

# **Carry Trades and Precautionary Saving: The Use of Proceeds from Foreign Currency Debt Issuance**

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⇒ **contractionary** depreciation
- Therefore, the **currency denomination** of corporate liabilities can matter for the financial and macroeconomic consequence of exchange rate fluctuations.  
Salomao and Varela (2022)
- However, the effect of \$ liabilities depends a lot on **how firms use their proceeds from \$ debt issuance**.

What firms do with their foreign currency borrowing?

- The recent literature points to **“carry trade” activities** of firms when borrowing in \$.
- Firms **borrow in USD** but **deposit in their own local currency (LC)**:  
Bruno & Shin (2017), Huang, Panizza, & Portes (2020), Acharya & Vij (2020), Hardy & Saffie (2022)

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- Conjecture from **observing**  $\uparrow$  **liquid assets** (cash or its equivalents, account receivables, ...) after \$ debt issuance

## What our paper does to fill the gap

- Fill the gap in the literature by introducing a Korean firm-level dataset with 23,000 firms
- Only 10% are listed firms, and many are private small/medium-sized firms  
regulatory requirements for assets > \$ 9 mn in 2018 (at the current FX rate)

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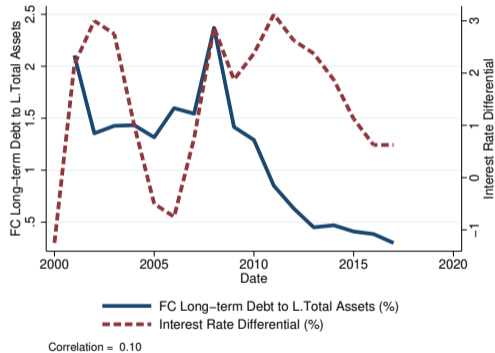
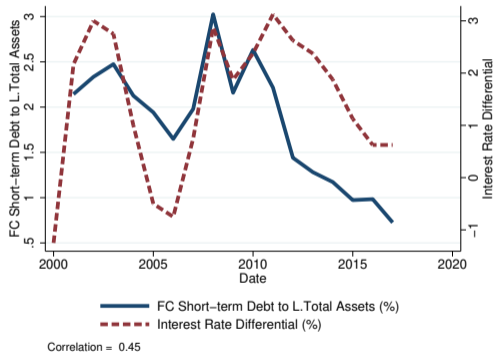
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- **Currency x Maturity x Instrument** information about **both assets and liabilities**
- That is, we can see if **local currency (LC) or foreign currency (FC) liquid assets of different instruments** have increased after \$ debt issuance

# Motivation: Aggregate FC Debt in the Corporate Sector & Interest Rate Differential, $i^{KRW} - i^{USD}$

The aggregate FC short-term debt is  $\uparrow$  when  $i^{KRW} - i^{USD} \uparrow$ .

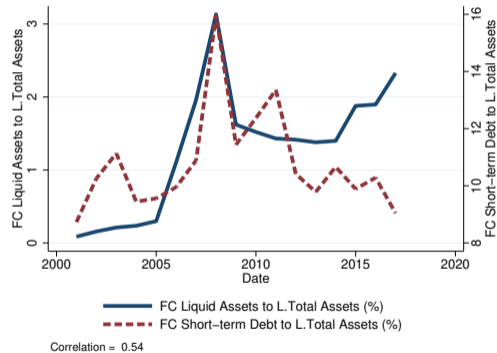
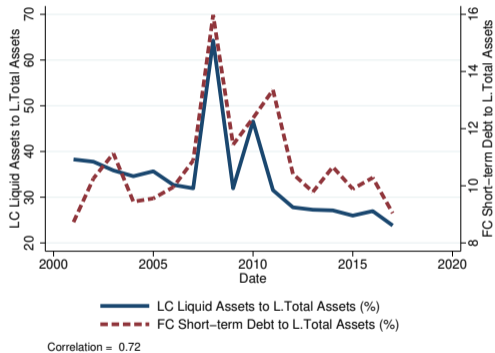


▸ Total Assets

▸ LC Debt?

# Motivation: Average Firm-Level FC Debt & Liquid Assets

On average, firms that borrow more in FC ST debt seem to hold:  $\uparrow$  LC liquid assets,  $\uparrow$  FC liquid assets



- **Currency denomination of firms' debt issuance**

- **Natural hedging**

- Kedia & Mozumdar (2003), Jiao, Kwon & Roh (2021), Colacito, Qian & Stathopoulos (2022)

- **Carry trade**

- Bruno & Shin (2017), Huang, Panizza & Portes (2020), Acharya & Vij (2020), Hardy & Saffie (2022)

- **UIP Deviation**

- Baskaya, di Giovanni, Kalemli-Ozcan, Peydro & Ulu (2017), Salomao & Varela (2022)

- **Corporate cash holdings:**

- **International financial market & corporate cash holdings:**

- Opler, Pinkowitz, Stulz & Williamson (1999), Graham & Harvey (2001), Bates, Kahle & Stulz (2009)

- **Uncertainty & cash hoarding:**

- Arellano et al. (2019), Xiao (2020)

- **Corporate leverage & macro/financial market stability:**

- **Macroeconomic consequences of FC debt:**

- Aguiar (2005), Dominguez & Tesar (2006), Bleakley & Cowan (2008), Kim, Tesar & Zhang (2015), Kalemli-Ozcan, Kamil & Villegas-Sanchez (2016), Kim & Lee (2022), Wu (2021)

- **International market spillover to domestic market:**

- McCauley, McGuire & Sushko (2015), Chui, Kuruc & Turner (2016), Alfaro, Asis, Chari & Panizza (2017). Alfaro, Asis, Chari & Panizza (2019), Abraham, Cortina Lorente & Schmukler (2020), Kalemli-Ozcan, Liu & Shim (2021), Di Giovanni, Kalemli-Ozcan, Ulu & Baskaya (2021)



**Data**

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## KISVALUE dataset of firm-level B/S data

- Contains a rich set of B/S items of 23,000 firms in 2001–2017

1. **currency composition & maturity of their debt & assets:**

foreign currency vs. domestic currency, short-term vs. long-term [▶ FC Debt Summary Stats](#)

2. not only large listed but small and medium-sized **non-listed** non-financial firms.

# of listed firms  $\approx$  2000

3. A wide range of B/S items

- Representative dataset:

1. The average coverage ratios are above 60% for the variables of interests<sup>1</sup>

Cash	ST Debt	LT Debt	AR	Total Assets	Sales
62.8	68.1	78.4	65.2	65.3	62.2

2. The dynamics of these variables are fairly close to the aggregate counterparts from BoK. [▶ Dynamics](#)

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<sup>1</sup>The coverage ratios are computed as the ratio of KISVALLUE aggregates across firms to the aggregate data from BoK in the same year

**Empirical Analysis:  
Carry Trade & Precautionary Saving**

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## Carry Trade Motives Behind Issuing FC Debt?

$$\frac{\text{LC Liquid Assets}_{i,t}}{TA_{i,t-1}} = \beta_1 \frac{\text{FC ST Debt}_{i,t}}{TA_{i,t-1}} + \beta_2 \frac{\text{FC LT Debt}_{i,t}}{TA_{i,t-1}} + \beta_3 \frac{\text{ST Debt}_{i,t}}{TA_{i,t-1}} + \beta_4 \frac{\text{LT Debt}_{i,t}}{TA_{i,t-1}} + \gamma_1 \frac{OS_{i,t}}{TA_{i,t-1}} + \gamma_2 \ln TA_{i,t-1} + \alpha + \alpha_c + \alpha_t + \epsilon_{i,t}$$

- **LC Liquid Assets** include:
  - (i) Total LC liquid assets
  - (ii) LC cash & cash equivalents (Cash)
  - (iii) LC short-term financial instruments (ST FI)
  - (iv) LC accounts receivables (AR)
- Control for other sources of income following Bruno & Shin (2017)
- **Key addition** is that we see the currency denomination of liquid assets

## Firms Borrow in ST FC Debt & Engage in Carry Trades

- **FC short-term debt**  $\uparrow$  LC liquid assets  $\uparrow$ , in support of **carry trade** hypothesis

	LC ST Assets =	LC Cash +	LC ST FI +	LC AR
FC ST Debt	0.145*** (0.027)	0.075*** (0.011)	0.093*** (0.008)	-0.009 (0.021)
FC LT Debt	-0.088*** (0.019)	-0.007 (0.007)	0.004 (0.007)	-0.090*** (0.014)
ST Debt	-0.137*** (0.013)	-0.064*** (0.006)	-0.043*** (0.003)	-0.035*** (0.010)
LT Debt	-0.171*** (0.026)	-0.033*** (0.008)	-0.037*** (0.003)	-0.111*** (0.019)
N	135317	145472	145911	134729

▶ Export/Sales

▶ GFC

## Precautionary Motive Against FX Risk When Issuing FC Debt?

$$\frac{\text{FC Liquid Assets}_{i,t}}{TA_{i,t-1}} = \beta_1 \frac{\text{FC ST Debt}_{i,t}}{TA_{i,t-1}} + \beta_2 \frac{\text{FC LT Debt}_{i,t}}{TA_{i,t-1}} + \beta_3 \frac{\text{ST Debt}_{i,t}}{TA_{i,t-1}} + \beta_4 \frac{\text{LT Debt}_{i,t}}{TA_{i,t-1}} + \gamma_1 \frac{OS_{i,t}}{TA_{i,t-1}} + \gamma_2 \ln TA_{i,t-1} + \alpha + \alpha_c + \alpha_t + \epsilon_{i,t}$$

- **FC Liquid Assets** include:
  - (i) Total FC liquid assets
  - (ii) FC cash & cash equivalents (Cash)
  - (iii) FC short-term financial instruments (ST FI)
  - (iv) FC accounts receivables (AR)
- **Key addition** is that we see the currency denomination of liquid assets

## Firms Borrow in FC Debt & Exhibit Some Precautionary Saving Against FX Risk

- **FC debt**  $\uparrow$  FC liquid assets  $\uparrow$ , engaging in **precautionary saving** against FX risk

	FC ST Assets =	FC Cash +	FC ST FI +	FC AR
FC ST Debt	0.126*** (0.018)	0.031*** (0.005)	0.004*** (0.001)	0.099*** (0.016)
FC LT Debt	0.045*** (0.012)	0.016*** (0.006)	0.003* (0.002)	0.028*** (0.006)
ST Debt	-0.004 (0.003)	-0.007*** (0.001)	-0.001** (0.000)	0.004 (0.002)
LT Debt	-0.029*** (0.005)	-0.008*** (0.001)	-0.001*** (0.000)	-0.020*** (0.003)
N	145915	146021	146026	145955

## Further Identification w/ LT FC Debt Maturing < 1 year

- We show that the increase in LC liquid assets is associated with proceeds of debt issuance by comparing:

Current Portion of FC LT debt ↑ (FC LT Debt Maturing < 1 Year)	ST FC debt ↑
↑ in maturing debt in $t + 1$	
<b>no cash inflow at <math>t</math></b>	<b>↑ cash inflow at <math>t</math></b>



## Further Identification w/ LT FC Debt Maturing < 1 year

$$\frac{\text{LC or FC Liquid Assets}_{i,t}}{TA_{i,t-1}} = \beta_1 \frac{\text{ST FC Debt}_{i,t}}{TA_{i,t-1}} + \beta_{2,ST} \frac{\text{ST of FC LT Debt}_{i,t}}{TA_{i,t-1}} + \beta_{2,LT} \frac{\text{LT of FC LT Debt}_{i,t}}{TA_{i,t-1}} \quad (1)$$

$$+ \beta_3 \frac{\text{ST Debt}_{i,t}}{TA_{i,t-1}} + \beta_4 \frac{\text{LT Debt}_{i,t}}{TA_{i,t-1}} + \gamma_1 \frac{OS_{i,t}}{TA_{i,t-1}} + \gamma_2 \ln TA_{i,t-1} + \alpha + \alpha_c + \alpha_t + \epsilon_{i,t} \quad (2)$$

- (i) ST of FC LT Debt: FC LT Debt with Remaining Maturity < 1 Year
- (ii) LT of FC LT Debt: FC LT Debt with Remaining Maturity > 1 Year

## No Cash Inflows, No Carry Trades

- No LC liquid assets  $\uparrow$  when ST of FC LT debt  $\uparrow$
- $\Rightarrow$  Without actual cash inflow at  $t$ , no carry trade behavior unlike ST FC debt

	LC ST Assets =	LC Cash+	LC ST FI+	LC AR
FC ST Debt	0.145*** (0.027)	0.075*** (0.011)	0.094*** (0.008)	-0.009 (0.021)
FC LT Debt (< 1 year)	-0.269*** (0.039)	-0.023 (0.015)	-0.044*** (0.013)	-0.219*** (0.031)
FC LT Debt (> 1 year)	-0.043* (0.023)	-0.003 (0.008)	0.016** (0.007)	-0.057*** (0.017)
ST Debt	-0.138*** (0.013)	-0.064*** (0.006)	-0.043*** (0.003)	-0.036*** (0.010)
LT Debt	-0.173*** (0.026)	-0.033*** (0.008)	-0.037*** (0.003)	-0.113*** (0.019)
N	135317	145472	145911	134729

**Empirical Analysis:  
Heterogeneity Across Firms & Time**

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(i) Do we see more carry trades when firms are larger?

$$\begin{aligned} \frac{\text{LC Liquid Assets}_{i,t}}{TA_{i,t-1}} &= \beta_1 \frac{\text{FC ST Debt}_{i,t}}{TA_{i,t-1}} + \beta_{1,L} \frac{\text{FC ST Debt}_{i,t}}{TA_{i,t-1}} D_{i,t}^{\text{Large}} + \beta_2 \frac{\text{FC LT Debt}_{i,t}}{TA_{i,t-1}} \\ &+ \beta_3 \frac{\text{ST Debt}_{i,t}}{TA_{i,t-1}} + \beta_4 \frac{\text{LT Debt}_{i,t}}{TA_{i,t-1}} + \gamma_1 \frac{OS_{i,t}}{TA_{i,t-1}} + \gamma_2 \ln TA_{i,t-1} + \alpha + \alpha_c + \alpha_t + \epsilon_{i,t} \end{aligned}$$

## Different Motives for Large vs. Small Firms

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(ii) Do we see more precautionary saving when firms are smaller?

$$\begin{aligned} \frac{\text{FC Liquid Assets}_{i,t}}{TA_{i,t-1}} &= \beta_1 \frac{\text{FC ST Debt}_{i,t}}{TA_{i,t-1}} + \beta_{1,L} \frac{\text{FC ST Debt}_{i,t}}{TA_{i,t-1}} D_{i,t}^{\text{Large}} \\ &+ \beta_2 \frac{\text{FC LT Debt}_{i,t}}{TA_{i,t-1}} + \beta_{2,L} \frac{\text{FC LT Debt}_{i,t}}{TA_{i,t-1}} D_{i,t}^{\text{Large}} \\ &+ \beta_3 \frac{\text{ST Debt}_{i,t}}{TA_{i,t-1}} + \beta_4 \frac{\text{LT Debt}_{i,t}}{TA_{i,t-1}} + \gamma_1 \frac{OS_{i,t}}{TA_{i,t-1}} + \gamma_2 \ln TA_{i,t-1} + \alpha + \alpha_c + \alpha_t + \epsilon_{i,t} \end{aligned}$$

## Carry Trade: Across Firm Size

- Larger firms LC liquid assets  $\uparrow$  **more** when borrowing in FC ST debt.

$\Rightarrow$  **Engage more in carry trade**

	LC ST Assets=	LC Cash+	LC ST FI+	LC AR
FC ST Debt	0.130*** (0.026)	0.066*** (0.011)	0.092*** (0.008)	-0.019 (0.022)
FC ST Debt x Large Firm Dummy	0.282*** (0.058)	0.185*** (0.027)	0.024 (0.032)	0.201*** (0.062)
FC LT Debt	-0.088*** (0.019)	-0.007 (0.007)	0.004 (0.007)	-0.089*** (0.014)
ST Debt	-0.137*** (0.013)	-0.064*** (0.006)	-0.043*** (0.003)	-0.035*** (0.010)
LT Debt	-0.172*** (0.026)	-0.033*** (0.008)	-0.037*** (0.003)	-0.112*** (0.019)
N	135317	145472	145911	134729

## Precautionary Saving: Across Firm Size

- Larger firms FC liquid assets  $\uparrow$  less when borrowing in FC ST debt.

$\Rightarrow$  Exhibit less precautionary saving behavior against FX risk.

	FC ST Assets	FC Cash	FC ST FI	FC AR
FC ST Debt	0.127*** (0.018)	0.031*** (0.005)	0.005*** (0.001)	0.099*** (0.016)
FC ST Debt x Large Firm Dummy	-0.019 (0.045)	-0.019** (0.008)	-0.006*** (0.002)	-0.000 (0.041)
FC LT Debt	0.044*** (0.012)	0.016*** (0.006)	0.003 (0.002)	0.027*** (0.006)
FC LT Debt x Large Firm Dummy	0.021 (0.021)	-0.005 (0.005)	-0.002 (0.002)	0.026 (0.019)
ST Debt	-0.004 (0.003)	-0.007*** (0.001)	-0.001** (0.000)	0.004 (0.002)
LT Debt	-0.029*** (0.005)	-0.008*** (0.001)	-0.001*** (0.000)	-0.020*** (0.003)
N	145915	146021	146026	145955

(i) Do we see more carry trades when the interest rate differential is high?

$$\begin{aligned} \frac{\text{LC Liquid Assets}_{i,t}}{TA_{i,t-1}} &= \beta_1 \frac{\text{FC ST Debt}_{i,t}}{TA_{i,t-1}} + \beta_{1,I} \frac{\text{FC ST Debt}_{i,t}}{TA_{i,t-1}} \times (i_t^{KRW} - i_t^{USD}) + \beta_2 \frac{\text{FC LT Debt}_{i,t}}{TA_{i,t-1}} \\ &+ \beta_3 \frac{\text{ST Debt}_{i,t}}{TA_{i,t-1}} + \beta_4 \frac{\text{LT Debt}_{i,t}}{TA_{i,t-1}} + \gamma_1 \frac{OS_{i,t}}{TA_{i,t-1}} + \gamma_2 \ln TA_{i,t-1} + \alpha + \alpha_c + \alpha_t + \epsilon_{i,t} \end{aligned}$$



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(ii) Is precautionary saving more pronounced when the exchange rate volatility is high?

$$\begin{aligned} \frac{\text{FC Liquid Assets}_{i,t}}{TA_{i,t-1}} &= \beta_1 \frac{\text{FC ST Debt}_{i,t}}{TA_{i,t-1}} + \beta_{1,L} \frac{\text{FC ST Debt}_{i,t}}{TA_{i,t-1}} \times 3\text{m FX vol}_t \\ &+ \beta_2 \frac{\text{FC LT Debt}_{i,t}}{TA_{i,t-1}} + \beta_{2,L} \frac{\text{FC LT Debt}_{i,t}}{TA_{i,t-1}} \times 1\text{y FX vol}_t \\ &+ \beta_3 \frac{\text{ST Debt}_{i,t}}{TA_{i,t-1}} + \beta_4 \frac{\text{LT Debt}_{i,t}}{TA_{i,t-1}} + \gamma_1 \frac{OS_{i,t}}{TA_{i,t-1}} + \gamma_2 \ln TA_{i,t-1} + \alpha + \alpha_c + \alpha_t + \epsilon_{i,t} \end{aligned}$$

## Carry Trade Across Time

- LC liquid assets  $\uparrow$  **more** at a time of higher  $i_t^{KRW} - i_t^{USD}$  when borrowing in FC ST debt.

$\Rightarrow$  **More carry trade** when interest rate diff  $\uparrow$

	LC ST Assets	LC Cash	LC ST FI	LC AR
FC ST Debt	0.106*** (0.031)	0.065*** (0.013)	0.062*** (0.008)	-0.018 (0.025)
FC ST Debt x Interest Diff	2.133** (0.823)	0.566* (0.331)	1.729*** (0.387)	0.473 (0.646)
FC LT Debt	-0.088*** (0.019)	-0.007 (0.007)	0.004 (0.007)	-0.090*** (0.014)
ST Debt	-0.137*** (0.013)	-0.064*** (0.006)	-0.043*** (0.003)	-0.035*** (0.010)
LT Debt	-0.171*** (0.026)	-0.033*** (0.008)	-0.037*** (0.003)	-0.111*** (0.019)
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## Precautionary Saving Motives Against FX Risk Across Time

- FC liquid assets  $\uparrow$  **more** at a time of higher FX vol when borrowing in FC ST debt.

$\Rightarrow$  **More precautionary saving** against FX risk when FX vol  $\uparrow$

	FC ST Assets	FC Cash	FC ST FI	FC AR
FC ST Debt	0.114*** (0.022)	0.013*** (0.004)	-0.001 (0.003)	0.106*** (0.021)
FC ST Debt x 3-month FX vol	0.106 (0.107)	0.158*** (0.035)	0.048* (0.025)	-0.062 (0.120)
FC LT Debt	0.061*** (0.017)	0.017** (0.007)	0.001 (0.003)	0.045*** (0.014)
FC LT Debt x 1-year FX vol	-0.012 (0.012)	-0.001 (0.008)	0.002 (0.001)	-0.013 (0.009)
ST Debt	-0.004 (0.003)	-0.007*** (0.001)	-0.001** (0.000)	0.004 (0.002)
LT Debt	-0.029*** (0.005)	-0.008*** (0.001)	-0.001*** (0.000)	-0.020*** (0.003)
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**Empirical Analysis:  
Interest Income & FC Borrowing**

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Firms seem to engage in carry trade when borrowing in FC ST debt...

Then, do firms earn higher **interest income** when borrowing in FC ST debt?

$$\frac{\text{Interest Income Proxy}_{i,t+1}}{TA_{i,t-1}} = \beta_1 \frac{\text{FC ST Debt}_{i,t}}{TA_{i,t-1}} + \beta_2 \frac{\text{FC LT Debt}_{i,t}}{TA_{i,t-1}} + \beta_3 \frac{\text{ST Debt}_{i,t}}{TA_{i,t-1}} + \beta_4 \frac{\text{LT Debt}_{i,t}}{TA_{i,t-1}} + \gamma_1 \frac{OS_{i,t}}{TA_{i,t-1}} + \gamma_2 \ln TA_{i,t-1} + \gamma_3 \frac{\text{Exports}}{\text{Sales}} + \alpha + \alpha_c + \alpha_t + \epsilon_{i,t}$$

- **Interest income proxy:**

- (i) Interest Income
- (ii) Net Interest Income: Interest Income - Interest Expenses
- (iii) Carry Trade Gain: Net Interest Income + Gain in FX transaction + Gain FX translations - Loss FX transactions - Loss FX translations

## Higher FC ST, Higher Interest Income

- Firms that borrow more in FC are indeed earning higher interest income!

	Interest Income <sub>t+1</sub>	Net Interest Income <sub>t+1</sub>	Carry Trade Gain <sub>t+1</sub>
FC ST Debt	0.003*** (0.001)	0.016*** (0.002)	0.015*** (0.003)
FC LT Debt	0.000 (0.000)	0.003* (0.001)	0.005 (0.003)
ST Debt	-0.003*** (0.000)	-0.029*** (0.001)	-0.029*** (0.001)
LT Debt	-0.004*** (0.000)	-0.025*** (0.001)	-0.025*** (0.001)
N	120875	120875	120875

▶ Contemporaneous: t

▶ Export/Sales

- Our key innovation comes with a unique Korean firm-level dataset that contains the **currency and maturity information about both assets and liabilities**.
- The empirical relationship that we see from the data supports a widespread speculation in the literature that **firm engages in carry trade activities when borrowing in short-term**.
- We further show that the positive correlation between LC liquid assets and FC debt, supportive of carry trades, only arises **when debt is issued at short-term with actual cash inflows, not when debt matures soon**.
- **Large firms** are more actively participating in carry trade while do less of precautionary saving against the FX risk.

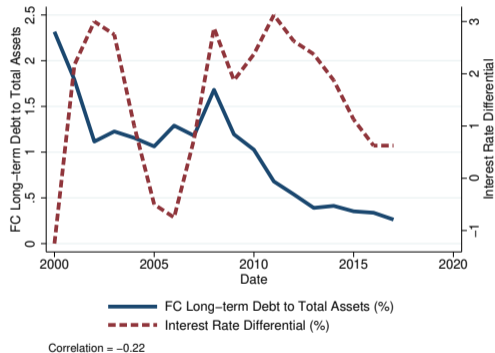
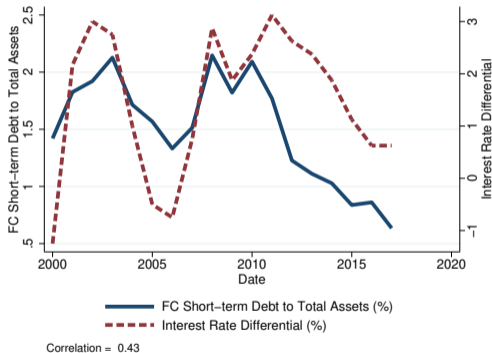
## Appendix

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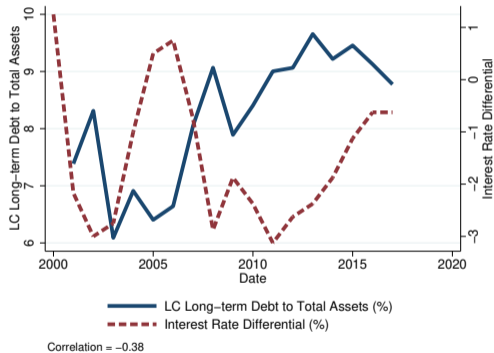
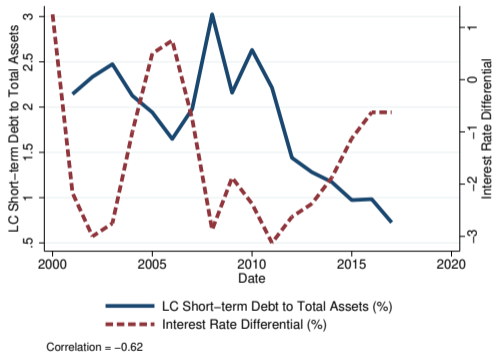
# Motivation: Aggregate FC Debt in the Corporate Sector & Interest Rate Differential, $i^{KRW} - i^{USD}$

The aggregate **FC short-term** debt is positively corr. w/ the interest rate differential,  $i^{KRW} - i^{USD}$ .



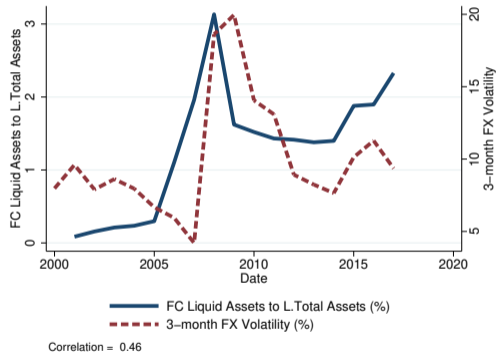
# Motivation: Aggregate LC Debt in the Corporate Sector & Interest Rate Differential, $i^{USD} - i^{KRW}$

The aggregate **LC** debt ↓ when  $i^{USD} - i^{KRW}$  ↑.



## Motivation: FC Liquid Assets & FX Vol

On average, firms that borrow in FC ST debt seem to hold:  $\uparrow$  FC liquid assets as  $\uparrow$  FX vol



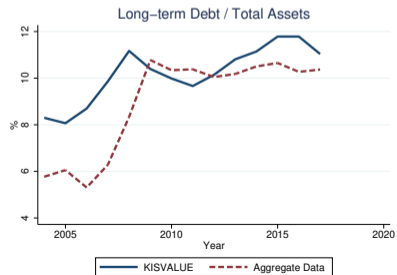
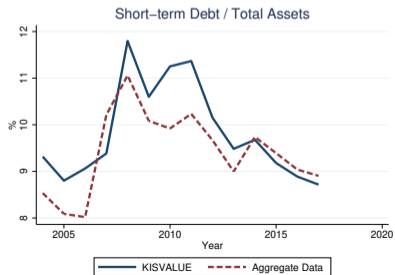
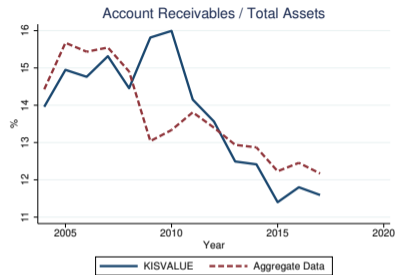
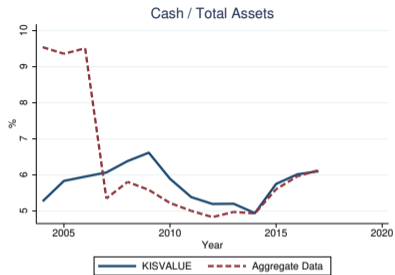
## Appendix: Extensive and Intensive Margin of FC Borrowing

Year	FC Share of Short-term Debt	FC Share of Long-term Debt	Fraction of Firms With FC ST Debt	Fraction of Firms With FC Debt	Number of Firms
	Conditional on >0				
2000	24.38%	33.93%	5.82%	18.09%	8895
2001	25.61%	34.52%	5.51%	14.96%	10514
2002	27.74%	36.05%	8.73%	17.04%	11589
2003	28.89%	38.48%	10.42%	17.82%	12260
2004	27.78%	37.88%	11.16%	18.06%	12667
2005	26.69%	35.86%	11.45%	17.60%	13211
2006	26.18%	36.07%	11.07%	16.73%	14226
2007	26.18%	36.59%	10.50%	15.50%	14977
2008	26.68%	39.48%	11.38%	16.24%	15670
2009	25.98%	39.38%	10.91%	15.07%	16338
2010	27.50%	38.22%	11.04%	14.88%	17370
2011	27.48%	39.12%	10.84%	13.99%	18575
2012	25.78%	38.20%	9.86%	12.56%	20132
2013	24.86%	35.94%	8.56%	10.72%	21430
2014	24.92%	36.76%	8.25%	9.92%	22557
2015	24.90%	38.29%	7.65%	8.95%	23768
2016	25.48%	39.74%	7.35%	8.34%	24092
2017	23.66%	40.74%	7.11%	8.02%	23826

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# Appendix: Dynamics of Variables of Interests

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## Appendix: Firms Borrow in ST FC Debt & Engage in Carry Trades

	LC ST Assets	LC Cash	LC ST FI	LC AR
FC ST Debt	0.142*** (0.027)	0.075*** (0.011)	0.093*** (0.008)	-0.012 (0.021)
FC LT Debt	-0.090*** (0.019)	-0.007 (0.007)	0.003 (0.007)	-0.090*** (0.014)
ST Debt	-0.136*** (0.012)	-0.065*** (0.006)	-0.044*** (0.003)	-0.033*** (0.010)
LT Debt	-0.173*** (0.025)	-0.033*** (0.008)	-0.037*** (0.003)	-0.112*** (0.018)
Adjusted $R^2$	0.292	0.103	0.065	0.277
N	133545	143694	144128	132947

## Appendix: Firms Borrow in FC Debt & Exhibit Some Precautionary Saving Against FX Risk

	FC ST Assets	FC Cash	FC ST FI	FC AR
FC ST Debt	0.123*** (0.018)	0.030*** (0.005)	0.004*** (0.001)	0.096*** (0.015)
FC LT Debt	0.044*** (0.012)	0.016** (0.006)	0.003* (0.002)	0.027*** (0.006)
ST Debt	-0.004 (0.003)	-0.007*** (0.001)	-0.001** (0.000)	0.004 (0.002)
LT Debt	-0.029*** (0.004)	-0.008*** (0.001)	-0.001*** (0.000)	-0.019*** (0.003)
Adjusted $R^2$	0.127	0.053	0.006	0.113
N	144130	144236	144241	144170

	LC ST Assets	LC Cash	LC ST FI	LC AR
FC ST Debt Pre-2008	0.114*** (0.028)	0.088*** (0.013)	0.071*** (0.010)	-0.020 (0.023)
FC ST Debt Post-2008	0.165*** (0.031)	0.065*** (0.011)	0.109*** (0.011)	-0.002 (0.023)
FC LT Debt Pre-2008	-0.071*** (0.022)	-0.002 (0.009)	0.009 (0.009)	-0.075*** (0.016)
FC LT Debt Post-2008	-0.123*** (0.018)	-0.018** (0.008)	-0.008 (0.008)	-0.118*** (0.016)
ST Debt Pre-2008	-0.092*** (0.012)	-0.056*** (0.006)	-0.028*** (0.004)	-0.006 (0.012)
ST Debt Post-2008	-0.165*** (0.020)	-0.069*** (0.008)	-0.053*** (0.005)	-0.055*** (0.012)
LT Debt Pre-2008	-0.156*** (0.017)	-0.029*** (0.006)	-0.028*** (0.003)	-0.105*** (0.015)
LT Debt Post-2008	-0.179*** (0.031)	-0.035*** (0.009)	-0.041*** (0.004)	-0.115*** (0.021)
Adjusted $R^2$	0.296	0.102	0.066	0.282
With-in $R^2$	0.077	0.051	0.025	0.052
N	135317	145472	145911	134729



	FC ST Assets	FC Cash	FC ST FI	FC AR
FC ST Debt Pre-2008	0.104*** (0.014)	0.025*** (0.007)	0.005*** (0.002)	0.084*** (0.013)
FC ST Debt Post-2008	0.141*** (0.023)	0.035*** (0.005)	0.004** (0.002)	0.109*** (0.020)
FC LT Debt Pre-2008	0.039*** (0.010)	0.010*** (0.004)	0.002 (0.002)	0.028*** (0.007)
FC LT Debt Post-2008	0.052*** (0.016)	0.024** (0.010)	0.005** (0.002)	0.028*** (0.008)
ST Debt Pre-2008	-0.001 (0.003)	-0.003*** (0.001)	-0.001** (0.000)	0.003 (0.003)
ST Debt Post-2008	-0.006** (0.003)	-0.009*** (0.002)	-0.001** (0.000)	0.004 (0.003)
LT Debt Pre-2008	-0.022*** (0.004)	-0.005*** (0.001)	-0.001*** (0.000)	-0.017*** (0.003)
LT Debt Post-2008	-0.033*** (0.006)	-0.010*** (0.002)	-0.001*** (0.000)	-0.021*** (0.004)
Adjusted $R^2$	0.115	0.051	0.006	0.102
With-in $R^2$	0.034	0.013	0.001	0.032
N	145915	146021	146026	145955

## Appendix: Higher FC ST, Higher Interest Income

	Interest Income	Net Interest Income	Carry Trade Gain
FC ST	0.003*** (0.001)	0.015*** (0.002)	-0.000 (0.004)
FC LT	0.001 (0.001)	0.001 (0.001)	-0.025*** (0.004)
ST	-0.002*** (0.000)	-0.032*** (0.002)	-0.033*** (0.002)
LT	-0.003*** (0.000)	-0.029*** (0.001)	-0.029*** (0.001)
Adjusted $R^2$	0.094	0.237	0.168
N	135317	135317	135317

## Appendix: Higher FC ST, Higher Interest Income

	Interest Income	Net Interest Income	Carry Gain	Interest Income <sub>t+1</sub>	Net Interest Income <sub>t+1</sub>	Carry Trade Gain <sub>t+1</sub>
FC ST	0.003*** (0.001)	0.016*** (0.002)	0.000 (0.004)	0.003*** (0.001)	0.016*** (0.002)	0.015*** (0.003)
FC LT	0.000 (0.001)	0.001 (0.001)	-0.026*** (0.004)	0.000 (0.000)	0.003** (0.001)	0.004 (0.003)
ST	-0.002*** (0.000)	-0.033*** (0.002)	-0.034*** (0.002)	-0.003*** (0.000)	-0.029*** (0.001)	-0.029*** (0.002)
LT	-0.003*** (0.000)	-0.030*** (0.001)	-0.030*** (0.001)	-0.004*** (0.000)	-0.026*** (0.001)	-0.026*** (0.001)
Adjusted $R^2$	0.095	0.246	0.174	0.096	0.167	0.114
N	133545	133545	133545	119346	119346	119346

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