Sticky Leverage and Debt Overhang: Evidence from Foreign-Denominated Debt in Latin America

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Abstract

When debt obligations have fixed nominal value, a monetary expansion reduces the real burden of existing debt and boosts firm performance, which applies even when firms reside in foreign countries. Investigating Mexican and Brazilian publicly listed companies with substantial dollar-denominated debt, we show that a more dollar-indebted firm experiences higher increases in equity value, capital expenditure, and sales after a U.S. monetary expansion, especially when such dollar-denominated debt has long maturity. Moreover, we document that a larger net export position amplifies the responses of dollar-indebted firms to the U.S. monetary shocks.

Highlight

• How does monetary policy (MP) impact firm’s stock performance and real decisions?
  • Mainstream: sticky price
  • Alternative channel: sticky leverage (Gomes, Jermann, and Schmid, 2016)
  • New empirical evidence to support sticky leverage channel and debt overhang
• Investigate the effects of U.S. MP shocks on Latin American companies borrow in both foreign denominated debt (FDD) and locally denominated debt (LLD)
  • firms with more FDD experience higher abnormal stock returns after expansionary U.S. MP shocks
  • investment growth and sales growth of these firms also increase.
  • the sticky leverage channel is more prominent for firms with longer term debt

Model and Hypothesis

Theoretically, we build a tractable model based on Leland (1994) to allow investment and FDD. In this model, a domestic firm operates locally but borrows debt denominated in U.S. dollars to finance its activities. An unexpected monetary shock in U.S. lowers the local currency value of this dollar-denominated. This lower value of debt in local value alleviates the debt overhang problem faced by the firm. As a result, a local firm with more FDD has more equity price appreciation and more real investment after a foreign monetary expansion. In the model, such effects are more pronounced with firms with more FDD and when FDD has longer terms.

The model generates three testable hypotheses:

• **Hypothesis I**: Equity value of firms increases following an expansionary U.S. MP shock. Furthermore, firms with more FDD have stronger positive response to than those with less FDD, given other firm characteristics unchanged.

• **Hypothesis II**: Firms with more FDD tend to invest more after an expansionary U.S. MP shock.

• **Hypothesis III**: Stock prices of firms with more long-term FDD are more sensitive to U.S. MP shocks than those with more short-term FDD.

Regressions

I. Key Specification:

\[ R_{ij} = \beta_1 FDD_{ij} + \beta_2 Lev_{ij} + \gamma_1 (FDD_{ij} \times \text{Shock}_{it}) + \gamma_2 \{Lev_{ij} \times \text{Shock}_{it}\} + \text{Control}_{ij} + \delta_1 \cdot \alpha_i + \epsilon_{ij} \]  

• **R**\(_{ij}\): stock price response at FOMC
• **\(\gamma_1\)**: role of FDD relative to other debt
• **\(\gamma_2\)**: the conventional investment channel of MP transmission.
• **\(\delta_1\)**: firm and time fixed effects.

II. International Trade Positions

• Add trade position to Regression (1)

III. Debt Overhang

• Change dependent variable of Regression (1) to: change of investment, change of sales, FDD or Leverage

IV. Long-Versus Short-Term Debt Overhang

• Split FDD in Regression (1) to short-term and long-term FDD

Empirical Finding

I. Stock Return:

• MP shock that increases 1-year treasury yield by 100 basis point (1 p.p. ↑) 1 standard deviation higher of FDD (1 sd FDD) ⇒ -1.3%

II. International Trade Positions

• Firms with a higher net-export position with the U.S. are more sensitive to the U.S. monetary shocks due to the combined effects of the sticky leverage and the sticky price channels.

III. Debt Overhang

• Investment growth: 1 p.p. ↑ & 1 sd ↑ FDD = -1.7%
• Sales growth: 1 p.p. ↑ & 1 sd ↑ FDD = -3.93%
• FDD holding: 1 p.p. ↑ & 1 sd ↑ FDD = -13.4%

IV. Long-Versus Short-Term Debt Overhang

• Firms with longer-term debt show stronger sticky leverage effect.

Additional Complementary Exercise

• We do NOT observe significant effects through the FDD channel following European Central Bank (ECB) MP shocks, because FDD of the Latin American firms are mostly dollar denominated.

• The channel we identified is not contaminated by the liquidity channel of MP transmission.

• Restrict sample to firms not cross-listed at the U.S. market: we find similar results.

• Firms hold higher FDD in the flexible FX regime do not have stronger connection with the U.S. during the fixed FX regime.

• Firms with a stronger net export exposure have lower FDD holding in general. Thus, the NX position does not affect firms’ access to FDD.

Data

• Two major Latin American countries: Brazil (2002-2018) and Mexico (1996-2018).
• Company data: Economática
  • Daily returns, quarterly financial, and FDD
• U.S. MP shocks
  • high-frequency identification following Nakamura and Steinsson (2018).
• Commodity-level annual trade data from UN Comtrade

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References: