

Multi-destination Firms and the Impact of Exchange-Rate Risk on Trade

Online Appendix (Not for publication)

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Table A.1 – Alternative Measure of RER Volatility - GARCH model

Dep. Variable	Ln Export Value				Participation			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ln Bil. RER Volatility	-0.023 ^a (0.005)	0.421 ^a (0.034)			-0.006 ^a (0.002)	0.042 ^a (0.004)		
Ln GDP	0.573 ^a (0.044)	0.573 ^a (0.044)			0.181 ^a (0.023)	0.187 ^a (0.023)		
Ln Country price index	0.011 (0.013)	-0.002 (0.012)			0.018 ^a (0.005)	0.016 ^a (0.005)		
Ln Bil. RER Volatility \times Ln Nb Dest _{<i>t</i>-1}		-0.136 ^a (0.010)	-0.141 ^a (0.011)	-0.021 ^a (0.003)		-0.019 ^a (0.001)	-0.019 ^a (0.001)	-0.011 ^a (0.001)
Observations	4741129	4741129	4741129	4295078	9060561	9060561	9064209	8978037
<i>R</i> ²	0.456	0.458	0.460	0.813	0.246	0.247	0.260	0.520
Firm-year FE	X	X	X	X	X	X	X	X
Country FE	X	X			X	X		
Country-year FE			X	X			X	X
Firm-country FE				X				X

Note: In this table, RER volatility is the residual variance produced by GARCH estimation on the first-difference RER monthly levels. Robust standard errors clustered by destination-year in parentheses with ^a, ^b and ^c respectively denoting significance at the 1%, 5% and 10% levels.

Table A.2 – Alternative Measure of RER Volatility - HP filter

Dep. Variable	Ln Export Value				Participation			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ln Bil. RER Volatility	-0.022 ^a (0.008)	0.559 ^a (0.043)			-0.023 ^b (0.009)	0.040 ^a (0.012)		
Ln GDP	0.574 ^a (0.049)	0.567 ^a (0.048)			0.155 ^a (0.027)	0.159 ^a (0.028)		
Ln Country price index	0.022 (0.014)	0.005 (0.013)			0.024 ^a (0.005)	0.022 ^a (0.005)		
Ln Bil. RER Volatility × Ln Nb Dest _{t-1}		-0.185 ^a (0.013)	-0.190 ^a (0.014)	-0.029 ^a (0.004)		-0.026 ^a (0.002)	-0.027 ^a (0.002)	-0.019 ^a (0.001)
Observations	4455725	4455725	4455725	4051944	8359982	8359982	8363631	8287172
R ²	0.462	0.465	0.466	0.817	0.252	0.253	0.267	0.526
Firm-year FE	X	X	X	X	X	X	X	X
Country FE	X	X			X	X		
Country-year FE			X	X			X	X
Firm-country FE				X				X

Note: In this table, RER volatility is computed as follows. It is the standard deviation of monthly log deviation of RER levels detrended with a Hodrick-Prescott filter (following the recommendation of [Ravn and Uhlig, 2002](#) for monthly data, the smoothing parameter has been set to 129,600). Robust standard errors clustered by destination-year in parentheses with ^a, ^b and ^c respectively denoting significance at the 1%, 5% and 10% levels.

Table A.3 – Alternative Measure of Exchange-Rate Volatility - Nominal Exchange Rate (NER) Volatility

Dep. Variable	Ln Export Value				Participation			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ln Bil. NER Volatility	-0.022 ^b (0.010)	0.071 ^a (0.009)			0.002 (0.003)	-0.000 (0.006)		
Ln GDP	0.541 ^a (0.043)	0.536 ^a (0.015)			0.201 ^a (0.016)	0.201 ^a (0.016)		
Ln Country price index	0.010 (0.013)	0.010 ^b (0.005)			0.019 ^a (0.004)	0.019 ^a (0.004)		
Ln Bil. NER Volatility \times Ln Nb Dest _{t-1}		-0.028 ^a (0.003)	-0.025 ^a (0.003)	-0.008 ^a (0.003)		0.001 (0.002)	0.001 (0.002)	-0.002 ^c (0.001)
Observations	3170718	3170718	3170718	2807337	6580077	6580077	6583727	6498421
R ²	0.457	0.457	0.458	0.820	0.241	0.241	0.244	0.514
Firm-year FE	X	X	X	X	X	X	X	X
Country FE	X	X			X	X		
Country-year FE			X	X			X	X
Firm-country FE				X				X

Note: In this table, exchange-rate volatility is computed as follows. We compute the standard deviation of monthly log deviation of *nominal* exchange rates, instead of the real exchange-rate levels as we did within the paper. We exclude Euro Area observations because they exhibit zero NER volatility after 1999, which may generate a bias in the estimation. Robust standard errors are clustered by destination-year in parentheses with ^a, ^b and ^c respectively denoting significance at the 1%, 5% and 10% levels.

Table B.1 – Extended Sample

Dep. Variable Sample	Ln Export Value							
	Whole				Non-Euro			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ln Bil. RER Volatility	-0.029 ^a (0.008)	0.493 ^a (0.037)			-0.028 ^a (0.009)	0.223 ^a (0.043)		
Ln Country price index	0.024 ^c (0.013)	0.007 (0.012)			0.010 (0.012)	0.007 (0.012)		
Ln GDP	0.532 ^a (0.042)	0.533 ^a (0.042)			0.512 ^a (0.038)	0.511 ^a (0.038)		
Ln Bil. RER Volatility × Ln Nb Dest _{<i>t</i>-1}		-0.171 ^a (0.012)	-0.174 ^a (0.012)	-0.028 ^a (0.003)		-0.080 ^a (0.014)	-0.081 ^a (0.015)	-0.014 ^a (0.004)
Observations	6050087	5849111	5851012	5284716	4428066	4278557	4280459	3765401
<i>R</i> ²	0.476	0.473	0.475	0.814	0.469	0.464	0.466	0.815
Firm-year FE	X	X	X	X	X	X	X	X
Country FE	X	X			X	X		
Country-year FE			X	X			X	X
Firm-country FE				X				X

Note: This Table report estimates based only on French customs dataset, i.e., unconstrained by the availability of indicators based on BRN data. Robust standard errors are clustered by destination-year in parentheses with ^a, ^b and ^c respectively denoting significance at the 1%, 5% and 10% levels.

Table B.2 – Sample excluding Intermediate Goods

Dep. Variable Sample	Ln Export Value							
	Whole Sample			Non-Euro Destinations				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ln Bil. RER Volatility	-0.030 ^a (0.009)	0.446 ^a (0.035)			-0.032 ^a (0.010)	0.244 ^a (0.042)		
Ln Country price index	0.026 (0.016)	0.012 (0.015)			0.012 (0.016)	0.011 (0.015)		
Ln GDP	0.585 ^a (0.051)	0.583 ^a (0.051)			0.560 ^a (0.044)	0.549 ^a (0.044)		
Ln Bil. RER Volatility × Ln Nb Dest _{t-1}		-0.149 ^a (0.010)	-0.151 ^a (0.011)	-0.025 ^a (0.004)		-0.084 ^a (0.013)	-0.084 ^a (0.014)	-0.010 ^b (0.004)
Observations	3275475	3275475	3275475	3269439	2296192	2296192	2296192	2264628
R ²	0.507	0.509	0.511	0.820	0.499	0.500	0.501	0.820
Firm-year FE	X	X	X	X	X	X	X	X
Country FE	X	X			X	X		
Country-year FE			X	X			X	X
Firm-country FE				X				X

Note: In this table, estimates are performed on a sample excluding intermediate goods using the Broad Economics Categories classification. It could indeed be argued that exports of intermediates should not react to RER volatility in their destination of exports, but to greater RER volatility in destinations' exports of the products for which their imports are used to produce. Robust standard errors are clustered by destination-year in parentheses with ^a, ^b and ^c respectively denoting significance at the 1%, 5% and 10% levels.

Table B.3 – Sample restricted to Multinational Firms

Dep. Variable	Ln Export Value				Participation			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ln Bil. RER Volatility	-0.038 ^a (0.009)	0.798 ^a (0.056)			-0.022 ^a (0.006)	0.013 (0.009)		
Ln GDP	0.835 ^a (0.045)	0.827 ^a (0.045)			0.194 ^a (0.023)	0.198 ^a (0.023)		
Ln Country price index	0.023 (0.017)	0.014 (0.017)			0.016 ^a (0.005)	0.014 ^a (0.005)		
Ln Bil. RER Volatility × Ln Nb Dest _{t-1}		-0.222 ^a (0.015)	-0.225 ^a (0.015)	-0.030 ^a (0.009)		-0.012 ^a (0.001)	-0.012 ^a (0.002)	-0.018 ^a (0.001)
Observations	713629	713629	713629	683230	1164658	1164658	1164658	1162928
<i>R</i> ²	0.446	0.449	0.452	0.804	0.239	0.239	0.251	0.517
Firm-year FE	X	X	X	X	X	X	X	X
Country FE	X	X			X	X		
Country-year FE			X	X			X	X
Firm-country FE				X				X

Note: In this table, we run our main estimation on a sample made only of firms affiliated to a business group or to a multinational corporation, identified with the LIFI (“Liaisons Financières Internationales”, provided by Bureau Van Dijk) dataset. Robust standard errors are clustered by destination-year in parentheses with ^a, ^b and ^c respectively denoting significance at the 1%, 5% and 10% levels.

Table B.4 – Sample excluding Multinational Firms

Dep. Variable	Ln Export Value				Participation			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ln Bil. RER Volatility	-0.022 ^a (0.008)	0.507 ^a (0.038)			-0.023 ^a (0.008)	0.044 ^a (0.011)		
Ln GDP	0.543 ^a (0.043)	0.531 ^a (0.042)			0.174 ^a (0.025)	0.177 ^a (0.025)		
Ln Country price index	0.004 (0.012)	-0.009 (0.012)			0.017 ^a (0.005)	0.016 ^a (0.005)		
Ln Bil. RER Volatility × Ln Nb Dest _{t-1}		-0.175 ^a (0.012)	-0.179 ^a (0.012)	-0.031 ^a (0.004)		-0.029 ^a (0.002)	-0.030 ^a (0.002)	-0.020 ^a (0.001)
Observations	4044873	4044873	4044873	3627208	7923086	7923086	7925986	7845008
R^2	0.446	0.448	0.450	0.810	0.247	0.249	0.262	0.520
Firm-year FE	X	X	X	X	X	X	X	X
Country FE	X	X			X	X		
Country-year FE			X	X			X	X
Firm-country FE				X				X

Note: In this table, we run our main estimation on a sample excluding firms affiliated to a business group or to a multinational corporation, identified with the LIFI (“Liaisons Financières Internationales”, provided by Bureau Van Dijk) dataset. Robust standard errors are clustered by destination-year in parentheses with ^a, ^b and ^c respectively denoting significance at the 1%, 5% and 10% levels.

Table B.5 – Sample restricted to OECD Countries only

Dep. Variable	Ln Export Value				Participation			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ln Bil. RER Volatility	-0.022 ^c (0.012)	0.373 ^a (0.052)			-0.028 ^c (0.015)	0.001 (0.019)		
Ln GDP	0.887 ^a (0.118)	0.858 ^a (0.118)			0.146 (0.094)	0.149 (0.094)		
Ln Country price index	0.099 ^a (0.038)	0.068 ^c (0.036)			0.086 ^a (0.023)	0.084 ^a (0.023)		
Ln Bil. RER Volatility × Ln Nb Dest _{t-1}		-0.130 ^a (0.017)	-0.133 ^a (0.017)	-0.021 ^a (0.005)		-0.013 ^a (0.002)	-0.014 ^a (0.002)	-0.016 ^a (0.001)
Observations	2722218	2722218	2722218	2552093	4205836	4205836	4205836	4164161
R^2	0.530	0.531	0.531	0.838	0.328	0.328	0.349	0.591
Firm-year FE	X	X	X	X	X	X	X	X
Country FE	X	X			X	X		
Country-year FE			X	X			X	X
Firm-country FE				X				X

Note: This table reports estimates from regressions performed only on destinations belonging to the OECD. Robust standard errors are clustered by destination-year in parentheses with ^a, ^b and ^c respectively denoting significance at the 1%, 5% and 10% levels.

Table B.6 – Sample excluding BRICS

Dep. Variable	Ln Export Value				Participation			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ln Bil. RER Volatility	-0.023 ^a (0.008)	0.591 ^a (0.044)			-0.025 ^a (0.009)	0.041 ^a (0.012)		
Ln GDP	0.518 ^a (0.047)	0.507 ^a (0.046)			0.153 ^a (0.027)	0.156 ^a (0.027)		
Ln Country price index	0.016 (0.012)	-0.001 (0.012)			0.019 ^a (0.005)	0.017 ^a (0.005)		
Ln Bil. RER Volatility × Ln Nb Dest _{t-1}		-0.196 ^a (0.013)	-0.200 ^a (0.014)	-0.031 ^a (0.004)		-0.027 ^a (0.002)	-0.029 ^a (0.002)	-0.020 ^a (0.001)
Observations	4538877	4538877	4538877	4117148	8577533	8577533	8581181	8501566
R^2	0.459	0.462	0.463	0.816	0.250	0.252	0.265	0.524
Firm-year FE	X	X	X	X	X	X	X	X
Country FE	X	X			X	X		
Country-year FE			X	X			X	X
Firm-country FE				X				X

Note: This table reports estimates from regressions performed on a sample excluding BRICS countries. Robust standard errors are clustered by destination-year in parentheses with ^a, ^b and ^c respectively denoting significance at the 1%, 5% and 10% levels.

Table B.7 – Sample excluding Top Growth Countries

Dep. Variable	Ln Export Value				Participation			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ln Bil. RER Volatility	-0.026 ^a (0.009)	0.469 ^a (0.050)			-0.010 ^a (0.003)	0.054 ^a (0.005)		
Ln GDP	0.625 ^a (0.065)	0.612 ^a (0.063)			0.251 ^a (0.015)	0.255 ^a (0.015)		
Ln Country price index	0.017 (0.017)	0.004 (0.016)			0.014 ^a (0.004)	0.013 ^a (0.004)		
Ln Bil. RER Volatility × Ln Nb Dest _{t-1}		-0.155 ^a (0.015)	-0.157 ^a (0.016)	-0.023 ^a (0.005)		-0.027 ^a (0.002)	-0.027 ^a (0.002)	-0.018 ^a (0.001)
Observations	3346621	3346621	3346621	2983602	6813372	6813372	6815473	6732086
<i>R</i> ²	0.466	0.468	0.469	0.823	0.253	0.254	0.257	0.531
Firm-year FE	X	X	X	X	X	X	X	X
Country FE	X	X			X	X		
Country-year FE			X	X			X	X
Firm-country FE				X				X

Note: Robust standard errors are clustered by destination-year in parentheses with ^a, ^b and ^c respectively denoting significance at the 1%, 5% and 10% levels. This table reports estimates based on a sample excluding the top 25% of GDP growth distribution observations. Together with Tables B.5 and B.6, it supports that self-selection into fast-growing markets is not biasing our results.

Table B.8 – Participation: Sample excluding Destinations outside EA

Dep. Variable	Participation					
	(1)	(2)	(3)	(4)	(5)	(6)
Ln Bil. RER Volatility	-0.010 ^a (0.003)	0.021 ^a (0.006)				
Ln Country price index	0.012 ^a (0.004)	0.012 ^a (0.004)				
Ln GDP	0.214 ^a (0.014)	0.214 ^a (0.014)				
Ln Bil. RER Volatility × Ln Nb Dest _{t-1}		-0.013 ^a (0.003)	-0.013 ^a (0.003)	-0.017 ^a (0.003)	-0.009 ^a (0.001)	-0.010 ^a (0.001)
Ln Bil. RER Volatility × Ln Assets _{t-1}				0.004 ^a (0.000)		0.001 ^b (0.000)
Observations	7330040	7330040	7333689	7333689	7241928	7241928
R ²	0.235	0.235	0.239	0.239	0.506	0.506
Firm-year FE	X	X	X	X	X	X
Country-year FE			X	X	X	X
Firm-country FE					X	X
Country FE	X	X				

Note: Robust standard errors in parentheses with ^a, ^b and ^c respectively denoting significance at the 1%, 5% and 10% levels. All standard errors are clustered at the country-year level.

Table C.1 – Impact of RER Volatility on Export Volumes

Dep. Variable Sample	Ln Export Volume							
	Whole				Non-Euro			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ln Bil. RER Volatility	-0.016 ^c (0.009)	0.465 ^a (0.041)			-0.024 ^b (0.010)	0.158 ^a (0.051)		
Ln Country price index	-0.010 (0.014)	-0.025 ^c (0.014)			-0.012 (0.014)	-0.013 (0.014)		
Ln GDP	0.862 ^a (0.062)	0.871 ^a (0.062)			0.847 ^a (0.070)	0.842 ^a (0.070)		
Ln Bil. RER Volatility × Ln Nb Dest _{t-1}		-0.152 ^a (0.013)	-0.156 ^a (0.013)	-0.013 ^a (0.004)		-0.057 ^a (0.016)	-0.056 ^a (0.017)	-0.008 (0.005)
Observations	4534061	4534061	4534061	4106515	3313146	3313146	3313146	2923436
R^2	0.626	0.627	0.628	0.876	0.607	0.607	0.608	0.870
Firm-year FE	X	X	X	X	X	X	X	X
Country FE	X	X			X	X		
Country-year FE			X	X			X	X
Firm-country FE				X				X

Note: This table presents the estimates of regressions in which the dependent variable is the exported quantity (instead of values in our baseline estimations). Robust standard errors are clustered by destination-year in parentheses with ^a, ^b and ^c respectively denoting significance at the 1%, 5% and 10% levels.

Table C.2 – Impact of RER Volatility on Trade Unit Values

Dep. Variable Sample	Ln Unit Value							
	Whole			Non-Euro				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ln Bil. RER Volatility	0.006 (0.007)	0.108 ^a (0.012)			0.012 ^c (0.007)	0.112 ^a (0.017)		
Ln Country price index	0.015 ^c (0.008)	0.012 (0.008)			0.008 (0.008)	0.007 (0.008)		
Ln GDP	-0.300 ^a (0.048)	-0.299 ^a (0.048)			-0.312 ^a (0.051)	-0.315 ^a (0.051)		
Ln Bil. RER Volatility × Ln Nb Dest _{t-1}		-0.032 ^a (0.003)	-0.032 ^a (0.003)	-0.017 ^a (0.002)		-0.031 ^a (0.005)	-0.031 ^a (0.005)	-0.008 ^a (0.003)
Observations	4534061	4534061	4534061	4106515	3313146	3313146	3313146	2923436
R^2	0.663	0.663	0.664	0.876	0.672	0.672	0.673	0.882
Firm-year FE	X	X	X	X	X	X	X	X
Country FE	X	X			X	X		
Country-year FE			X	X			X	X
Firm-country FE				X				X

Note: This table presents the estimates of regressions in which the dependent variable is the exported unit value. For this, we use the customs data, that provides the values and quantities at the destination-year(-product) level. Robust standard errors are clustered by destination-year in parentheses with ^a, ^b and ^c respectively denoting significance at the 1%, 5% and 10% levels.

Table C.3 – Alternative Definition of the Extensive Margin: Entry

Dep. Variable	Entry $Pr(X_{ijt} > 0 \mid X_{ijt-1} = 0)$							
	Whole				Non-Euro			
Sample	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ln Bil. RER Volatility	0.001 (0.010)				-0.012 ^a (0.004)			
Ln Country price index	0.006 ^c (0.003)				0.006 ^a (0.002)			
Ln GDP	0.150 ^a (0.020)				0.147 ^a (0.007)			
Ln Bil. RER Volatility \times Ln Nb Dest _{<i>t</i>-1}	-0.006 (0.003)	-0.008 ^a (0.001)	-0.010 ^a (0.001)	-0.010 ^a (0.001)	0.001 (0.001)	0.000 (0.002)	-0.004 ^a (0.001)	-0.005 ^a (0.001)
Ln Bil. RER Volatility \times Ln Assets _{<i>t</i>-1}		0.002 ^a (0.000)		0.001 ^c (0.000)		0.002 ^a (0.000)		0.001 (0.000)
Firm-year FE	X	X	X	X	X	X	X	X
Country FE	X	X			X	X		
Country-year FE			X	X			X	X
Firm-country FE				X				X

Note: In this table, the extensive margin of trade is defined as entry. Entry is defined as the probability of starting to export to destination j , while not being an exporter to j at $t - 1$. Robust standard errors are clustered by destination-year in parentheses with ^a, ^b and ^c respectively denoting significance at the 1%, 5% and 10% levels.

Table C.4 – Alternative Definition of the Extensive Margin: Alternative Definition of Entry

Dep. Variable	Entry 2							
	$Pr(X_{ijt} = 0 \mid X_{ijt-1} > 0, X_{ijt+1} > 0)$							
Sample	Whole				Non-Euro			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ln Bil. RER Volatility	0.008 (0.008)				-0.005 ^c (0.002)			
Ln Country price index	0.002 (0.002)				0.003 ^b (0.001)			
Ln GDP	0.090 ^a (0.017)				0.072 ^a (0.006)			
Ln Bil. RER Volatility \times Ln Nb Dest _{<i>t</i>-1}	-0.007 ^b (0.003)	-0.007 ^a (0.001)	-0.009 ^a (0.001)	-0.009 ^a (0.001)	-0.000 (0.001)	-0.001 (0.001)	-0.004 ^a (0.001)	-0.004 ^a (0.001)
Ln Bil. RER Volatility \times Ln Assets _{<i>t</i>-1}		0.001 ^a (0.000)		-0.000 (0.000)		0.001 ^a (0.000)		0.000 (0.000)
Observations	4431853	4434554	4306154	4306154	3784502	3787209	3661578	3661578
R^2	0.136	0.155	0.364	0.364	0.130	0.132	0.347	0.347
Firm-year FE	X	X	X	X	X	X	X	X
Country FE	X	X			X	X		
Country-year FE			X	X			X	X
Firm-country FE				X				X

Note: Robust standard errors are clustered by destination-year in parentheses with ^a, ^b and ^c respectively denoting significance at the 1%, 5% and 10% levels. In this table, we follow [Poncet and Mayneris \(2013\)](#) when defining the dependent variable which is now the probability of starting to export to destination j , while not being an exporter to j at $t - 1$ and still being an exporter at $t + 1$. This definition is more conservative than the one used in [Table C.3](#) insofar as it corresponds to a more definitive entry.

Table D.1 – Alternative Measures of Firm Performance - Extensive Margin

Dep. Variable	Participation								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Ln Bil. RER Volatility \times Ln Nb Dest $_{t-1}$		-0.027 ^a (0.002)	-0.019 ^a (0.001)		-0.029 ^a (0.002)	-0.020 ^a (0.001)		-0.028 ^a (0.002)	-0.019 ^a (0.001)
Ln Bil. RER Volatility \times Ln Labor Productivity $_{t-1}$	0.001 ^b (0.000)	0.004 ^a (0.000)	-0.000 (0.000)						
Ln Bil. RER Volatility \times Ln Nb Employees $_{t-1}$				-0.003 ^a (0.000)	0.003 ^a (0.000)	0.001 ^a (0.000)			
Ln Bil. RER Volatility \times Ln Capital Intensity $_{t-1}$							-0.001 ^a (0.000)	0.002 ^a (0.000)	0.002 ^a (0.000)
Observations	8707437	8707437	8621388	8966291	8966291	8882924	8333756	8333756	8245230
R^2	0.257	0.258	0.522	0.258	0.260	0.520	0.256	0.258	0.528
Firm-year FE	X	X	X	X	X	X	X	X	X
Country-year FE	X	X	X	X	X	X	X	X	X
Firm-country FE			X				X		X

Note: In this table, we introduce additional firm performance measures: apparent labor productivity (value added per employee), total firm-level employment, and capital intensity, measured as the ratio of total fixed assets to employment. All these variables are found in the BRN dataset. Robust standard errors clustered by destination-year in parentheses with ^a, ^b and ^c respectively denoting significance at the 1%, 5% and 10% levels.

Table D.2 – Alternative Measures of Firm Performance -Total Factor Productivity- Intensive Margin

Dep. Variable	Ln Export Value								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Ln Bil. RER Volatility \times Ln Nb Dest $_{t-1}$		-0.207 ^a (0.017)	-0.020 ^a (0.004)		-0.208 ^a (0.017)	-0.020 ^a (0.004)		-0.209 ^a (0.017)	-0.020 ^a (0.004)
Ln Bil RER Volat \times Ln TFP ¹ $_{t-1}$	-0.054 ^a (0.004)	-0.034 ^a (0.004)	-0.009 ^a (0.003)						
Ln Bil RER Volat \times Ln TFP ² $_{t-1}$				-0.037 ^a (0.004)	-0.020 ^a (0.004)	-0.010 ^a (0.003)			
Ln Bil RER Volat \times Ln TFP ³ $_{t-1}$							0.029 ^a (0.005)	0.028 ^a (0.005)	-0.011 ^a (0.003)
Observations	2714122	2714122	2410689	2707477	2707477	2404994	2707477	2707477	2404994
R^2	0.454	0.457	0.832	0.454	0.457	0.832	0.454	0.457	0.832
Firm-year FE	X	X	X	X	X	X	X	X	X
Country-year FE	X	X	X	X	X	X	X	X	X
Firm-country FE			X			X			X

Note: In this table, we introduce Total Factor Productivity (TFP) as an additional firm performance measure. Using BRN dataset over 1995-2001 period (for which we have all the required information to compute TFP), we estimate TFP at the firm-level total. TFP¹ denotes the estimated TFP using OLS in a specification in which the value added is solely determined by employment. TFP² is the estimated TFP using OLS in a specification in which the value added is determined by employment and total fixed assets. TFP³ is the estimated TFP using OLS in a specification in which the value added is determined by employment and total fixed assets, under the assumption of constant returns to scale. Robust standard errors clustered by destination-year in parentheses with ^a, ^b and ^c respectively denoting significance at the 1%, 5% and 10% levels.

Table D.3 – Alternative Measures of Firm Performance -Total Factor Productivity- Extensive Margin

Dep. Variable	Participation								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Ln Bil. RER Volatility \times Ln Nb Dest $_{t-1}$		-0.025 ^a (0.002)	-0.014 ^a (0.001)		-0.025 ^a (0.002)	-0.014 ^a (0.001)		-0.025 ^a (0.002)	-0.014 ^a (0.001)
Ln Bil RER Volat \times Ln TFP ¹ $_{t-1}$	0.001 ^c (0.001)	0.002 ^a (0.001)	-0.000 (0.001)						
Ln Bil RER Volat \times Ln TFP ² $_{t-1}$				0.000 (0.001)	0.001 ^b (0.001)	-0.001 (0.001)			
Ln Bil RER Volat \times Ln TFP ³ $_{t-1}$							0.002 ^a (0.001)	0.001 (0.001)	-0.001 ^b (0.001)
Observations	5071839	5071839	4976159	5060542	5060542	4965022	5060542	5060542	4965022
R^2	0.256	0.257	0.568	0.256	0.257	0.568	0.256	0.257	0.568
Firm-year FE	X	X	X	X	X	X	X	X	X
Country-year FE	X	X	X	X	X	X	X	X	X
Firm-country FE			X			X			X

Note: In this table, we introduce Total Factor Productivity (TFP) as an additional firm performance measure. Using BRN dataset over 1995-2001 period (for which we have all the required information to compute TFP), we estimate TFP at the firm-level total. TFP¹ denotes the estimated TFP using OLS in a specification in which the value added is solely determined by employment. TFP² is the estimated TFP using OLS in a specification in which the value added is determined by employment and total fixed assets. TFP³ is the estimated TFP using OLS in a specification in which the value added is determined by employment and total fixed assets, under the assumption of constant returns to scale. Robust standard errors clustered by destination-year in parentheses with ^a, ^b and ^c respectively denoting significance at the 1%, 5% and 10% levels.

Table E.1 – Endogeneity: IV- 2SLS Estimations

Stage	Second Stage			
Dep. Variable	Ln Export Value	Participation		
	(1)	(2)	(3)	(4)
Ln Bil. RER Volatility \times Ln Nb Dest $_{t-1}$	-0.229 ^a (0.019)	-0.122 ^a (0.032)	-0.025 ^a (0.002)	-0.033 ^a (0.003)
R^2	0.509	0.867	0.240	0.552

Stage	First Stage			
Dep. Variable	Ln. Bil. RER Volatility \times Nb. Dest $_{t-1}$			
	(1)	(2)	(3)	(4)
Ln. Bil. RER Volatility \times Ln Nb. Dest $_{t-2}$	0.622 ^a (0.026)	0.132 ^a (0.032)	0.584 ^a (0.021)	0.276 ^a (0.020)
Ln. Bil. RER Volatility \times Ln Nb. Dest $_{t-3}$	0.299 ^a (0.024)	0.104 ^a (0.021)	0.281 ^a (0.018)	0.100 ^a (0.016)
Observations	2254151	2254151	6400535	6400535
R^2	0.760	0.040	0.240	0.099
Hansen stat.	0.024	5.988	0.896	0.194
p-value	0.875	0.014	0.343	0.659
Kleibergen-Paap stat.	1565.83	26.25	1663.31	146.414
Firm-country FE		X		X

Note: Robust clustered standard errors in parentheses with ^a, ^b and ^c respectively denoting significance at the 1%, 5% and 10% levels. All standard errors are clustered at the country-year level. All estimations include firm-year and country-year fixed effects. The interaction term (Ln. Bil. RER Volatility \times Nb. Dest $_{t-1}$) is instrumented by its first two lags (Ln. Bil. RER Volatility \times Nb. Dest $_{t-2}$ and Ln. Bil. RER Volatility \times Nb. Dest $_{t-3}$). The first-stage results are displayed in the bottom panel of the table, while second-stage results are presented in the top panel.

Table F.1 – Omitted: RER Level

Dep. Variable	Ln Export Value				Participation			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ln Bil. RER Volatility	-0.021 ^a (0.008)	0.374 ^a (0.037)			-0.021 ^b (0.008)	0.022 ^c (0.011)		
Ln GDP	0.516 ^a (0.043)	0.528 ^a (0.041)			0.164 ^a (0.024)	0.169 ^a (0.024)		
Ln Country price index	-0.052 ^a (0.014)	-0.061 ^a (0.014)			0.002 (0.007)	-0.000 (0.007)		
Ln Bil. RER level	0.227 ^a (0.030)	-0.068 ^b (0.032)			0.056 ^a (0.014)	0.030 ^b (0.014)		
Ln Bil. RER Volatility × Ln Nb Dest _{t-1}		-0.125 ^a (0.011)	-0.129 ^a (0.012)	-0.020 ^a (0.004)		-0.018 ^a (0.002)	-0.019 ^a (0.002)	-0.015 ^a (0.001)
Ln Bil. RER level × Ln Nb Dest _{t-1}		0.081 ^a (0.004)	0.081 ^a (0.004)	0.033 ^a (0.002)		0.010 ^a (0.000)	0.010 ^a (0.000)	0.007 ^a (0.000)
Observations	4758502	4758502	4758502	4310459	9087744	9087744	9087744	9007936
R^2	0.456	0.462	0.463	0.813	0.246	0.250	0.262	0.520
Firm-year FE	X	X	X	X	X	X	X	X
Country FE	X	X			X	X		
Country-year FE			X	X			X	X
Firm-country FE				X				X

Note: Since it could be argued that our measure of RER volatility actually captures merely an (appreciation) trend, we explicitly for this trend by including RER level. As we rely on an indirect quotation, an increase in the level of the exchange rate, implying a depreciation, is expected to have a positive impact on export performance. Robust standard errors clustered by destination-year in parentheses with ^a, ^b and ^c respectively denoting significance at the 1%, 5% and 10% levels.

Table F.2 – Omitted: Quality of Political Governance

Dep. Variable	Ln Export Value				Participation			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ln Bil. RER Volatility	-0.022 ^b (0.010)	0.462 ^a (0.056)			-0.020 ^c (0.010)	0.028 ^b (0.014)		
Ln GDP	0.532 ^a (0.055)	0.538 ^a (0.054)			0.161 ^a (0.030)	0.167 ^a (0.030)		
Ln Country price index	0.012 (0.014)	-0.006 (0.014)			0.020 ^a (0.006)	0.017 ^a (0.006)		
Ln Quality of gvce - poli.	0.043 ^a (0.013)	-0.241 ^a (0.037)			0.010 (0.006)	-0.034 ^a (0.008)		
Ln Bil. RER Volatility × Ln Nb Dest _{t-1}		-0.152 ^a (0.017)	-0.154 ^a (0.018)	-0.026 ^a (0.005)		-0.019 ^a (0.002)	-0.021 ^a (0.002)	-0.016 ^a (0.001)
Ln Quality of gvce - pol. × Ln Nb. Dest _{t-1}		0.089 ^a (0.012)	0.089 ^a (0.012)	0.032 ^a (0.005)		0.018 ^a (0.002)	0.017 ^a (0.002)	0.014 ^a (0.002)
Observations	3477481	3477481	3477481	3057191	6930736	6930736	6930736	6826829
R ²	0.458	0.462	0.463	0.826	0.249	0.251	0.263	0.537
Firm-year FE	X	X	X	X	X	X	X	X
Country FE	X	X			X	X		
Country-year FE			X	X			X	X
Firm-country FE				X				X

Note: Robust standard errors clustered by destination-year in parentheses with ^a, ^b and ^c respectively denoting significance at the 1%, 5% and 10% levels. This table presents the estimates controlling for the country-specific quality of governance indicator. We use the “Political Stability Estimate” variable from the Worldwide Governance Indicators dataset on institutional quality to control for country-specific risks in our specification (Kaufmann et al., 2010). This variable is an inverse measure of risks: an increase in the value of political stability is associated with a decrease in the risks associated with export activity in the country.

Table F.3 – Omitted: Quality of Economic Governance

Dep. Variable	Ln Export Value				Participation			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ln Bil. RER Volatility	-0.022 ^a (0.008)	0.505 ^a (0.053)			-0.021 ^b (0.009)	0.018 (0.012)		
Ln GDP	0.552 ^a (0.043)	0.453 ^a (0.057)			0.160 ^a (0.023)	0.169 ^a (0.023)		
Ln Country price index	0.013 (0.013)	-0.008 (0.014)			0.018 ^a (0.005)	0.014 ^a (0.005)		
Ln Quality of gvce - econ.	0.233 ^a (0.086)	0.043 (0.115)			0.153 ^a (0.043)	-0.289 ^a (0.045)		
Ln Bil. RER Volatility × Ln Nb Dest _{t-1}		-0.166 ^a (0.016)	-0.154 ^a (0.018)	-0.026 ^a (0.005)		-0.016 ^a (0.002)	-0.017 ^a (0.002)	-0.015 ^a (0.001)
Ln Quality of gvce - econ. × Ln Nb Dest _{t-1}		0.046 ^a (0.006)	0.089 ^a (0.012)	0.032 ^a (0.005)		0.179 ^a (0.007)	0.176 ^a (0.008)	0.118 ^a (0.008)
Observations	3477481	3477481	3477481	3057191	8800210	8800210	8800210	8722951
R ²	0.459	0.461	0.463	0.826	0.248	0.252	0.265	0.522
Firm-year FE	X	X	X	X	X	X	X	X
Country FE	X	X			X	X		
Country-year FE			X	X			X	X
Firm-country FE				X				X

Note: In this table, we include a ‘Quality of economic governance’ indicator using the ‘Control of Corruption’ estimates from the Worldwide Governance Indicators dataset on institutional quality to control for country-specific risks in our specification (Kaufmann et al., 2010). Robust standard errors clustered by destination-year in parentheses with ^a, ^b and ^c respectively denoting significance at the 1%, 5% and 10% levels.

Table F.4 – Omitted: Real Market Potential

Dep. Variable	Ln Export Value				Participation			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ln Bil. RER Volatility	-0.026 ^a (0.008)	0.354 ^a (0.050)			-0.030 ^a (0.012)	0.007 (0.016)		
Ln GDP	0.725 ^a (0.083)	0.699 ^a (0.086)			0.083 ^c (0.047)	0.085 ^c (0.046)		
Ln Country price index	-0.007 (0.017)	-0.020 (0.016)			-0.001 (0.005)	-0.003 (0.005)		
ln RMP (HM04)	0.126 ^a (0.030)	-0.327 ^a (0.036)			0.066 ^a (0.019)	0.025 (0.021)		
Ln Bil. RER Volatility × Ln Nb Dest _{t-1}		-0.121 ^a (0.016)	-0.124 ^a (0.017)	-0.009 ^b (0.004)		-0.016 ^a (0.003)	-0.018 ^a (0.002)	-0.012 ^a (0.001)
ln RMP (HM04) × Ln Nb Dest _{t-1}		0.132 ^a (0.009)	0.132 ^a (0.009)	0.031 ^a (0.004)		0.016 ^a (0.001)	0.015 ^a (0.002)	0.009 ^a (0.001)
Observations	2733331	2733331	2733331	2402459	5121959	5121959	5122361	5025076
R ²	0.457	0.465	0.465	0.840	0.244	0.247	0.263	0.583
Firm-year FE	X	X	X	X	X	X	X	X
Country FE	X	X			X	X		
Country-year FE			X	X			X	X
Firm-country FE				X				X

Note: In this table, we include the estimated Real Market Potential (*RMP*) from [Head and Mayer \(2004\)](#) to control for country-specific export opportunities. Robust standard errors clustered by destination-year in parentheses with ^a, ^b and ^c respectively denoting significance at the 1%, 5% and 10% levels.

Table F.5 – Omitted: Financial Hedging Behavior

Dep. Variable	Ln Export Value				Participation			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ln Bil. RER Volatility \times Ln Nb Dest $_{t-1}$	-0.197 ^a (0.014)	-0.028 ^a (0.004)	-0.198 ^a (0.014)	-0.029 ^a (0.004)	-0.027 ^a (0.002)	-0.019 ^a (0.001)	-0.025 ^a (0.002)	-0.018 ^a (0.001)
Ln Bil. RER Volatility \times Ln WC ratio $_{t-1}$	0.036 ^a (0.003)	-0.003 ^b (0.001)			-0.001 ^a (0.000)	-0.002 ^a (0.000)		
Ln Bil. RER Volatility \times Ln STD ratio $_{t-1}$			-0.001 (0.001)	0.002 ^b (0.001)			0.002 ^a (0.000)	0.001 ^b (0.000)
Observations	3878346	3480307	3999750	3598511	7402711	7295073	6387198	6285518
R^2	0.457	0.820	0.457	0.819	0.257	0.534	0.244	0.545
Firm-Country FE		X		X		X		X

Note: We measure firms' financial hedging access by computing, from the BRN dataset, (i) a working-capital ratio (WC ratio), defined as working capital requirement over stable resources, and (ii) a short-term debt ratio (STD ratio), equal to short-term debt over total debt. Robust clustered standard errors in parentheses with ^a, ^b and ^c respectively denoting significance at the 1%, 5% and 10% levels. All regressions include firm-year and country-year fixed effects. All standard errors are clustered at the country-year level.

Table G.1 – Aggregate Implications: Time Series for the $\Delta\hat{X}_{jt}$ for the Top 10 Trade Partners

	Belgium	Brazil	China	Germany	Spain	UK	Italy	Japan	Netherlands	USA
1996		0.3980	0.0623	0.0876	0.4909	-0.1145	0.4169	0.3549	0.1913	0.1538
1997		-0.1920	0.0178	0.3730	0.2796	-0.1084	0.5622	-0.2758	0.3775	-0.0939
1998		0.1088	0.1869	0.1927	0.3052	0.0448	0.2783	-0.2027	-0.0475	0.1157
1999		-1.1557	0.1583	0.2187	0.3302	0.4981	0.4680	0.6041	0.0848	0.2416
2000	0.1944	0.8961	-0.4436	-0.2380	-0.0485	-0.5752	-0.0919	-0.5090	0.1242	-0.4624
2001	-0.0904	-0.2862	0.2998	0.1220	0.1465	0.2282	-0.1153	0.2511	-0.2739	0.2065
2002	0.0751	-0.4359	-0.1201	0.0273	-0.4013	0.0358	0.3303	0.4280	0.1643	-0.0157
2003	-0.0724	0.3303	-0.0475	0.0845	0.0715	0.0060	-0.2100	-0.3979	-0.0230	-0.1114
2004	-0.0490	0.3970	0.1253	-0.0623	-0.0967	0.1335	0.3711	-0.0897	-0.0123	0.1601
2005	-0.1111	-0.2050	0.1492	0.0047	0.0774	0.2161	-0.3771	0.3848	0.0740	0.1101
2006	0.3080	-0.0696	-0.1385	0.0438	0.1160	-0.2405	0.3149	0.0202	0.0802	0.0243
2007	-0.2880	0.3241	0.2166	0.0382	-0.0344	0.0100	-0.1079	-0.0308	-0.0938	0.2269
2008	0.0206	-0.3743	-0.6318	0.0032	0.1518	-0.3990	-0.0313	-0.5234	0.1218	-0.7354
2009	0.0430	0.3329	0.0901	0.0877	-0.1406	0.1329	0.1984	0.1223	-0.1973	0.1390

Note: This table reports the predicted changes in exports, $\Delta\hat{X}_{jt}$, for France ten major trading partners (results for all other countries are available upon request to the authors). Consistently with figures reported in columns (1) and (2) from Table 8 in the main text, Table G.1 shows large predicted variations. Note that, concerning Belgium, our extraction of French customs do not report exports until 1999.

References

- HEAD, K. AND T. MAYER (2004): “Market Potential and the Location of Japanese Investment in the European Union,” *The Review of Economics and Statistics*, 86, 959–972.
- KAUFMANN, D., A. KRAAY, AND M. MASTRUZZI (2010): “The Worldwide Governance Indicators : Methodology and Analytical Issues,” Policy Research Working Paper Series 5430, The World Bank.
- PONCET, S. AND F. MAYNERIS (2013): “French Firms Penetrating Asian Markets : Role of Export Spillovers,” *Journal of Economic Integration*, 28, 354–374.
- RAVN, M. O. AND H. UHLIG (2002): “On adjusting the Hodrick-Prescott filter for the frequency of observations,” *The Review of Economics and Statistics*, 84, 371–375.