

The Dollar and Corporate Borrowing Costs¹

Ralf R. Meisenzahl, Friederike Niepmann, Tim Schmidt-Eisenlohr

Federal Reserve Bank of Chicago, Federal Reserve Board

December 19, 2019

¹The views expressed here are those of the author and do not necessarily reflect the views of the Board of Governors, Federal Reserve Bank of Chicago, or staff of the Federal Reserve System.

Global Risk Sentiment and Corporate Debt Pricing

Recent research shows a secular change in the behavior of international capital flows and the (US) dollar.

Global Risk Sentiment and Corporate Debt Pricing

Recent research shows a secular change in the behavior of international capital flows and the (US) dollar.

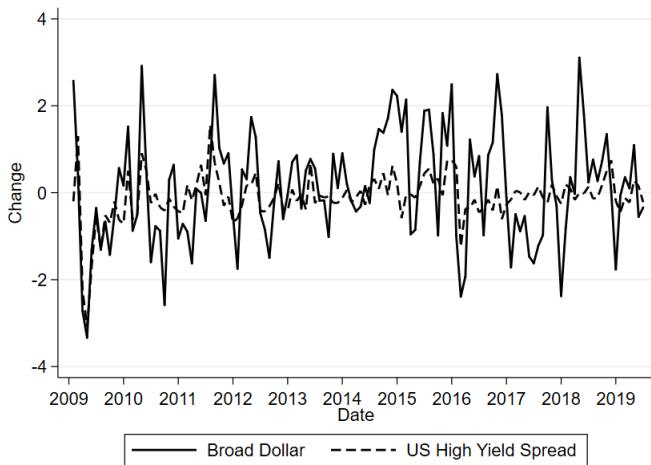
- 1 Post-financial crisis large dollar appreciations lead to large deviations from the covered interest rate parity (Avdjiev, Du, Koch, and Shin, 2019) and to shifts in US credit conditions (Niepmann and Schmidt-Eisenlohr, 2019).
- 2 Interpretations offered include:

Global Risk Sentiment and Corporate Debt Pricing

Recent research shows a secular change in the behavior of international capital flows and the (US) dollar.

- 1 Post-financial crisis large dollar appreciations lead to large deviations from the covered interest rate parity (Avdjiev, Du, Koch, and Shin, 2019) and to shifts in US credit conditions (Niepmann and Schmidt-Eisenlohr, 2019).
- 2 Interpretations offered include:
 - ▶ Risk attitude of global capital markets reflected in the dollar exchange rate.
 - ▶ Changes in international investors' US Treasury liquidity premium (Jiang, Krishnamurthy, and Lustig, 2018).

High Yield Bond Spreads and the Dollar



Correlation: 0.5

This paper

- We show that changes in the dollar exchange rate affects the pricing of syndicated corporate loans.
 - 1 We control of borrower and loan characteristics as well as other macro economic variables.
 - 2 We avoid selection issues by only using the change in the dollar over the syndication period.

This paper

- We show that changes in the dollar exchange rate affects the pricing of syndicated corporate loans.
 - ① We control of borrower and loan characteristics as well as other macro economic variables.
 - ② We avoid selection issues by only using the change in the dollar over the syndication period.
- An increase in the broad dollar index by 0.93 point (1 standard deviation)
 - ① Increases the interest rate spread by 6 basis points.

This paper

- We show that changes in the dollar exchange rate affects the pricing of syndicated corporate loans.
 - ① We control of borrower and loan characteristics as well as other macro economic variables.
 - ② We avoid selection issues by only using the change in the dollar over the syndication period.
- An increase in the broad dollar index by 0.93 point (1 standard deviation)
 - ① Increases the interest rate spread by 6 basis points.
 - ② Decreases the loan amount by 0.5 percent.

Interpretation

- The dollar reflects the risk taking capacity of global capital markets.

Interpretation

- The dollar reflects the risk taking capacity of global capital markets.
- The dollar acts as a shifter of the supply of corporate credit.

Interpretation

- The dollar reflects the risk taking capacity of global capital markets.
- The dollar acts as a shifter of the supply of corporate credit.
- Foreign shocks affect U.S. corporate credit conditions.

Interpretation

- The dollar reflects the risk taking capacity of global capital markets.
- The dollar acts as a shifter of the supply of corporate credit.
- Foreign shocks affect U.S. corporate credit conditions.

Implication: Macroprudential policy has to take internationally integrated capital markets into account.

Data

- S&P Capital IQ's Leveraged Commentary and Data (LCD) from 2009 to 2019.

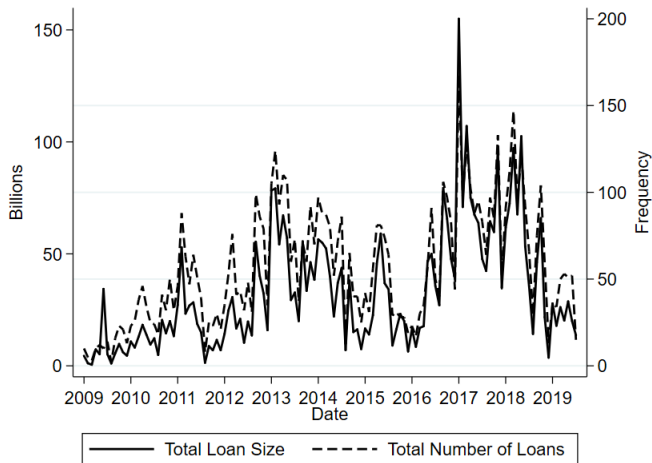
Data

- S&P Capital IQ's Leveraged Commentary and Data (LCD) from 2009 to 2019.
- LCD contains detailed data leveraged loans, their characteristics, and their syndication process.

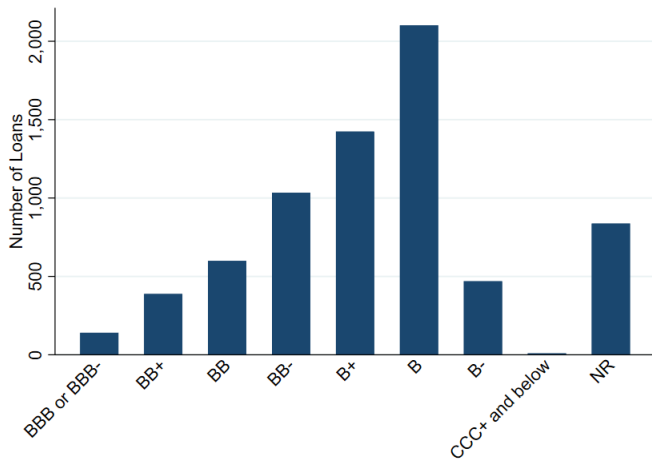
Data

- S&P Capital IQ's Leveraged Commentary and Data (LCD) from 2009 to 2019.
- LCD contains detailed data leveraged loans, their characteristics, and their syndication process.
- The data set includes syndicated loans with either a non-investment-grade rating, or with a first or second lien and a spread of at least 125 basis points over LIBOR.

Loans in Sample



Ratings Distribution



Important Features of Loan Syndication

- **Flexes:** Mandate includes ability to adjust interest rates and loan amounts during the syndication process.

Important Features of Loan Syndication

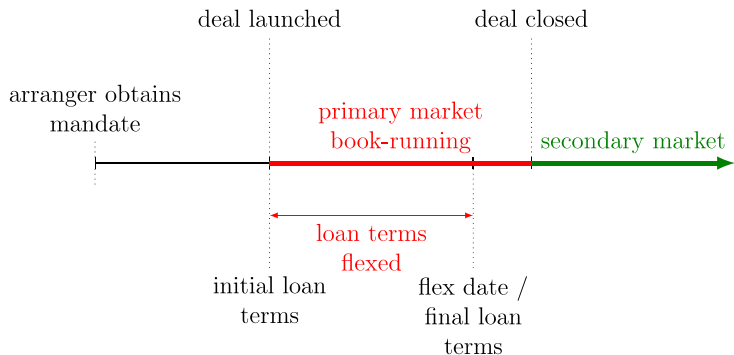
- **Flexes:** Mandate includes ability to adjust interest rates and loan amounts during the syndication process.
- **Book Running:** The syndication process is a book building exercise in which the arranger tries to elicit the investors' demand for a loan.

Important Features of Loan Syndication

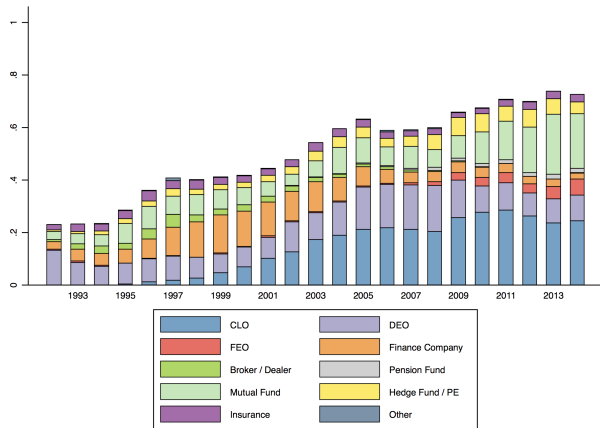
- **Flexes:** Mandate includes ability to adjust interest rates and loan amounts during the syndication process.
- **Book Running:** The syndication process is a book building exercise in which the arranger tries to elicit the investors' demand for a loan.
- **Incentives:** If the arranger increases interest rates (or the original issue discount) during the syndication process to place the loan, the arranging fee is reduced.

For details, see Bruche, Malherbe, and Meisenzahl (forthcoming).

Syndication Timeline



Syndicated Loan Investor Base



Source: Irani, Iyer, Meisenzahl, and Peydro (2018).

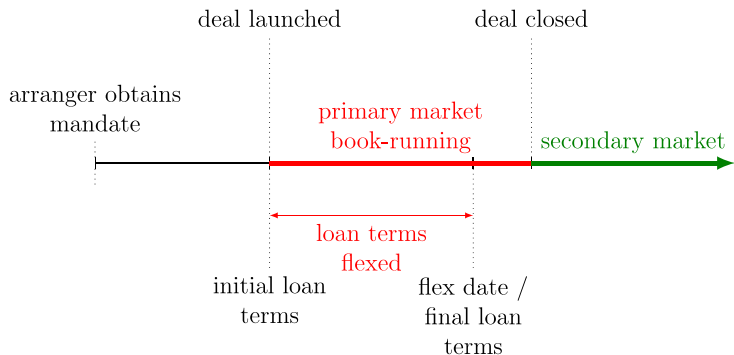
Identification - Selection

- **Key Issue:** Composition of borrowers and lenders may change with changes in the exchange rate.

Identification - Selection

- **Key Issue:** Composition of borrowers and lenders may change with changes in the exchange rate.
- **Solution:** Focus on changes in dollar exchange rate after the syndicated loan arranger has received the mandate and before the loan is originated.

Syndication Time Line



Identification within Loans I

- **Key Issue:** Loan characteristics and firm balance sheets matter for loan pricing.

Identification within Loans I

- **Key Issue:** Loan characteristics and firm balance sheets matter for loan pricing.
- **Solution:** Control for talk yield (pre-book running credit risk) and include a rich set of loan controls.

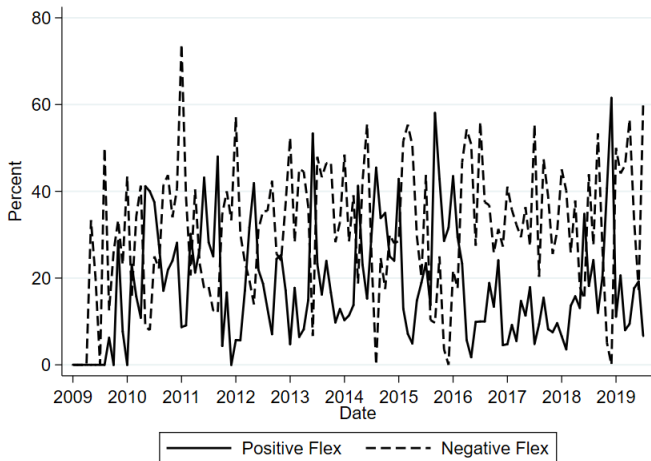
Identification within Loans II

- **Key Issue:** Bank balance sheets matter for loan pricing (Santos, 2012).

Identification within Loans II

- **Key Issue:** Bank balance sheets matter for loan pricing (Santos, 2012).
- **Solution:** Looking at dollar changes over the syndication process means bank characteristics should not matter for *changes* in the spread during the syndication process (see incentives, lower fees etc).

Spread Flex Time Series



Analysis - Spreads

- **Hypothesis:** Dollar appreciations, indicating lower demand, should increase the effective spread (spread + OID/4).
- $\Delta Dollar_{\Delta t}$ is the change in the dollar during the first 12 days after the beginning of the syndication process.

$$Effective\ Spread_{i,\Delta t} = \beta \Delta Dollar_{\Delta t} + \gamma X_i + \epsilon_{i,\Delta t} \quad (1)$$

Regression Bins

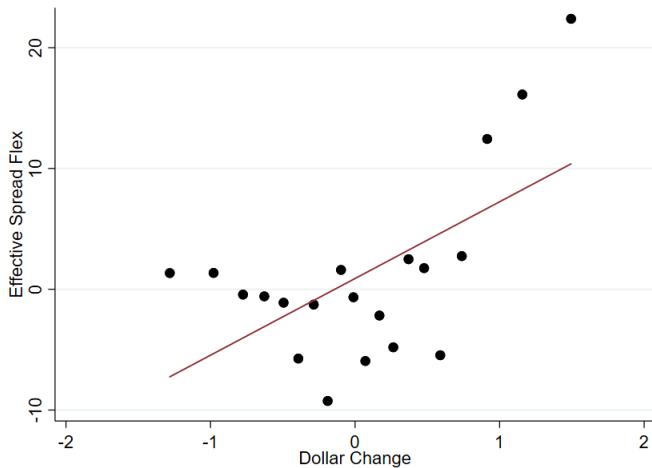


Table: Dollar and Effective Spread Flex Incidences

	(1) Positive Eff. Spread Flex	(2) Negative Eff. Spread Flex	(3) Full Sample Flex	(4) Flex Sample Flex
Δ Broad Dollar	0.159*** (0.0296)	-0.188*** (0.0362)	2.537*** (0.539)	6.580*** (1.-85)
Talk Spread (log)	-0.188* (0.098)	-2.376*** (0.141)	0.623* (0.414)	0.170 (0.893)
Talk Amount (log)	-0.0523* (0.0290)	-0.420*** (0.0395)	13.15*** (2.035)	31.99*** (4.305)
Years to Maturity (log)	-1.413*** (0.185)	-1.385*** (0.193)	0.135 (1.950)	-5.466 (4.739)
Sponsored	0.0616 (0.0576)	-0.161** (0.0779)	0.909 (1.045)	0.338 (2.026)
Rated	-0.0729 (0.0958)	-0.410*** (0.117)	4.390** (1.751)	5.402 (3.700)
Cov-Lite	-0.202*** (0.0593)	0.249*** (0.0750)	-4.761*** (0.994)	-7.593*** (1.864)
Middle Market	0.362*** (0.0902)	-0.0549*** (0.101)	7.852*** (1.852)	13.36*** (3.294)
Observations	7024	7024	7024	3654
R^2	0.029	0.087	0.029	0.070

Table: Dollar and Effective Spread Flexes

	(1) Positive Eff. Spread Flex	(2) Negative Eff. Spread Flex	(3) Full Sample Flex	(4) Flex Sample Flex
Δ Broad Dollar	0.159*** (0.0296)	-0.188*** (0.0362)	2.537*** (0.539)	6.580*** (1.-85)
Talk Spread (log)	-0.188* (0.098)	-2.376*** (0.141)	0.623* (0.414)	0.170 (0.893)
Talk Amount (log)	-0.0523* (0.0290)	-0.420*** (0.0.395)	13.15*** (2.035)	31.99*** (4.305)
Years to Maturity (log)	-1.413*** (0.185)	-1.385*** (0.193)	0.135 (1.950)	-5.466 (4.739)
Sponsored	0.0616 (0.0576)	-0.161** (0.0779)	0.909 (1.045)	0.338 (2.026)
Rated	-0.0729 (0.0958)	-0.410*** (0.117)	4.390** (1.751)	5.402 (3.700)
Cov-Lite	-0.202*** (0.0593)	0.249*** (0.0750)	-4.761*** (0.994)	-7.593*** (1.864)
Middle Market	0.362*** (0.0902)	-0.0549*** (0.101)	7.852*** (1.852)	13.36*** (3.294)
Observations	7024	7024	7024	3654
R^2	0.029	0.087	0.029	0.070

Interpretation

A 1 standard deviation increase in the dollar index results in

- a 15 percentage point increase in the probability in observing a positive effective spread flex,
- a 17 percentage point decrease in the probability in observing a negative effective spread flex, and
- a 2-6 bps point increase in the effective spread.

Robustness

- Industry, arranger, and loan purpose FE

Robustness

- Industry, arranger, and loan purpose FE
- Change in Macro Controls: VIX, 1Y Treasury Basis, US Corporate AAA-BBB Spread, 10Y Treasury, US Term Spread, Japan 10Y Yield, Japan Term Spread, Japanese Libor-OIS Spread.

Robustness

- Industry, arranger, and loan purpose FE
- Change in Macro Controls: VIX, 1Y Treasury Basis, US Corporate AAA-BBB Spread, 10Y Treasury, US Term Spread, Japan 10Y Yield, Japan Term Spread, Japanese Libor-OIS Spread.
- Advanced Foreign Economy dollar index or Emerging Markets dollar index

Robustness

- Industry, arranger, and loan purpose FE
- Change in Macro Controls: VIX, 1Y Treasury Basis, US Corporate AAA-BBB Spread, 10Y Treasury, US Term Spread, Japan 10Y Yield, Japan Term Spread, Japanese Libor-OIS Spread.
- Advanced Foreign Economy dollar index or Emerging Markets dollar index
- Sample of U.S. borrowers only.

Dollar and Other Risk Measures

Table: Effective Spread

	(1) Dollar	(2) VIX	(3) Treasury Base
Δ Broad Dollar	6.616*** (1.079)		
Δ VIX (log)		-2.163 (5.046)	
Δ 1Y Treasury Base			0.092 (0.167)
Loan Controls	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Purpose FE	Yes	Yes	Yes
Arranger FE	Yes	Yes	Yes
Observations	3641	3641	5666
R^2	0.11	0.10	0.058

Analysis - Loan Amounts

- **Hypothesis:** Dollar appreciations, indicating lower demand, should decrease the loan amount.
- $\Delta Dollar_{\Delta t}$ is the change in the dollar during the first 12 days after the beginning of the syndication process.

$$Amount\ Flex_{i,\Delta t} = \beta \Delta Dollar_{\Delta t} + \gamma X_i + \epsilon_{i,\Delta t} \quad (2)$$

Loan Amounts Result

A 1 standard deviation increase in the dollar index results in

- a 10 percentage point decrease in the probability in observing a positive loan amount flex and
- a 0.5 percent reduction in loan size (\$1.88 million).

Analysis - Underpricing

Underpricing is the primary market participant rent (primary market price - first secondary market price).

Analysis - Underpricing

Underpricing is the primary market participant rent (primary market price - first secondary market price).

- **Hypothesis:** Dollar appreciations, indicating lower demand, should decrease underpricing (based on book building theory).
- $\Delta Dollar_{\Delta t}$ is the change in the dollar during the first 12 days after the beginning of the syndication process.

$$Underpricing_{i,t} = \beta \Delta Dollar_{\Delta t} + \gamma X_i + \epsilon_{i,t} \quad (3)$$

Underpricing Results

A 1 standard deviation increase in the dollar index results in

- a 3 bps decrease in underpricing (mean 45 bps).

Effects are concentrated in appreciations

Including dollar appreciations and depreciations separately, we find that effects are driven by appreciations. A 1 point appreciation results in

- a 16 bps increase in the effective spread,
- a \$13 million reduction in loan size, and
- a 6 bps decrease in underpricing.

Conclusion

- The dollar reflects the risk taking capacity of global capital markets.
- Global capital markets' attitudes affect the borrowing costs of risky U.S. corporates.
- U.S. borrowers are affected by foreign developments and the global financial/dollar cycle.

Implications for Macropru

- Dollar appreciation indicate reduced demand for risky assets. Are there “enough” domestic safe assets?
- Is there a trade-off between global capital market integration with increased domestic sensitivity to global shocks and macropru?
- What does the increased importance of (global) nonbank lenders mean for the effectiveness of macroprudential tools?