

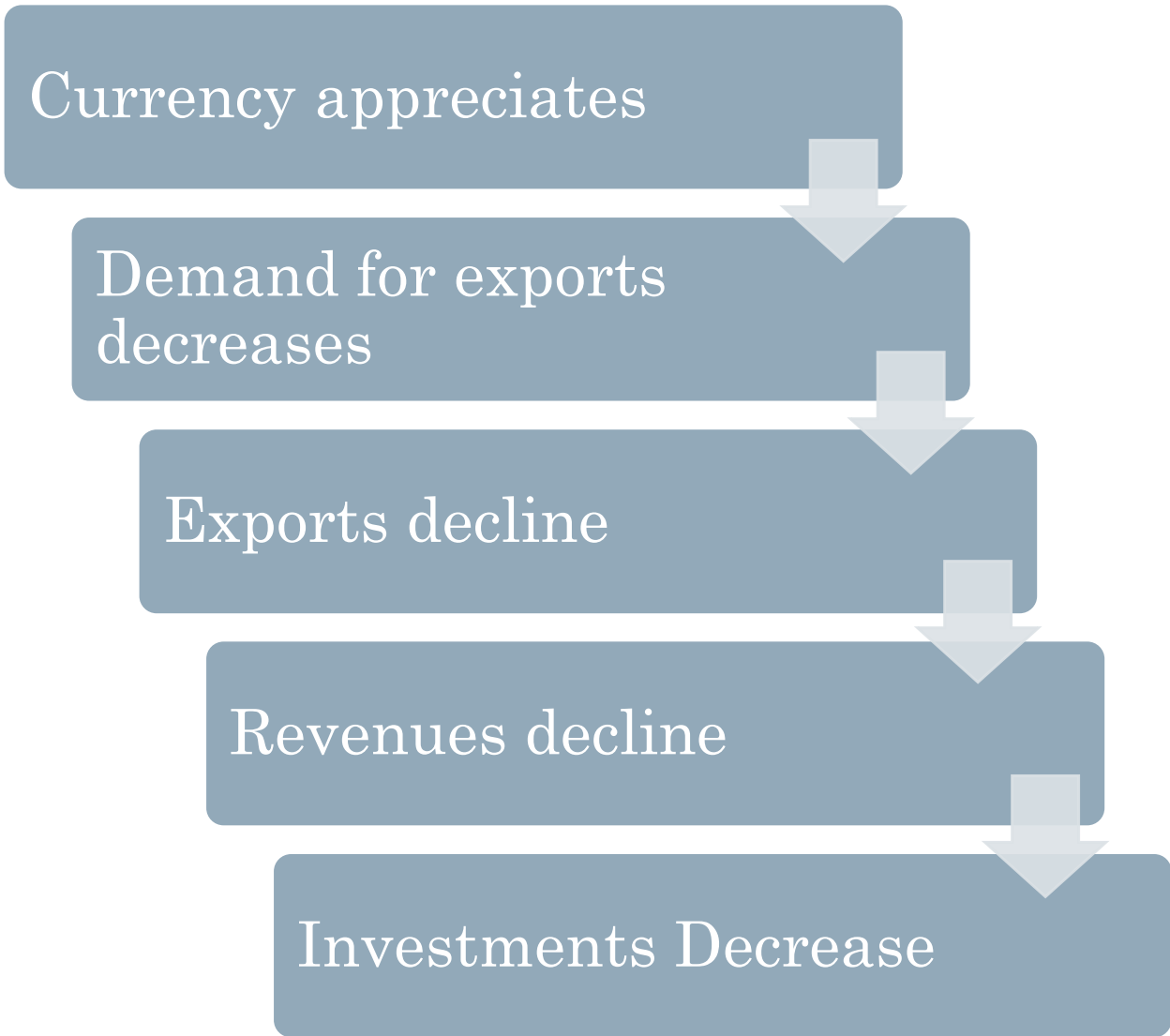
The Effects of the Exchange Rate on US Companies' Investments in 2000-2020

Gwen Lohmann

Research Advisor: Irina Khindanova

How do exchange rate movements affect US top importing and exporting companies' investments from the 2000-2020 period?

Traditional
View:
Currency
appreciation
decreases
investments



Exploration
Areas:
Currency
appreciation
could lead to
increased
investments

Currency appreciates

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graph TD; A[Currency appreciates] --> B[Imports become cheaper]; B --> C[Costs decrease]; C --> D[Profit rises]; D --> E[Investments increase];
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Imports become
cheaper

Costs decrease

Profit rises

Investments increase

Literature Review

Exchange Rate Volatility and Trade

- Cushman (2004) found that an increase in real exchange rate volatility resulted in a decrease in international trade overall.
- Kenen and Rodrik (1986) found that short-term volatility in exchange rates depressed the volume of international trade altogether.
- The Research Department of the International Monetary Fund (1998) found that only when real exchange rate volatility was included within their model did exchange rate volatility have a significantly negative affect on international trade.

An increase in exchange rate volatility is found to decrease international trade.

Literature Review Continued

Export Channel

- Bailey et al. (1986) found that exports from the Big Seven OECD countries were not significantly reduced due to nominal exchange rate volatility.
- Bailey and Tavlas (1988) found the impact of exchange rate movements had an insignificant effect on US exports, except for when real exchange rate volatility was considered

Nominal exchange rate volatility is insignificant on exports, but real exchange rate volatility has been found to have a negative effect on exports.

Literature Review Continued

Import Channel

- Arize (1995), determined that exchange rate volatility has a significant negative effect on the short-run and long-run volume of imports.
- Wong et al. (2012) found that US firms showed a weak negative linear relationship between exchange rate volatility and imports.

Exchange rate volatility has shown to have a negative effect on imports.

Guiding Papers

Mihye Lee (2017) – Korean Firms

- Considering the real effective exchange rate, the import channel is statistically significant in increasing a firms' investments when the Korean Won appreciates.

Masaki Hotei (2012) – Japanese Firms

- Investments significantly increased when the import ratio is higher and the real effective exchanger rate increased.
- Investments significantly decreased when the export ratio is higher the real effective exchange rate increased.
- An increase in previous investments will decrease current investments.

Model 2

Change in investments considering the previous 4 quarter investments, the real effective exchange rate, the market power, and the bank prime lending rate.

$$\ln Inv_{i,t} = \gamma_0 + \sum_{k=1}^4 \alpha_k \ln Inv_{i,t-k} + \beta_1 \ln REER_t (1 - mkup_{i,t}) + \beta_2 \ln RPrime_t + \alpha_i + \varepsilon_{i,t}$$

$Inv_{i,t}$: real investments for company i at time t

$REER_t$: real effective exchange rate at time t

$mkup_{i,t}$: the market power of company i at time t ,

$$mkup_{i,t} = \frac{EBIT_{i,t}}{Sales_{i,t}}$$

$RPrime_t$: the bank prime lending rate at time t

α_i : the firm fixed effect

$\varepsilon_{i,t}$: error term

Model 5

Change in importing companies' investments considering the previous 4 quarter investments, the real effective exchange rate, the market power, and the bank prime lending rate.

$$\ln ImpInv_{i,t} = \gamma_0 + \sum_{k=1}^4 \Delta_k \ln ImpInv_{i,t-k} + \beta_1 \ln REER_t^{(1 - mkup_{i,t})} + \beta_2 \ln RPrime_t + \alpha_i + \varepsilon_{i,t}$$

$ImpInv_{i,t}$: real investments of top importing public company i at time t

$REER_t$: real effective exchange rate at time t

$mkup_{i,t}$: the market power of company i at time t ,

$$mkup_{i,t} = \frac{EBIT_{i,t}}{Sales_{i,t}}$$

$RPrime_t$: the bank prime lending rate at time t

α_i : the firm fixed effect

$\varepsilon_{i,t}$: error term

Model 6

Change in exporting companies' investments considering the previous 4 quarter investments, the real effective exchange rate, the market power, and the bank prime lending rate.

$$\ln \text{ExpInv}_{i,t} = \gamma_0 + \sum_{k=1}^4 \Delta_k \ln \text{ExpInv}_{i,t-k} + \beta_1 \ln \text{REER}_t^{(1 - \text{mkup}_{i,t})} + \beta_2 \ln \text{RPrime}_t + \alpha_i + \varepsilon_{i,t}$$

$\text{ExpInv}_{i,t}$: real investments of top exporting public company i at time t

REER_t : real effective exchange rate at time t

$\text{mkup}_{i,t}$: the market power of company i at time t ,

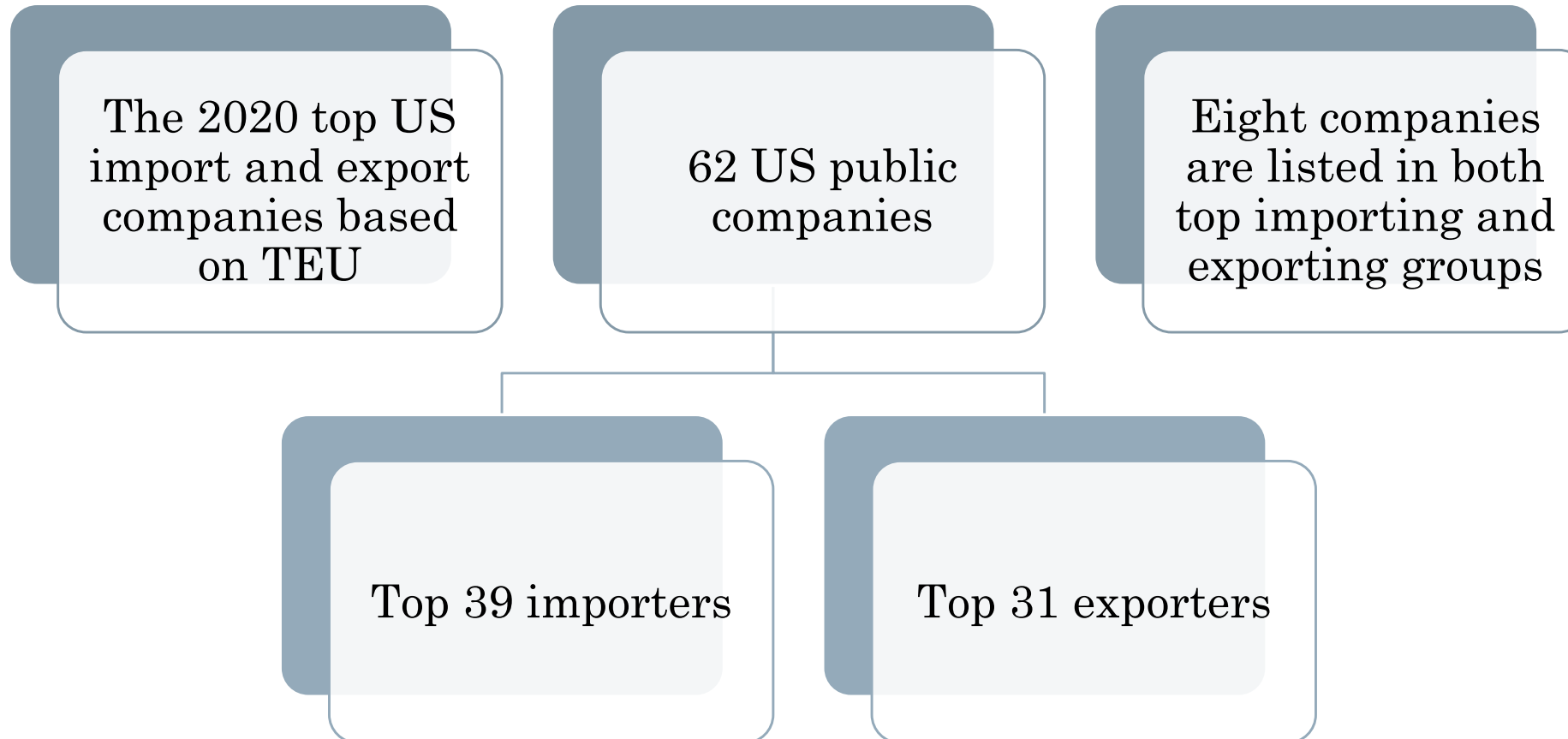
$$\text{mkup}_{i,t} = \frac{\text{EBIT}_{i,t}}{\text{Sales}_{i,t}}$$

RPrime_t : the bank prime lending rate at time t

α_i : the firm fixed effect

$\varepsilon_{i,t}$: error term

The Companies



The
Independent
Variable

Investments are measured as a change in property, plant, and equipment.

Real investments were calculated as investments divided by the inflation index.

Results: Entire Sample

Entire Sample		
Dependent Variable	Coeff	t-statistic
log(Inv, t-1)	-0.1751***	-10.4045
log(Inv, t-2)	-0.1100***	-14.7069
log(Inv, t-3)	-0.0480***	-6.7531
log(Inv, t-4)	0.1674***	32.1806
log(REER)*(1-(Mkup, t-1))	-0.0938	-1.2413
log(RPrime)	0.1261***	3.7687
Number of observations	711	
J-statistic	48.2691	
Prob(J-statistic)	0.2684	
Note		
***, **, * indicate the significance respectively to 1%, 5%, 10%		

Results: Exporters

Exporters		
Dependent Variable	Coeff	t-statistic
log(Inv, t-1)	-0.0969**	-2.3406
log(Inv, t-2)	-0.0303	-1.0106
log(Inv, t-3)	-0.0605**	-2.0263
log(Inv, t-4)		
log(REER)*(1-(Mkup, t-1))	-0.1517	-0.4770
log(RPrime)	-0.5221***	-6.5550
Number of observations	464	
J-statistic	18.8137	
Prob(J-statistic)	0.4688	
Note		
***, **, * indicate the significance respectively to 1%, 5%, 10%		

Results: Importers

Importers		
Dependent Variable	Coeff	t-statistic
log(Inv, t-1)	-0.0204***	-3.7884
log(Inv, t-2)	-0.0234	-1.2017
log(Inv, t-3)	0.1073***	8.4392
log(Inv, t-4)	0.1317***	5.1140
log(REER)*(1-(Mkup, t-1))	0.2804***	8.2429
log(RPrime)	0.7160***	37.1648
Number of observations	477	
J-statistic	26.3060	
Prob(J-statistic)	0.3914	
Note		
***, **, * indicate the significance respectively to 1%, 5%, 10%		

Results: Domestic Exporters

Domestic Exporters		
Dependent Variable	Coeff	t-statistic
log(Inv, t-1)	-0.31227***	-3.0915
log(Inv, t-2)	-0.1639**	-2.3660
log(REER)*(1-(Mkup, t-1))	-1.2611	-1.0122
log(RPrime)	0.4365**	2.2974
Number of observations	450	
J-statistic	19.87894	
Prob(J-statistic)	0.280468	
Note		
***, **, * indicate the significance respectively to 1%, 5%, 10%		

Results: Domestic Importers

Domestic Importers		
Dependent Variable	Coeff	t-statistic
log(Inv, t-1)	-0.2041***	-10.1371
log(Inv, t-2)	-0.1714***	-9.2568
log(REER)*(1-(Mkup, t-1))	0.5978*	18.4237
log(RPrime)	0.8752***	0.3626
Number of observations	564	
J-statistic	18.42368	
Prob(J-statistic)	0.362596	
Note		
***, **, * indicate the significance respectively to 1%, 5%, 10%		

Foreign Subsidiary Importers

Foreign Subsidiary Importers		
Dependent Variable	Coeff	t-statistic
log(Inv, t-1)	-0.1134**	-2.2050
log(Inv, t-2)	-0.0931***	-2.6077
log(REER)*(1-(Mkup, t-1))	-0.9662**	-2.2667
log(RPrime)	0.2456	1.4701
Number of observations	220	
J-statistic	13.20553	
Prob(J-statistic)	0.432064	
Note		
***, **, * indicate the significance respectively to 1%, 5%, 10%		

Findings

Importers vs Exporters

- When the USD appreciates, top US importing companies will increase their investments

Domesticity

- Importing companies headquartered in the US will increase their investments when the USD appreciates
- Importing foreign subsidiaries reduce their investments when the USD appreciates

Findings Continued

Previous Investments

- Typically, when a company has invested in the previous 4 quarters, their current investments will be negatively affected

Bank Prime Lending Rate

- Has a strong affect on both US importing and US exporting top companies' investments
 - Exception: foreign subsidiary importing companies

Future Research

- This study helps further understand US companies' investment decisions
- Future research directions:
 - Attain a larger sample size
 - Include company industry information

Thank you

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