size distribution, one percentage point increase in the foreign currency debt ratio leads to 0.38 percentage points higher increase in the export quantities and 0.05 percentage points lower decrease in export prices after the devaluation. The results potentially arise from the fact that large firms indebted in foreign currency debt do not face the balance sheet deterioration as much as smaller firms, and strategically adjust their quantities, responding to lower quantities sold at higher prices by smaller firms. On top of that, larger firms may also increase their exports to generate cashflows when they are more indebted in foreign currency as their production capacity is not restricted after the devaluation. Higher quantities of goods exported by larger exporters have resulted in lower export prices.

[11] We find that the results are robust when we consider the changes from 1996 to 1998.

Figure 2: Marginal Effect on Export Quantities and Prices: Heterogeneity Across Firm Size



Notes: The figure on the left shows the marginal effect of FC debt exposure on firm's export quantity across firm size (log of sales). The figure on the right shows the marginal effect of FC debt exposure on firm's export price depending on firm size (log sales). The dashed lines show the 90 percent confidence intervals of the marginal effects. The graphs are computed based on the results in 3.1.The dashed lines show the 90 percent confidence intervals.

Our analysis highlights the role of foreign currency debt exposure and firm heterogeneity in shaping the exchange rate pass-through to international trades and their prices. The export quantity and price responses of exporting firms, varying with their foreign currency debt exposure, imply that varying levels of foreign currency debt may contribute to the relative price dispersions in the destination markets, which may in turn alter resources allocations, which could potentially lead to efficiency losses.

3.2 Dynamic Responses of Export Quantities and Prices

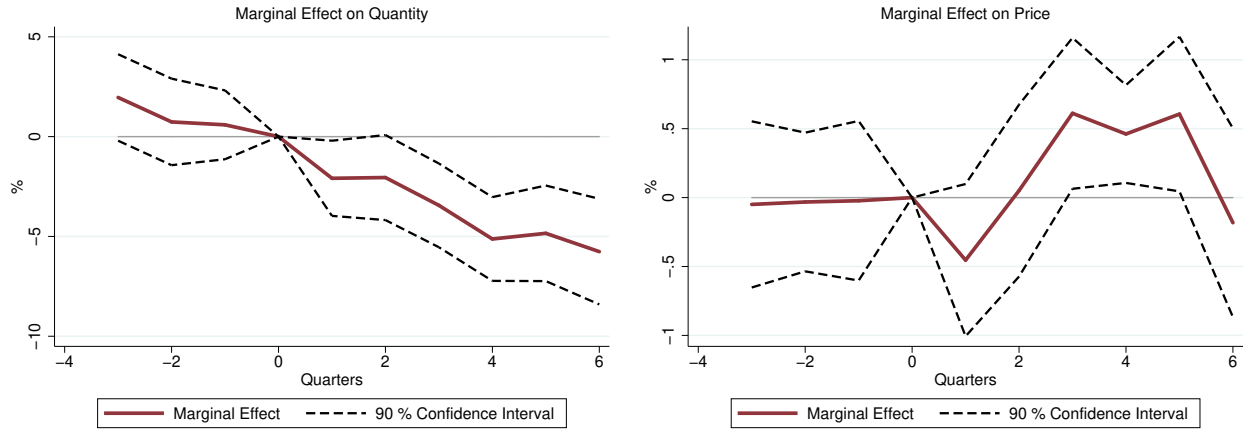
In this section, we have examine the dynamic responses of export quantities and prices using quarterly customs data before and after the large devaluation. Specifically, we estimate the following equations for firm f, product HS10 code i, destination country d:

$$ln(y_{f,i,d,97Q3+h}) - ln(y_{f,i,d,97Q3})$$
$$= \alpha_{h,s(i),d} + \beta_{0,h} FC\ Debt\ Ratio_{f,96} + \beta_{1,h} FC\ Debt\ Ratio_{f,96} \times Size_{f,96} + \beta_{2,h} X_{f,96} + \varepsilon_{f,i,d,h}, \quad (2)$$

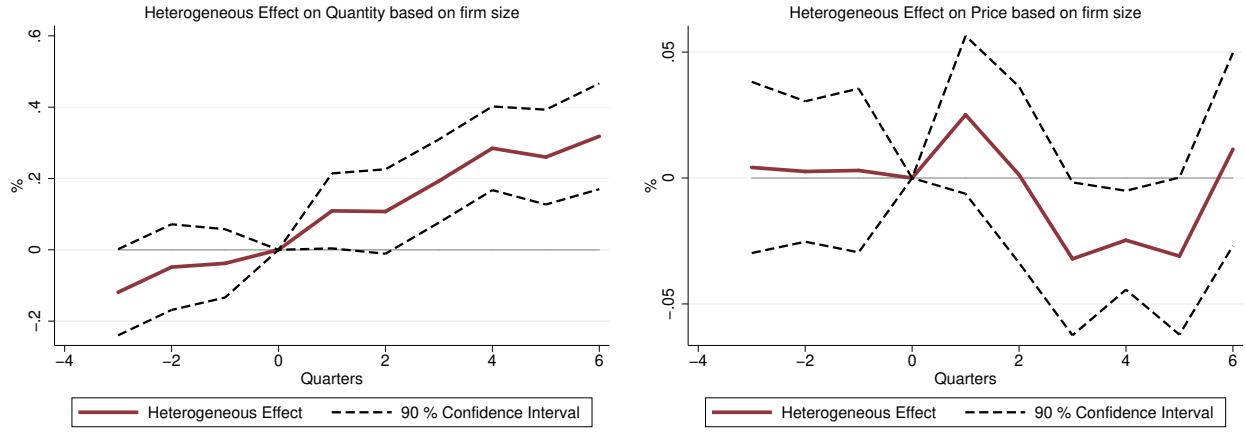
where $h \in \{-3, ..., 0, ..., 6\}$ represents h-quarters before or after the base period of 1997Q3, the period immediately preceding the large devaluation in Korea, and y is the export quantity or the export price in the destination currency. All the regressors are at their values in 1996. Our key coefficients of interest are $\beta_{0,h}$ and $\beta_{1,h}$ for each $h \in \{-3, ..., 0, ..., 6\}$, indicating the dynamics of the balance sheet effect of dollar debt on quantities and prices. Investigating the change in export quantities and prices before the devaluation, we can also explore whether there is a pre-trend in exporter's decision depending on the foreign currency debt exposure.

Figure 3: Dynamic Effects of Foreign Currency Debt on Export Prices and Quantities

Upper Panel: Dynamic Effects on Export Prices and Quantities



Lower Panel: Heterogeneity Across Firm Size



Notes: The dependent variable is the log change in export quantities and prices relative to 1997Q3 level. The top panels plot $\beta_{0,h}$, and the bottom panels plot $\beta_{1,h}$ estimated in equation 2. The figures on the left are the estimates of export quantities, and those on the right are the estimates of export prices. . The shaded area represents the 90% confidence interval with robust standard errors.

Figure 3 shows the regression results of equation 2 with export quantity as a dependent variable. The coefficient estimates $\beta_{0,h}$ and $\beta_{1,h}$ are *not statistically different from zero* for $h \in \{-3,-2,-1\}$. That is, we could not find any evidence of systematic differences in the quantity adjustment before the devaluation periods across firms' foreign currency debt ratios. The negative balance sheet effect of dollar debt on export quantities becomes evident after the devaluation; firms with higher foreign currency debt ratios reduce their export quantities. For an average size firm, the balance sheet effect constrains the production, leading to a decrease in export volumes. In particular, one percentage point increase in foreign currency debt exposure decreases the export quantity relative to the pre-devaluation level by 0.21 percentage points right after the devaluation and the negative impact on export quantities remains similar afterwards. The bottom panel shows the negative effect on export quantities is more pronounced for smaller firms. In particular, if firm size decreases by one standard deviation, the negative balance sheet effect on export quantity gets larger by 0.16 percentage points.

Figure 3 shows the baseline results for export price responses. For $h \in \{-3,-2,-1,1,2\}$, the coefficient estimates $\beta_{0,h}$ and $\beta_{1,h}$ are *not statistically different from zero*. Similar to the quantity adjustments, firms with varying degree of FC debt ratio in 1996 do not show any systematic differences in their pricing decisions before the large devaluation. This result provides evidence supporting the absence of differential pre-trends across firms with different FC debt indebtedness. The balance sheet effect of dollar debt on export prices becomes apparent three quarters after the base period; firms with higher foreign currency debt exposure tend to increase their export prices. In addition, the bottom panel shows that the balance sheet effect of dollar debt on export prices is more pronounced for smaller firms. Specifically, for an average size firm, one percentage point increase in FC debt ratio leads to 0.06 percentage point higher increase in export prices compared to their pre-devaluation prices in 1997Q3. The effect of FC debt on export prices remains at a similar magnitude until the fifth quarters following the base period. If firm size gets smaller by one standard deviation, the negative balance sheet effect on price becomes larger by 0.05 percentage points. The price response is less immediate and persistent than quantity responses, which may

arise from the price stickiness.

3.3 Adjusting Imports and Other Inputs

In this section, we further examine how firms adjust their inputs upon a devaluation when indebted in foreign currency. The set of analyses below strengthen our argument that the negative balance sheet effects of dollar debt have disrupted the production of goods sold, affecting their use of inputs into the production. Given that firm-level variables on their balance sheets are available at the annual frequency, we estimate the below equation:

$$\Delta_{97-98} y_f = \alpha_s + \beta_0 FC\ Debt\ Ratio_{f,96} + \beta_1 FC\ Debt\ Ratio_{f,96} \times Size_{f,96} + \beta_2 X_{f,96} + \varepsilon_f, \quad (3)$$

where $\Delta_{97-98} y_f$ is firm f's y growth rates from 1997 to 1998. We examine the responses of firms' net worth and inputs used for their production: total variable costs and capital. We then investigate how a firm changes imported intermediate inputs, both quantities and their values, depending on foreign currency debt burden. Specifically, we estimate the following equations for firm f, product HS10 code i, destination country d:

$$\begin{aligned} &\Delta_{97-98} ln(y_{f,i,d}) \\ &= \alpha_{s(i),d} + \beta_0 FC\ Debt\ Ratio_{f,96} + \beta_1 FC\ Debt\ Ratio_{f,96} \times Size_{f,96} + \beta_2 X_{f,96} + \varepsilon_{f,i,d}, \end{aligned} \quad (4)$$

where y is the import quantity or the import value in the U.S. dollar. We are interested in if firms indeed have experienced a deterioration in their net worth and reduced their use of inputs when indebted in foreign currency. Moreover, we examine if smaller firms among exporters are the most affected by the devaluation and adjust their production and hence, inputs the most. All the explanatory variables are as of 1996. We control for other firm-level characteristics that could

potentially correlate with foreign currency debt exposure. X_f includes share of imported inputs to total variable costs, size, leverage (total debt to total assets ratio), short-term debt ratio (short-term debt to total debt ratio), cash to total assets ratio, FC cash to total cash ratio, and export to sales ratio. Estimating Equation 4, we also control for its sales share – the import value of firm f purchasing product HS10 code i from country d over total Korean firms' imports from a market, where a market is defined as product HS4 code by origin country. The sector fixed effects are also included in both sets of the estimations.

In Table 3.3, we see that indeed firms have experienced a fall in net worth growth when they have borrowed more in foreign currency debt. The fall in net worth growth is smaller when firm size is larger. Moreover, firms with high foreign currency debt exposure prior to the devaluation adjust their inputs actively, shown in Columns 2 and 3. Firms use less both capital and variable inputs, and more so as their firm sizes are smaller.

Table 5: FC Debt and Other Firm-Level Variables

	$\Delta Networth_{97-98}$	$\Delta VariableCost_{97-98}$	$\Delta Capital_{97-98}$
	(1)	(2)	(3)
FC Debt Ratio	-0.6608***	-0.9677**	-1.1194**
	(0.2304)	(0.4894)	(0.4581)
FC Debt Ratio × Size	0.0406***	0.0603**	0.0608**
	(0.0132)	(0.0272)	(0.0258)
Size	-0.0110	-0.0131	0.0506*
	(0.0120)	(0.0227)	(0.0272)
Adjusted R^2	0.0847	0.2163	0.0421
Observations	1834	1833	1837

Notes: Robust standard errors are reported in the parentheses. * p<0.1, ** p<0.05, *** p<0.01.

On top of what we see in Table 3.3, we also see the adjustment in their imported intermediate inputs. Table 3.3summarizes the responses of import quantities and import values upon a devaluation at the end of 1997. We see that indeed firms have reduced their imports more when their debt is tilted more towards foreign currency. The negative balance sheet effect on imports is larger as firm size is smaller.

In sum, we see a large decline in inputs employed by firms with large amounts of foreign currency debt, further supporting that firms with more foreign currency debt suffer from tighter

Table 6: Change in Import Quantity and Value

Imports	ΔQ_{97-98}	ΔV_{97-98}
	(1)	(2)
FC Debt Ratio	-1.9817***	-1.7973***
	(0.7629)	(0.6933)
FC Debt Ratio × Size	0.1062***	0.0939**
	(0.0417)	(0.0378)
Size	-0.0473	-0.0492
	(0.0433)	(0.0403)
Adjusted R2	0.0363	0.0433
Observations	21345	21457

Notes: Robust standard errors are reported in the parentheses. * p<0.1, ** p<0.05, *** p<0.01.

financial constraints, which constrains on how much they can produce, reducing amount of inputs used and goods produced and sold.

4 Exporters' Domestic Sales and Dollar Debt

Typically, when the domestic currency depreciates, exporters are expected to suffer less from their balance sheet deterioration due to the natural hedging coming from their export sales, even when indebted in foreign currency debt. However, contrary to this conventional belief, our empirical findings in Section 3 indicate that exporters with foreign currency debt are also affected negatively by the balance sheet deterioration upon a large depreciation, while its negative impact on its productions varies with firm size.

In this section, we further explore if and how the balance sheet effect of foreign currency debt affects exporters and pure domestic firms differently, focusing on their domestic sales. Exporters sell their products in both international and domestic markets but pure domestic firms only earn their sales revenues from the domestic market. We delve into how exporters with an access to the international market would adjust their domestic sales upon the devaluation, highlighting the differential responses from domestic producers if any. Specifically, we investigate how domestic producers adjust their domestic sales from 1997 to 1998, compared to exporters, even when both have the same level of foreign currency debt exposure. We estimate the following equation:

$$\begin{aligned}\Delta y_{f,97-98} = \alpha_s &+ \beta_0 FC\ Debt\ Ratio_{f,96} + \beta_1 FC\ Debt\ Ratio_{f,96} \times Size_{f,96} \\ &+ \beta_2 FC\ Debt\ Ratio_{f,96} \times Domestic\ Dummy_{f,96} \\ &+ \beta_3 FC\ Debt\ Ratio_{f,96} \times Size_{f,96} \times Domestic\ Dummy_{f,96} \\ &+ \beta_4 X_{f,96} + \beta_5 Domestic\ Dummy_{f,96} + \varepsilon_f,\end{aligned} \tag{5}$$

where y is the domestic sales growth in 1997-1998. All the explanatory variables are as of 1996. $Domestic\ Dummy_f$ is equal to one if a firm earns zero export revenues in 1996 and zero otherwise. For a robustness check, we define it such that it is equal to one when a firm earns zero export revenues in 1996,1997 as well as 1998, and zero otherwise. The key coefficients of our interest are on the interaction term of foreign currency debt ratio and the domestic firm dummy variable and that of foreign currency debt ratio, firm size and the domestic firm dummy variable. As we have done in our baseline analyses, we control for other firm-level characteristics that could potentially correlate with foreign currency debt exposure. X_f includes share of imported inputs to total variable costs, size, leverage (total debt to total assets ratio), short-term debt ratio (short-term debt to total debt ratio), cash to total assets ratio, FC cash to total cash ratio, and export to sales ratio. The sector fixed effects are also included in the estimation.

In Table 7, we find that exporters' domestic sales are more sensitive to foreign currency debt exposure compared to non-exporters. Specifically, the marginal effect of foreign currency debt on domestic sales is larger in magnitude for exporters. That is, an increase in foreign currency debt leads to a larger decrease in the domestic sales of exporters than non-exporters. This difference is also statistically significant at the 5% level.

Additionally, the estimate on the interaction term of foreign currency debt ratio, firm size, and the domestic firm dummy variable $(FC\ Debt\ Ratio_{f,96} \times Size_{f,96} \times Domestic\ Dummy_{f,96})$ is negative and statistically significant at the 5% level. The negative estimate on the interaction term

Table 7: FC Debt and Domestic Sales: Exporters vs. Non-Exporters

	(1)	(2)	(3)
FC Debt Ratio	-1.4866***	-1.5379***	-1.5165***
	(0.2838)	(0.4092)	(0.4265)
FC Debt Ratio × Size	0.0881***	0.0941***	0.0933***
	(0.0167)	(0.0224)	(0.0232)
FC Debt Ratio ×Domestic Dummy		1.2359**	
		(0.5962)	
FC Debt Ratio × Size×Domestic Dummy		-0.0761**	
		(0.0340)	
FC Debt Ratio ×Domestic Dummy			1.1183*
			(0.5829)
FC Debt Ratio × Size×Domestic Dummy			-0.0697**
			(0.0330)
Domestic Dummy	N/A	Zero Exports in 96	Zero Exports in 96,97,98
Adjusted R2	0.1475	0.1481	0.1484
Observations	5241	5241	5241

Notes: Columns 2 and 3 employ a different definition of a domestic firm dummy variable. For Column 2, we define firms with zero exports in 1996 as domestic firms. For Column 3, firms with zero exports in 1996, 1997 and 1998 are domestic firms.

implies that the effect of foreign currency debt on domestic sales is less negative for larger firms, even more so for exporters.

Unlike domestic firms, exporters have access to both domestic and international markets. Therefore, upon the domestic currency depreciation, exporting products could be more profitable than selling them in the domestic market, especially in the short-run. This reallocation of sales from domestic to foreign markets would be costly, so it is more likely to occur for those exporters who would benefit the most from this reallocation, i.e., those firms that are highly indebted in foreign currency debt and/or those that are are small in size. Smaller domestic firms and exporters, indebted in foreign currency debt, both face a tighter financial constraint in their production, but exporters lower their domestic sales more, optimally reallocating their products to foreign markets in a way that yields higher earnings and liquidity for them.

For larger exporters, the balance sheet deterioration does not constrain their production as much as it does for smaller exporters. Therefore, the benefit of extra liquidity from reallocating products from domestic to foreign markets diminishes for larger firms, leading to a muted effect of foreign

currency debt on the domestic sales of exporters. On top of that, larger exporters, unlike larger domestic firms, enjoy the benefit of natural hedging from their sizable export revenues, which mitigates the balance sheet deterioration due to foreign currency debt. Therefore, the negative effect of foreign currency debt on domestic sales for larger exporters is much weaker than that for domestic firms.

5 Panel Regression Analysis

To highlight that the financial channel of dollar debt is not associated with a particular period in the past, we estimate the exchange rate pass-through to export quantities and prices in more recent periods. This section employs the panel data of both listed and non-listed firms from 2001 to 2020. Each observation is at the firm f-product HS10 i -destination country d-year t. We estimate the below equation 6:

$$\begin{aligned}\Delta_\tau y_{f,i,d,t} = {} & \alpha_{s(i),d,t} + \beta_0 \text{FC Debt Ratio}_{f,t-\tau} + \beta_1 \text{FC Debt Ratio}_{f,t-\tau} \times \Delta_\tau e_{\$t} \\ & + \beta_2 \text{FC Debt Ratio}_{f,t-\tau} \times \text{Size}_{f,t-\tau} + \beta_3 \text{FC Debt Ratio}_{f,t-\tau} \times \Delta_\tau e_{\$t} \times \text{Size}_{f,t-\tau} \\ & + X_{f,t-\tau} + X_{f,t-\tau} \times \Delta_\tau e_{\$t} + X_{f,t-\tau} \times \Delta_\tau e_{\$t} \times \text{Size}_{f,t-\tau} + \varepsilon_{i,f,d,t},\end{aligned} \tag{6}$$

where y is the export price in the destination currency or its export quantity. Since we do not observe firm f's exports of product HS10 i to destination country d every year, we look at the export price and quantity changes over year t and year $t-\tau$, where τ varies for each observation of firm f's exports of product HS4 i to destination country d in year t. $e_{\$t}$ is the Korean won price of dollar. An increase in the exchange rate is therefore a depreciation of KRW against the U.S. dollar. X_f includes firm-level variables: import share, sales share (export sales of firm f selling product i to country d over total Korean firms' exports to a market, defined as product HS10 code by destination country), size, leverage, short-term debt ratio, cash ratio, FC cash ratio, and export share. Our key coefficients of interest are β_1 and β_3. We include sector s fixed effects

and destination country d by year t fixed effects in the regressions, where sectors are defined by the KSIC industry codes.

Tables 8 and 9 summarize the results, qualitatively consistent with what we have found with the event study analysis during the Asian Financial Crisis. In Table 8, we see that firms lower their export quantities more when their debt is tilted towards FC upon the depreciation of Korean won. The fall in export quantities is smaller when firm size is larger. Moreover, in Table 9, when firms are indebted in FC debt, they raise their destination prices more upon the depreciation of Korean won against the U.S. dollar. The magnitude of the increase is smaller when firm size is larger. The same mechanism manifest in Section 3 is also revealed in the panel regression analyses with more aggregated and longer period data. In Column 2 of Tables 8 and 9, we also show that the estimated effects are still significant when using clustered standard errors at the destination country by year.

Table 8: Panel Regression of Export Quantity Changes on FC Debt

Dependent Variables:	Export Quantities	
	(1)	(2)
FC Debt Ratio	-0.1010**	-0.1010
	(0.0440)	(0.0644)
FC Debt Ratio $\times\Delta E_{KRW/\$}$	-1.5997***	-1.5997**
	(0.5180)	(0.6280)
FC Debt Ratio $\times\Delta E_{KRW/\$}\times$Size	0.0795***	0.0795**
	(0.0264)	(0.0330)
FC Debt Ratio $\times$Size	0.0041*	0.0041
	(0.0023)	(0.0034)
Adjusted R^2	0.0155	0.0155
N	1902611	1902611
Standard Errors	Robust	Clustered

Notes: In Column (1), robust standard errors are reported in the parentheses. In Column (2), clustered standard errors are reported in the parentheses. The cluster is at the country by year. * p<0.1, ** p<0.05, *** p<0.01.

Table 9: Panel Regression of Export Price Changes on FC Debt

Dependent Variables:	Export Prices	
	(1)	(2)
FC Debt Ratio	0.0010	0.0010
	(0.0074)	(0.0100)
FC Debt Ratio $\times\Delta E_{KRW/\$}$	0.3457***	0.3457***
	(0.0882)	(0.1201)
FC Debt Ratio $\times\Delta E_{KRW/\$}\times$Size	-0.0197***	-0.0197***
	(0.0044)	(0.0064)
FC Debt Ratio $\times$Size	0.0000	0.0000
	(0.0004)	(0.0005)
Adjusted R^2	0.0355	0.0355
N	1902611	1902611
Standard Errors	Robust	Clustered

Notes: In Column (1), robust standard errors are reported in the parentheses. In Column (2), clustered standard errors are reported in the parentheses. The cluster is at the country by year. * p<0.1, ** p<0.05, *** p<0.01.

Then, we estimate Equation 6 with import quantities and import values as dependent variables. y is import quantity or import value in units of the origin country currency. Since we do not observe firm f's imports of product HS10 i from origin country d every year, we look at the import quantity and value changes over year t and year $t-\tau$, where τ varies for each observation of firm f's imports of product HS10 i from origin country d in year t. We control for the same set of firm-level variables $X_{f,t-\tau}$, where sales share now is defined as the value of firm f importing HS10 product i from country d over total Korean firms' imports from a market, where a market is defined as HS4 product code by origin country. We include sector s fixed effects and destination country d by year t fixed effects in the regressions.

Similar to what's shown in the baseline analysis in Section 3, import quantities and values decrease when firms are more indebted in FC debt and fall less when firm size is larger. This empirical pattern is consistent with how the production is constrained when firms borrow more in FC debt upon a large depreciation of domestic currency, and therefore, employ less production inputs, including imported intermediate inputs.

Overall, our panel regressions with more recent sample periods reaffirm the relevance of the financial channel of dollar debt in shaping the exchange rate pass-through to export quantities and

Table 10: Panel Regression of Import Quantity Changes on FC Debt

Dependent Variables:	Import Quantities	
	(1)	(2)
FC Debt Ratio	-0.1448***	-0.1448**
	(0.0460)	(0.0619)
FC Debt Ratio $\times\Delta E_{KRW/\$}$	-1.7651***	-1.7651***
	(0.5456)	(0.6004)
FC Debt Ratio $\times\Delta E_{KRW/\$}\times$Size	0.0855***	0.0855***
	(0.0284)	(0.0318)
FC Debt Ratio $\times$Size	0.0083***	0.0083**
	(0.0024)	(0.0033)
Adjusted R^2	0.0092	0.0092
N	1854015.0000	1854015.0000
Standard Errors	Robust	Clustered

Notes: In Column (1), robust standard errors are reported in the parentheses. In Column (2), clustered standard errors are reported in the parentheses. The cluster is at the country by year. * p<0.1, ** p<0.05, *** p<0.01.

Table 11: Panel Regression of Import Value Changes on FC Debt

Dependent Variables:	Import Values	
	(1)	(2)
FC Debt Ratio	-0.1438***	-0.1438**
	(0.0456)	(0.0613)
FC Debt Ratio $\times\Delta E_{KRW/\$}$	-1.9738***	-1.9738***
	(0.5412)	(0.6110)
FC Debt Ratio $\times\Delta E_{KRW/\$}\times$Size	0.0956***	0.0956***
	(0.0282)	(0.0323)
FC Debt Ratio $\times$Size	0.0081***	0.0081**
	(0.0024)	(0.0033)
Adjusted R^2	0.0105	0.0105
N	1854015	1854015
Standard Errors	Robust	Clustered

Notes: In Column (1), robust standard errors are reported in the parentheses. In Column (2), clustered standard errors are reported in the parentheses. The cluster is at the country by year. * p<0.1, ** p<0.05, *** p<0.01. We estimate a similar set of regressions with import values in units of the U.S. dollar, and the results are shared in the Appendix.

prices.

6 Conclusion

In conclusion, we identify the negative balance sheet effects of dollar debt on firms' international trade activities upon a large devaluation of domestic currency against dollar. By leveraging a detailed dataset merging Korean firm-level balance sheet data with transaction-level Korean customs data, we have identified that firms with higher foreign currency debt exposure tend to increase their export prices and lower export quantities. Smaller firms, more susceptible to more severe deterioration in their balance sheets and hence disruption in their productions, increase their export prices and decrease their export quantities markedly more than larger firms. Furthermore, we show that firms highly indebted in foreign currency debt lower the amount of inputs used for the production, including imported inputs Our panel data analysis, spanning 2006-2021, further confirms these findings, highlighting the persistent influence of dollar debt's financial channel across different time periods.

Our findings challenge the view that depreciation of domestic currency makes the export sector more competitive as the rest of the world find domestic products cheaper. In fact, when the financial channel is strong enough, we see that firms actually *increase* the destination price of exporting goods, highlighting the role of firm heterogeneity in shaping the dynamics of both export quantities and their prices. We believe that the insight we get from unraveling the financial channel of dollar debt in shaping the exchange rate pass-through would be of great importance to policymakers in emerging markets, as their domestic currency often experiences a sudden depreciation against dollar and their liability is highly dollarized.

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Appendix

Summary Statistics

Table 12: Summary Statistics: Regression of Export Prices

	Observations	Mean	Std	Min	Max
Price Change (yoy)	25,334	-0.00	0.47	-6.82	5.63
FC Debt Ratio	25,334	0.20	0.20	0.00	0.91
Import Share	25,334	0.17	0.16	0.00	0.97
Export Share	25,334	0.33	0.25	0.00	1.00
Sale Share	25,334	0.28	0.35	0.00	1.00
Size	25,334	18.55	1.97	12.38	23.91
Leverage	25,334	0.33	0.15	0.00	0.92
Short-term Debt Ratio	25,334	0.67	0.22	0.00	1.00
Cash Ratio	25,334	0.09	0.08	-0.00	0.63
FC Cash Ratio	25,334	0.03	0.10	0.00	0.94

Notes: The table shows the summary statistics for the data used in regressions in Section 3. Regressors are their values in 1996 and include import share (the share of imported inputs to total variable costs); export to sales ratio; sales share (export sales of firm f selling product i to country d over total Korean firms' exports to a market, defined as product HS4 code by destination country), size (log of sales), leverage (total debt to total assets ratio), short-term debt ratio (short-term debt to total debt ratio), cash ratio (cash to total assets ratio), and FC cash ratio (FC cash to total cash ratio). Price change is the log export price change relative to 1997 to 1998.

Table 13: Summary Statistics: Regression of Export Quantities

	Observations	Mean	Std	Min	Max
Quantity Change (yoy)	25,334	-0.18	1.45	-11.44	9.10
FC Debt Ratio	25,334	0.20	0.20	0.00	0.91
Import Share	25,334	0.17	0.16	0.00	0.97
Export Share	25,334	0.33	0.25	0.00	1.00
Sale Share	25,334	0.28	0.35	0.00	1.00
Size	25,334	18.55	1.97	12.38	23.91
Leverage	25,334	0.33	0.15	0.00	0.92
Short-term Debt Ratio	25,334	0.67	0.22	0.00	1.00
Cash Ratio	25,334	0.09	0.08	-0.00	0.63
FC Cash Ratio	25,334	0.03	0.10	0.00	0.94

Notes: The table shows the summary statistics for the data used in regressions in Section 3. Regressors are their values in 1996 and include import share (the share of imported inputs to total variable costs); export to sales ratio; sales share (export sales of firm f selling product i to country d over total Korean firms' exports to a market, defined as product HS4 code by destination country), size (log of sales), leverage (total debt to total assets ratio), short-term debt ratio (short-term debt to total debt ratio), cash ratio (cash to total assets ratio), and FC cash ratio (FC cash to total cash ratio). Quantity change is the log export quantity change from 1997 to 1998.

Additional Tables

Table 15: Dynamic Responses of Export Quantities

	h=-3	h=-2	h=-1	h=1	h=2	h=3	h=4	h=5
FC Debt Ratio	1.9611	0.7368	0.5910	-2.0872*	-2.0498	-3.4434***	-5.1286***	-4.8438
	(1.3129)	(1.3134)	(1.0450)	(1.1407)	(1.2905)	(1.2710)	(1.2714)	(1.450
FC Debt Ratio × *Size*	-0.1190	-0.0485	-0.0380	0.1092*	0.1074	0.1929***	0.2848***	0.2601
	(0.0732)	(0.0728)	(0.0581)	(0.0637)	(0.0718)	(0.0708)	(0.0711)	(0.080
Size	0.0462	0.0811	0.0792*	-0.0443	0.0135	-0.0695	-0.1217**	-0.122
	(0.0568)	(0.0528)	(0.0456)	(0.0476)	(0.0556)	(0.0555)	(0.0566)	(0.063
Adjusted R^2	0.0165	0.0165	0.0165	0.0208	0.0397	0.0259	0.0268	0.040
Observations	10035	9897	10170	10114	9826	10047	11230	9684

Notes: This table shows the results in 3. Robust standard errors are reported in the parentheses.

Table 16: Dynamic Responses of Export Prices

	h=-3	h=-2	h=-1	h=1	h=2	h=3	h=4	h=5	h
FC Debt Ratio	-0.0495	-0.0319	-0.0228	-0.4538	0.0509	0.6117*	0.4614**	0.6059*	-
	(0.3654)	(0.3049)	(0.3508)	(0.3347)	(0.3779)	(0.3319)	(0.2151)	(0.3398)	(
FC Debt Ratio × *Size*	0.0042	0.0026	0.0030	0.0251	0.0013	-0.0321*	-0.0247**	-0.0310	0
	(0.0206)	(0.0169)	(0.0197)	(0.0190)	(0.0212)	(0.0184)	(0.0119)	(0.0189)	(
Size	0.0077	-0.0153	-0.0080	-0.0189	-0.0079	0.0075	-0.0051	-0.0023	-
	(0.0144)	(0.0119)	(0.0123)	(0.0123)	(0.0147)	(0.0126)	(0.0101)	(0.0141)	(
Adjusted R^2	0.0848	0.0574	0.0446	0.0382	0.0982	0.0917	0.1728	0.1977	0
Observations	10035	9897	10170	10114	9826	10047	11230	9684	9

Notes: This table shows the results in 3. Robust standard errors are reported in the parentheses.

Table 14: FC Debt, and Export Quantities and Prices: Other Control Variables

Exports	ΔQ_{97-98}	Δp_{97-98}
	(1)	(2)
FC Debt Ratio	-2.9925***	0.7135***
	(0.8861)	(0.2557)
FC Debt Ratio × Size	0.1766***	-0.0402***
	(0.0493)	(0.0142)
Sale share	-0.2451***	0.0230***
	(0.0299)	(0.0086)
Import share	1.1034	-0.0586
	(0.8222)	(0.2243)
Size	-0.0600	0.0164
	(0.0390)	(0.0111)
Leverage	-1.4860	1.0520***
	(1.0663)	(0.2777)
Short-term debt ratio	0.1739	-0.3408*
	(0.6781)	(0.1832)
Cash ratio	-0.1175	0.1011**
	(0.1633)	(0.0452)
FC Cash ratio	5.6952***	0.1107
	(1.3586)	(0.3857)
Export share	-1.4689**	0.5138***
	(0.5993)	(0.1614)
Import share × Size	-0.0597	0.0059
	(0.0455)	(0.0123)
Leverage × Size	0.0881	-0.0615***
	(0.0603)	(0.0155)
Short-term debt ratio × Size	-0.0066	0.0198*
	(0.0385)	(0.0103)
FC Cash ratio × Size	-0.3192***	-0.0025
	(0.0718)	(0.0204)
Export share × Size	0.0801**	-0.0295***
	(0.0338)	(0.0091)
Adjusted R2	0.0449	0.2898
Observations	25334	25334

Notes: Robust standard errors are reported in the parentheses. * p<0.1, ** p<0.05, *** p<0.01.

Table 17: FC Debt and Other Inputs: Other Control Variables

	$\Delta Networth_{97-98}$	$\Delta VariableCost_{97-98}$	$\Delta Capital_{97-98}$
FC Debt Ratio	-0.6608***	-0.9677**	-1.1194**
	(0.2304)	(0.4894)	(0.4581)
FC Debt Ratio × Size	0.0406***	0.0603**	0.0608**
	(0.0132)	(0.0272)	(0.0258)
Import share	0.2354	1.0315**	-0.0587
	(0.2462)	(0.5231)	(0.8205)
Size	-0.0110	-0.0131	0.0506*
	(0.0120)	(0.0227)	(0.0272)
Leverage	-0.1943	0.4543	0.6789
	(0.3326)	(0.6582)	(0.7973)
Short-term debt ratio	0.0206	-0.2218	0.5183
	(0.2021)	(0.3858)	(0.4515)
Cash ratio	0.1421***	0.1052	0.1259
	(0.0402)	(0.0871)	(0.1128)
FC Cash ratio	1.8207***	0.2114	0.7039
	(0.4571)	(1.4582)	(1.1011)
Export share	0.1396	0.7996	-0.0779
	(0.3640)	(0.5384)	(0.7822)
Import share × Size	-0.0151	-0.0558*	0.0071
	(0.0146)	(0.0306)	(0.0481)
Leverage × Size	0.0151	-0.0224	-0.0359
	(0.0199)	(0.0384)	(0.0470)
Short-term debt ratio × Size	-0.0005	0.0126	-0.0257
	(0.0122)	(0.0227)	(0.0262)
FC Cash ratio × Size	-0.1025***	-0.0040	-0.0536
	(0.0244)	(0.0768)	(0.0618)
Export share × Size	-0.0061	-0.0315	0.0103
	(0.0217)	(0.0315)	(0.0461)
Adjusted R2	0.0847	0.2163	0.0421
Observations	1834	1833	1837

Notes: Robust standard errors are reported in the parentheses. * p<0.1, ** p<0.05, *** p<0.01.

Table 18: FC Debt, and Import Quantities and Values: Other Control Variables

Imports	ΔQ_{97-98}	ΔV_{97-98}
	(1)	(2)
FC Debt Ratio	-1.9817***	-1.7973***
	(0.7629)	(0.6933)
FC Debt Ratio × Size	0.1062**	0.0939**
	(0.0417)	(0.0378)
Sale share	-0.3349***	-0.3439***
	(0.0457)	(0.0430)
Import share	-0.7188	-1.1299
	(0.8375)	(0.7747)
Size	-0.0473	-0.0492
	(0.0433)	(0.0403)
Leverage	-0.1143	-0.4664
	(1.1779)	(1.1287)
Short-term debt ratio	-1.1329	-0.9715
	(0.7123)	(0.6533)
Cash ratio	-0.2285	-0.1125
	(0.1689)	(0.1586)
FC Cash ratio	2.0368	1.4615
	(1.2686)	(1.1993)
Export share	1.7640*	1.7583**
	(0.9140)	(0.8534)
Import share × Size	0.0330	0.0555
	(0.0472)	(0.0436)
Leverage × Size	-0.0054	0.0159
	(0.0674)	(0.0646)
Short-term debt ratio × Size	0.0576	0.0486
	(0.0402)	(0.0370)
FC Cash ratio × Size	-0.1170*	-0.0793
	(0.0662)	(0.0622)
Export share × Size	-0.0727	-0.0740
	(0.0525)	(0.0489)
Adjusted R2	0.0363	0.0433
Observations	21345	21457

Notes: Robust standard errors are reported in the parentheses. * p<0.1, ** p<0.05, *** p<0.01.

Additional Tables for Panel Regressions

Table 19: Panel Regression of Export Price Changes on FC Debt: Other Variables

Dependent Variables:	Export Prices	
	(1)	(2)
Import Share	0.0860***	0.0860***
	(0.0115)	(0.0138)
Sale Share	-0.0031	-0.0031
	(0.0053)	(0.0060)
Size	0.0021***	0.0021***
	(0.0004)	(0.0005)
Leverage	0.0696***	0.0696***
	(0.0126)	(0.0161)
Short-term Debt Ratio	0.0408***	0.0408***
	(0.0058)	(0.0072)
Cash Ratio	-0.0121	-0.0121
	(0.0334)	(0.0460)
FC Cash Ratio	-0.0139***	-0.0139***
	(0.0042)	(0.0049)
Export Share	-0.0427***	-0.0427***
	(0.0090)	(0.0106)
Import Share$\times\Delta E_{KRW/\$}$	2.0860***	2.0860***
	(0.1454)	(0.1854)
Sale Share$\times\Delta E_{KRW/\$}$	0.1751**	0.1751*
	(0.0761)	(0.0919)
Size$\times\Delta E_{KRW/\$}$	0.0019**	0.0019
	(0.0008)	(0.0013)
Leverage$\times\Delta E_{KRW/\$}$	1.9290***	1.9290***
	(0.1407)	(0.2570)
Short-term Debt Ratio$\times\Delta E_{KRW/\$}$	0.2759***	0.2759***
	(0.0612)	(0.0789)
Cash Ratio$\times\Delta E_{KRW/\$}$	4.7656***	4.7656***
	(0.4559)	(0.6094)
FC Cash Ratio$\times\Delta E_{KRW/\$}$	-0.1418***	-0.1418**
	(0.0477)	(0.0556)
Export Share $\times\Delta E_{KRW/\$}$	-0.7895***	-0.7895***
	(0.0941)	(0.1170)

Continued Table 19

Import Share$\times\Delta E_{KRW/\$}\times$Size	-0.1150***	-0.1150***
	(0.0078)	(0.0103)
Sale Share$\times\Delta E_{KRW/\$}\times$Size	-0.0102**	-0.0102**
	(0.0040)	(0.0048)
Leverage$\times\Delta E_{KRW/\$}\times$Size	-0.1220***	-0.1220***
	(0.0079)	(0.0149)
Short-term Debt Ratio$\times\Delta E_{KRW/\$}\times$Size	-0.0190***	-0.0190***
	(0.0032)	(0.0043)
Cash Ratio$\times\Delta E_{KRW/\$}\times$Size	-0.2779***	-0.2779***
	(0.0249)	(0.0341)
FC Cash Ratio$\times\Delta E_{KRW/\$}\times$Size	0.0081***	0.0081***
	(0.0026)	(0.0030)
Export Share$\times\Delta E_{KRW/\$}\times$Size	0.0478***	0.0478***
	(0.0050)	(0.0064)
Import Share$\times$Size	-0.0050***	-0.0050***
	(0.0006)	(0.0008)
Sale Share$\times$Size	0.0003	0.0003
	(0.0003)	(0.0003)
Leverage$\times$Size	-0.0043***	-0.0043***
	(0.0007)	(0.0009)
Short-term Debt Ratio$\times$Size	-0.0022***	-0.0022***
	(0.0003)	(0.0004)
Cash Ratio$\times$Size	-0.0005	-0.0005
	(0.0018)	(0.0026)
FC Cash Ratio$\times$Size	0.0008***	0.0008***
	(0.0002)	(0.0003)
Export Share$\times$Size	0.0021***	0.0021***
	(0.0005)	(0.0006)
N	1902611.0000	1902611.0000

Notes: In Column (1), robust standard errors are reported in the parentheses. In Column (2), clustered standard errors are reported in the parentheses.

Table 20: Panel Regression of Export Price Changes in USD on FC Debt: Other Variables

Dependent Variables:	Export Prices in USD	
	(1)	(2)
FC Debt Ratio	0.0010	0.0010
	(0.0074)	(0.0101)
FC Debt Ratio $\times\Delta E_{KRW/\$}$	0.2507***	0.2507**
	(0.0889)	(0.1261)
FC Debt Ratio $\times\Delta E_{KRW/\$}\times$Size	-0.0131***	-0.0131*
	(0.0045)	(0.0067)
FC Debt Ratio $\times$Size	0.0000	0.0000
	(0.0004)	(0.0005)
Import Share	0.0938***	0.0938***
	(0.0116)	(0.0141)
Sale Share	-0.0091*	-0.0091
	(0.0053)	(0.0061)
Size	0.0021***	0.0021***
	(0.0004)	(0.0005)
Leverage	0.0645***	0.0645***
	(0.0127)	(0.0162)
Short-term Debt Ratio	0.0437***	0.0437***
	(0.0058)	(0.0074)
Cash Ratio	-0.0131	-0.0131
	(0.0336)	(0.0464)
FC Cash Ratio	-0.0151***	-0.0151***
	(0.0044)	(0.0052)
Export Share	-0.0488***	-0.0488***
	(0.0090)	(0.0109)
Import Share$\times\Delta E_{KRW/\$}$	2.2344***	2.2344***
	(0.1472)	(0.1936)
Sale Share$\times\Delta E_{KRW/\$}$	0.1065	0.1065
	(0.0771)	(0.0956)
Size$\times\Delta E_{KRW/\$}$	-0.0090***	-0.0090***
	(0.0008)	(0.0027)
Leverage$\times\Delta E_{KRW/\$}$	1.8540***	1.8540***
	(0.1424)	(0.2614)
Short-term Debt Ratio$\times\Delta E_{KRW/\$}$	0.3361***	0.3361***
	(0.0621)	(0.0911)
Cash Ratio$\times\Delta E_{KRW/\$}$	4.0485***	4.0485***
	(0.4618)	(0.6178)
FC Cash Ratio$\times\Delta E_{KRW/\$}$	-0.1622***	-0.1622***
	(0.0506)	(0.0589)
Export Share $\times\Delta E_{KRW/\$}$	-0.9635***	-0.9635***
	(0.0953)	(0.1238)

Continued Table 20

Import Share$\times\Delta E_{KRW/\$}\times$Size	-0.1227***	-0.1227***
	(0.0079)	(0.0107)
Sale Share$\times\Delta E_{KRW/\$}\times$Size	-0.0075*	-0.0075
	(0.0041)	(0.0050)
Leverage$\times\Delta E_{KRW/\$}\times$Size	-0.1183***	-0.1183***
	(0.0080)	(0.0152)
Short-term Debt Ratio$\times\Delta E_{KRW/\$}\times$Size	-0.0221***	-0.0221***
	(0.0032)	(0.0049)
Cash Ratio$\times\Delta E_{KRW/\$}\times$Size	-0.2401***	-0.2401***
	(0.0252)	(0.0345)
FC Cash Ratio$\times\Delta E_{KRW/\$}\times$Size	0.0091***	0.0091***
	(0.0028)	(0.0032)
Export Share$\times\Delta E_{KRW/\$}\times$Size	0.0555***	0.0555***
	(0.0051)	(0.0068)
Import Share$\times$Size	-0.0055***	-0.0055***
	(0.0006)	(0.0008)
Sale Share$\times$Size	0.0007**	0.0007**
	(0.0003)	(0.0003)
Leverage$\times$Size	-0.0040***	-0.0040***
	(0.0007)	(0.0009)
Short-term Debt Ratio$\times$Size	-0.0023***	-0.0023***
	(0.0003)	(0.0004)
Cash Ratio$\times$Size	-0.0003	-0.0003
	(0.0018)	(0.0026)
FC Cash Ratio$\times$Size	0.0009***	0.0009***
	(0.0002)	(0.0003)
Export Share$\times$Size	0.0025***	0.0025***
	(0.0005)	(0.0006)
N	1902611	1902611

Notes: In Column (1), robust standard errors are reported in the parentheses. In Column (2), clustered standard errors are reported in the parentheses.

Table 21: Panel Regression of Export Quantity Changes on FC Debt: Other Variables

Dependent Variables:	Export Quantities	
	(1)	(2)
Import Share	-0.1007	-0.1007
	(0.0671)	(0.1023)
Sale Share	0.2408***	0.2408***
	(0.0299)	(0.0377)
Size	-0.0041*	-0.0041
	(0.0023)	(0.0037)
Leverage	0.4230***	0.4230***
	(0.0731)	(0.1095)
Short-term Debt Ratio	-0.2123***	-0.2123***
	(0.0324)	(0.0470)
Cash Ratio	0.4783**	0.4783
	(0.1920)	(0.3271)
FC Cash Ratio	-0.0635***	-0.0635***
	(0.0171)	(0.0226)
Export Share	0.0379	0.0379
	(0.0519)	(0.0841)
Import Share$\times\Delta E_{KRW/\$}$	-5.5590***	-5.5590***
	(0.8693)	(1.1989)
Sale Share$\times\Delta E_{KRW/\$}$	-0.8363*	-0.8363*
	(0.4418)	(0.5033)
Size$\times\Delta E_{KRW/\$}$	-0.0048	-0.0048
	(0.0047)	(0.0064)
Leverage$\times\Delta E_{KRW/\$}$	-4.7553***	-4.7553***
	(0.8500)	(1.1240)
Short-term Debt Ratio$\times\Delta E_{KRW/\$}$	1.3441***	1.3441***
	(0.3628)	(0.5009)
Cash Ratio$\times\Delta E_{KRW/\$}$	-7.2090***	-7.2090*
	(2.7037)	(3.8051)
FC Cash Ratio$\times\Delta E_{KRW/\$}$	-0.6350***	-0.6350**
	(0.2047)	(0.2569)
Export Share $\times\Delta E_{KRW/\$}$	6.1214***	6.1214***
	(0.5613)	(0.8127)

Continued Table 21

Import Share$\times\Delta E_{KRW/\$}\times$Size	0.3072***	0.3072***
	(0.0474)	(0.0662)
Sale Share$\times\Delta E_{KRW/\$}\times$Size	0.0515**	0.0515*
	(0.0238)	(0.0274)
Leverage$\times\Delta E_{KRW/\$}\times$Size	0.2737***	0.2737***
	(0.0481)	(0.0648)
Short-term Debt Ratio$\times\Delta E_{KRW/\$}\times$Size	-0.0769***	-0.0769***
	(0.0192)	(0.0268)
Cash Ratio$\times\Delta E_{KRW/\$}\times$Size	0.4302***	0.4302**
	(0.1494)	(0.2134)
FC Cash Ratio$\times\Delta E_{KRW/\$}\times$Size	0.0358***	0.0358**
	(0.0111)	(0.0141)
Export Share$\times\Delta E_{KRW/\$}\times$Size	-0.3532***	-0.3532***
	(0.0306)	(0.0449)
Import Share$\times$Size	0.0072**	0.0072
	(0.0036)	(0.0057)
Sale Share$\times$Size	-0.0377***	-0.0377***
	(0.0016)	(0.0020)
Leverage$\times$Size	-0.0267***	-0.0267***
	(0.0041)	(0.0062)
Short-term Debt Ratio$\times$Size	0.0092***	0.0092***
	(0.0017)	(0.0026)
Cash Ratio$\times$Size	-0.0197*	-0.0197
	(0.0106)	(0.0183)
FC Cash Ratio$\times$Size	0.0035***	0.0035***
	(0.0010)	(0.0013)
Export Share$\times$Size	-0.0083***	-0.0083*
	(0.0029)	(0.0047)
N	1902611	1902611.0000

Notes: In Column (1), robust standard errors are reported in the parentheses. In Column (2), clustered standard errors are reported in the parentheses.

Table 22: Panel Regression of Import Quantity Changes on FC Debt: Other Variables

Dependent Variables:	Import Weights	
	(1)	(2)
Import Share	-0.2139***	-0.2139***
	(0.0558)	(0.0785)
Sale Share	0.2008***	0.2008***
	(0.0469)	(0.0567)
Size	-0.0061**	-0.0061*
	(0.0024)	(0.0036)
Leverage	0.3354***	0.3354***
	(0.0778)	(0.1039)
Short-term Debt Ratio	-0.0690*	-0.0690
	(0.0355)	(0.0515)
Cash Ratio	0.4935**	0.4935
	(0.2061)	(0.3291)
FC Cash Ratio	-0.0229**	-0.0229**
	(0.0099)	(0.0103)
Export Share	0.0813	0.0813
	(0.0562)	(0.0878)
Import Share$\times\Delta E_{KRW/\$}$	0.8207	0.8207
	(0.6940)	(0.8388)
Sale Share$\times\Delta E_{KRW/\$}$	0.5533	0.5533
	(0.6941)	(0.8186)
Size$\times\Delta E_{KRW/\$}$	-0.0278***	-0.0278***
	(0.0038)	(0.0065)
Leverage$\times\Delta E_{KRW/\$}$	-2.0840**	-2.0840**
	(0.9628)	(0.9905)
Short-term Debt Ratio$\times\Delta E_{KRW/\$}$	-0.8460**	-0.8460
	(0.3903)	(0.5552)
Cash Ratio$\times\Delta E_{KRW/\$}$	-4.2374	-4.2374
	(2.8084)	(3.7720)
FC Cash Ratio$\times\Delta E_{KRW/\$}$	-0.2162**	-0.2162**
	(0.0967)	(0.1038)
Export Share $\times\Delta E_{KRW/\$}$	1.6014***	1.6014*
	(0.5989)	(0.8190)

Continued Table 22

Dependent Variables:	Import Weights	
	(2)	(4)
Import Share$\times\Delta E_{KRW/\$}\times$Size	-0.0373	-0.0373
	(0.0381)	(0.0456)
Sale Share$\times\Delta E_{KRW/\$}\times$Size	-0.0211	-0.0211
	(0.0372)	(0.0440)
Leverage$\times\Delta E_{KRW/\$}\times$Size	0.1200**	0.1200**
	(0.0543)	(0.0555)
Short-term Debt Ratio$\times\Delta E_{KRW/\$}\times$Size	0.0431**	0.0431
	(0.0210)	(0.0292)
Cash Ratio$\times\Delta E_{KRW/\$}\times$Size	0.2624*	0.2624
	(0.1556)	(0.2113)
FC Cash Ratio$\times\Delta E_{KRW/\$}\times$Size	0.0126**	0.0126**
	(0.0053)	(0.0057)
Export Share$\times\Delta E_{KRW/\$}\times$Size	-0.1053***	-0.1053**
	(0.0318)	(0.0453)
Import Share$\times$Size	0.0082***	0.0082*
	(0.0030)	(0.0044)
Sale Share$\times$Size	-0.0410***	-0.0410***
	(0.0025)	(0.0029)
Leverage$\times$Size	-0.0218***	-0.0218***
	(0.0043)	(0.0058)
Short-term Debt Ratio$\times$Size	0.0027	0.0027
	(0.0019)	(0.0027)
Cash Ratio$\times$Size	-0.0211*	-0.0211
	(0.0113)	(0.0181)
FC Cash Ratio$\times$Size	0.0012**	0.0012**
	(0.0006)	(0.0006)
Export Share$\times$Size	-0.0086***	-0.0086*
	(0.0031)	(0.0048)
Adjusted R^2	0.0092	0.0092
N	1854015.0000	1854015.0000
Sector x Destination Country x Year	KSIC Sector	KSIC Sector

Notes: In Column (1), robust standard errors are reported in the parentheses. In Column (2), clustered standard errors are reported in the parentheses.

Table 23: Panel Regression of Import Value Changes on FC Debt: Other Variables

Dependent Variables:	Import Values	
	(1)	(2)
Import Share	-0.1763***	-0.1763**
	(0.0553)	(0.0786)
Sale Share	0.2238***	0.2238***
	(0.0466)	(0.0561)
Size	-0.0061**	-0.0061*
	(0.0024)	(0.0036)
Leverage	0.3722***	0.3722***
	(0.0770)	(0.1022)
Short-term Debt Ratio	-0.0639*	-0.0639
	(0.0352)	(0.0509)
Cash Ratio	0.5169**	0.5169
	(0.2039)	(0.3260)
FC Cash Ratio	-0.0235**	-0.0235**
	(0.0096)	(0.0104)
Export Share	0.0430	0.0430
	(0.0557)	(0.0856)
Import Share$\times\Delta E_{KRW/\$}$	1.0406	1.0406
	(0.6887)	(0.8549)
Sale Share$\times\Delta E_{KRW/\$}$	0.8066	0.8066
	(0.6909)	(0.8163)
Size$\times\Delta E_{KRW/\$}$	-0.0279***	-0.0279***
	(0.0037)	(0.0063)
Leverage$\times\Delta E_{KRW/\$}$	-1.3495	-1.3495
	(0.9563)	(0.9999)
Short-term Debt Ratio$\times\Delta E_{KRW/\$}$	-0.8016**	-0.8016
	(0.3872)	(0.5710)
Cash Ratio$\times\Delta E_{KRW/\$}$	-4.7254*	-4.7254
	(2.7778)	(3.7595)
FC Cash Ratio$\times\Delta E_{KRW/\$}$	-0.2403***	-0.2403**
	(0.0931)	(0.1035)
Export Share $\times\Delta E_{KRW/\$}$	1.8399***	1.8399**
	(0.5936)	(0.7948)

Continued Table 23

Import Share$\times\Delta E_{KRW/\$}\times$Size	-0.0516	-0.0516
	(0.0379)	(0.0463)
Sale Share$\times\Delta E_{KRW/\$}\times$Size	-0.0359	-0.0359
	(0.0370)	(0.0437)
Leverage$\times\Delta E_{KRW/\$}\times$Size	0.0662	0.0662
	(0.0539)	(0.0560)
Short-term Debt Ratio$\times\Delta E_{KRW/\$}\times$Size	0.0399*	0.0399
	(0.0208)	(0.0302)
Cash Ratio$\times\Delta E_{KRW/\$}\times$Size	0.2944*	0.2944
	(0.1540)	(0.2109)
FC Cash Ratio$\times\Delta E_{KRW/\$}\times$Size	0.0139***	0.0139**
	(0.0051)	(0.0057)
Export Share$\times\Delta E_{KRW/\$}\times$Size	-0.1151***	-0.1151***
	(0.0315)	(0.0441)
Import Share$\times$Size	0.0060**	0.0060
	(0.0030)	(0.0043)
Sale Share$\times$Size	-0.0422***	-0.0422***
	(0.0025)	(0.0029)
Leverage$\times$Size	-0.0242***	-0.0242***
	(0.0043)	(0.0057)
Short-term Debt Ratio$\times$Size	0.0025	0.0025
	(0.0019)	(0.0027)
Cash Ratio$\times$Size	-0.0230**	-0.0230
	(0.0112)	(0.0179)
FC Cash Ratio$\times$Size	0.0013**	0.0013**
	(0.0005)	(0.0006)
Export Share$\times$Size	-0.0065**	-0.0065
	(0.0030)	(0.0047)
Adjusted R^2	0.0105	0.0105
N	1854015.0000	1854015.0000

Notes: In Column (1), robust standard errors are reported in the parentheses. In Column (2), clustered standard errors are reported in the parentheses.

Table 24: Panel Regression of Import Value Changes in USD on FC Debt

Dependent Variables:	Import Values in USD	
	(1)	(2)
FC Debt Ratio	-0.1392***	-0.1392**
	(0.0456)	(0.0612)
FC Debt Ratio $\times\Delta E_{KRW/\$}$	-2.0126***	-2.0126***
	(0.5413)	(0.6034)
FC Debt Ratio $\times\Delta E_{KRW/\$}\times$Size	0.0993***	0.0993***
	(0.0282)	(0.0320)
FC Debt Ratio $\times$Size	0.0079***	0.0079**
	(0.0024)	(0.0032)
Import Share	-0.1780***	-0.1780**
	(0.0553)	(0.0785)
Sale Share	0.2177***	0.2177***
	(0.0466)	(0.0562)
Size	-0.0062***	-0.0062*
	(0.0024)	(0.0036)
Leverage	0.3745***	0.3745***
	(0.0770)	(0.1023)
Short-term Debt Ratio	-0.0659*	-0.0659
	(0.0352)	(0.0508)
Cash Ratio	0.5287***	0.5287
	(0.2040)	(0.3259)
FC Cash Ratio	-0.0246**	-0.0246**
	(0.0096)	(0.0104)
Export Share	0.0358	0.0358
	(0.0557)	(0.0858)
Import Share$\times\Delta E_{KRW/\$}$	1.0017	1.0017
	(0.6889)	(0.8512)
Sale Share$\times\Delta E_{KRW/\$}$	0.7730	0.7730
	(0.6915)	(0.8203)
Size$\times\Delta E_{KRW/\$}$	-0.0335***	-0.0335***
	(0.0037)	(0.0054)
Leverage$\times\Delta E_{KRW/\$}$	-1.1763	-1.1763
	(0.9564)	(1.0090)
Short-term Debt Ratio$\times\Delta E_{KRW/\$}$	-0.6897*	-0.6897
	(0.3873)	(0.5647)
Cash Ratio$\times\Delta E_{KRW/\$}$	-5.6300**	-5.6300
	(2.7770)	(3.7679)
FC Cash Ratio$\times\Delta E_{KRW/\$}$	-0.2520***	-0.2520**
	(0.0923)	(0.1031)
Export Share $\times\Delta E_{KRW/\$}$	2.0167***	2.0167**
	(0.5938)	(0.7903)

Notes: In Column (1), robust standard errors are reported in the parentheses. In Column (2), clustered standard errors are reported in the parentheses.

Continued Table 24

Import Share$\times\Delta E_{KRW/\$}\times$Size	-0.0511	-0.0511
	(0.0379)	(0.0462)
Sale Share$\times\Delta E_{KRW/\$}\times$Size	-0.0364	-0.0364
	(0.0371)	(0.0439)
Leverage$\times\Delta E_{KRW/\$}\times$Size	0.0545	0.0545
	(0.0539)	(0.0566)
Short-term Debt Ratio$\times\Delta E_{KRW/\$}\times$Size	0.0340	0.0340
	(0.0208)	(0.0298)
Cash Ratio$\times\Delta E_{KRW/\$}\times$Size	0.3450**	0.3450
	(0.1540)	(0.2114)
FC Cash Ratio$\times\Delta E_{KRW/\$}\times$Size	0.0145***	0.0145**
	(0.0051)	(0.0057)
Export Share$\times\Delta E_{KRW/\$}\times$Size	-0.1252***	-0.1252***
	(0.0315)	(0.0438)
Import Share$\times$Size	0.0061**	0.0061
	(0.0030)	(0.0043)
Sale Share$\times$Size	-0.0418***	-0.0418***
	(0.0025)	(0.0029)
Leverage$\times$Size	-0.0243***	-0.0243***
	(0.0043)	(0.0057)
Short-term Debt Ratio$\times$Size	0.0026	0.0026
	(0.0019)	(0.0027)
Cash Ratio$\times$Size	-0.0237**	-0.0237
	(0.0112)	(0.0179)
FC Cash Ratio$\times$Size	0.0013**	0.0013**
	(0.0005)	(0.0006)
Export Share$\times$Size	-0.0061**	-0.0061
	(0.0030)	(0.0047)
Adjusted R^2	0.0110	0.0110
N	1854015.0000	1854015.0000

Notes: In Column (1), robust standard errors are reported in the parentheses. In Column (2), clustered standard errors are reported in the parentheses.