I identify Treasury supply shocks using auction data, interpreting changes in futures prices around announcements as shocks to expected supply. I isolate the component of futures price variations pertaining to U.S. Treasury announcements between 1998 and 2020. I study how supply affects financial markets through local projections, using shocks as instruments. I show that increases in Treasury supply cause an upward shift of the yield curve fueled partly by a higher term premium. Stock prices climb, volatility declines and corporate bond yields increase. The equity premium rises, the risk premium falls, inflation expectations soar and the liquidity premium decreases.

Methodology and Data

Let \( P_{t,k}^{T,y} \) be the price of a \( k \)-year Treasury at the end of day \( t \) and let \( P_{t}^{T,y} \) be its associated futures price for \( k = 2, 5, 10, 30 \). \( F_{t+1}^{T,y} \) is a bet on \( P_{t+1}^{T,y} \) where \( \tau(k) \) is the future settlement date closest to \( t \). I postulate that on announcement day \( t \),

\[
P_{t,k}^{T,y} - P_{t+1}^{T,y} = -\sigma^k \xi^k + u^k,
\]

where \( \xi^k \) is the the debt supply shock and \( u^k \) are changes in futures prices orthogonal to \( \xi^k \) modeled as a function of observables (e.g., day-of-week dummies and changes in Fed Funds futures).

The supply shock is \( \xi^k = Q_{t}^{m} - E[Q_{t}^{m}] \) with \( Q_{t}^{m} \) the stock of \( k \)-year Treasuries at time \( t \). The scaling factor \( \sigma^k \), in turn, involves the unconditional standard deviation of changes in futures and the price elasticity of demand.

In words, changes in front-month Treasury futures prices around public announcements by the Treasury can be interpreted as shocks to the expected supply of debt securities by the U.S. government. This hypothesis assumes that on announcement days (1) demand for public debt instruments is fixed and (2) markets are fed with no systematic innovation other than the announcement.

To investigate the financial consequences of surprise increases in the supply of U.S. debt securities, I then use \( z_{t} = (\xi_{t}^{2y}, \xi_{t}^{5y}, \xi_{t}^{10y}, \xi_{t}^{30y}) \) to instrument the stock of Treasuries \( y_{t+1} \) in the local projections,

\[
y_{t+1} = a_{1} + \phi_{1}(z_{t}) + \epsilon_{t+1},
\]

with the purpose of estimating the IRFs \( \phi_{1}(z) \) for a set of financial variables.

The argument that \( z_{t} \) ought to serve as reasonable instruments hinges upon the claim that my series are relevant (i.e., they explain a substantial share of the variance in the net amount of securities tendered by the U.S. Treasury on announcement days) and exogenous (i.e., they are orthogonal to innovations to the other variables in the system on announcement days).

Data on announcement dates come from TreasuryDirect.com while those on futures prices come from Eikon Datastream. The financial variables of interest were retrieved from the Federal Reserve Economic Data (FRED), Yahoo Finance or from Bloomberg. My baseline sample starts on October 28, 1998, and ends on January 31, 2020, providing 5343 observations.