

Still the World's Safe Haven?

Redesigning U.S. Treasury Markets After the Covid19 Crisis

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Covid forced central banks to rescue their bond markets

1. In March 2020, Covid news triggered a “dash for cash.”
2. Most bond trades by investors are handled by large bank-affiliated dealers, whose balance sheets are constrained by post-GFC capital regulation.
3. The bond market choked on huge investor trade demands.
4. Central banks responded with huge bond purchase programs.
 - ▶ Fed: \$3,200 billion in purchases for 2020, 14.9% of GDP.
 - ▶ ECB: €1,350 billion purchase program, 11.9% of GDP.
 - ▶ Bank of England: £300 billion program, 13.6% of GDP.

Fed purchases of treasuries during the Covid Crisis

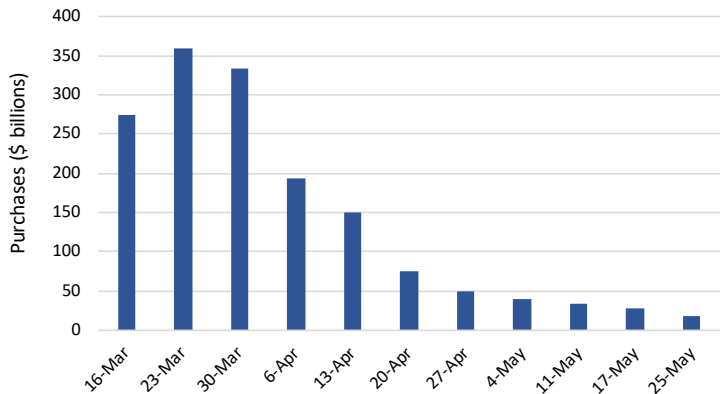
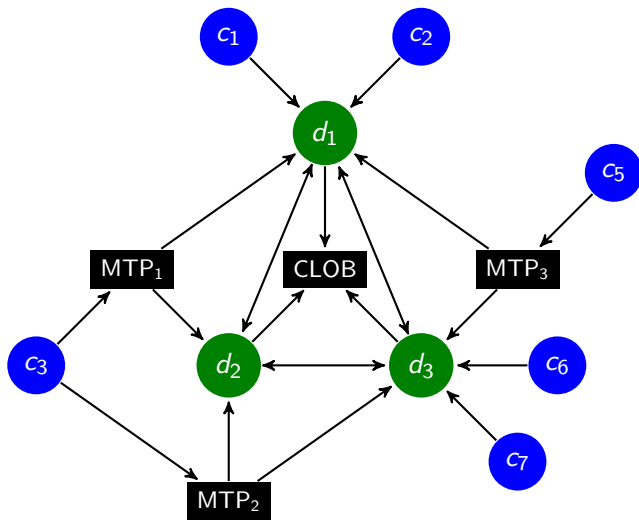


Figure: The Fed's purchases of treasuries, March 16 to May 25, 2020. Data source: Federal Reserve Bank of New York.

Typical two-tiered bond markets



Marketable treasuries outstanding and big-bank assets

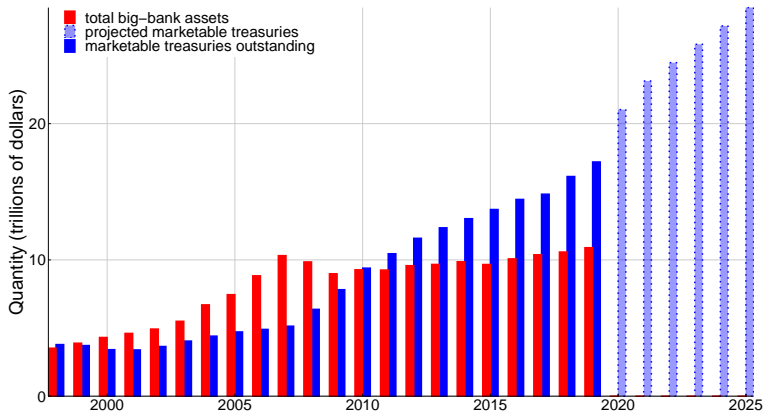


Figure: Marketable treasuries outstanding, including projections from 2020 from deficit of Committee for a Responsible Federal Budget, April 13, 2020. Total assets of the holding companies of Goldman Sachs, Morgan Stanley, Merrill Lynch, Lehman Brothers, Bear Stearns, Bank of America, JP Morgan Chase, Citigroup, and Wells Fargo. Data: FRED, CRFB, 10K disclosures.

Treasuries will overwhelm dealer balance sheet space

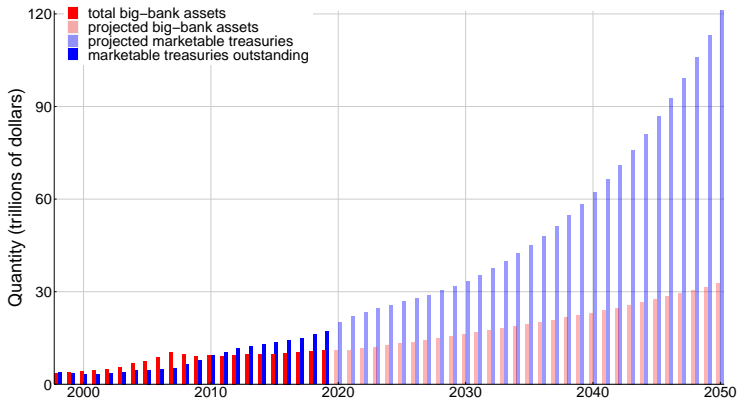


Figure: Marketable treasuries outstanding, including projections from 2020 by the Congressional Budget Office. Total assets of the holding companies of Goldman Sachs, Morgan Stanley, Merrill Lynch, Lehman Brothers, Bear Stearns, Bank of America, JP Morgan Chase, Citigroup, and Wells Fargo. Data: FRED, CRFB, 10K disclosures. Post-2019 balance sheets projected to grow at CBO predicted GDP growth rates. Data sources: FRED, CBO, and Federal Reserve Bank of New York.

Growth of marketable treasuries relative to dealer positions

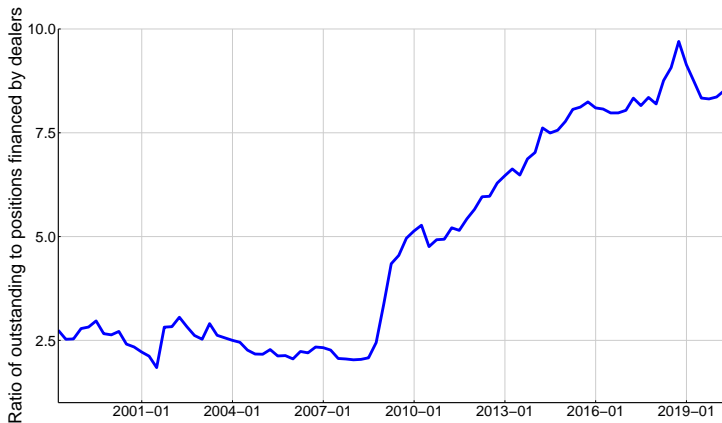


Figure: The ratio of the stock of outstanding marketable treasuries to the total of treasury positions for which primary dealers received financing with repurchase agreements and securities lending. Data sources: FRED and Federal Reserve Bank of New York.

Record foreign gross sales of Treasuries to U.S. dealers

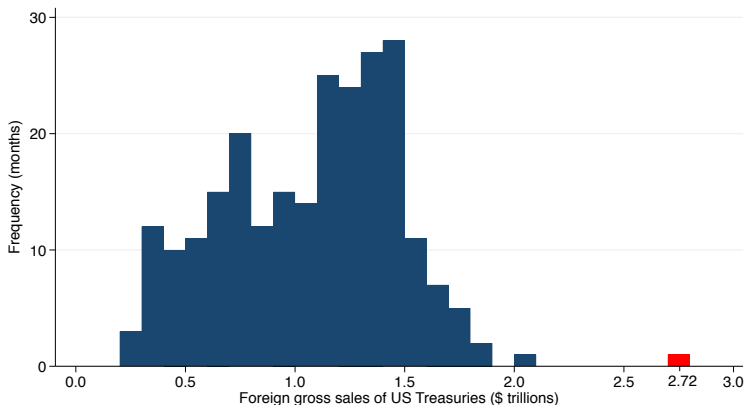


Figure: A histogram of monthly gross sales of U.S. Treasury bonds and notes by foreigners to U.S. residents, from January 2000. Data source: U.S. Department of the Treasury, Treasury International Capital System. The March 2020 observation is indicated in red.

Cash-futures basis

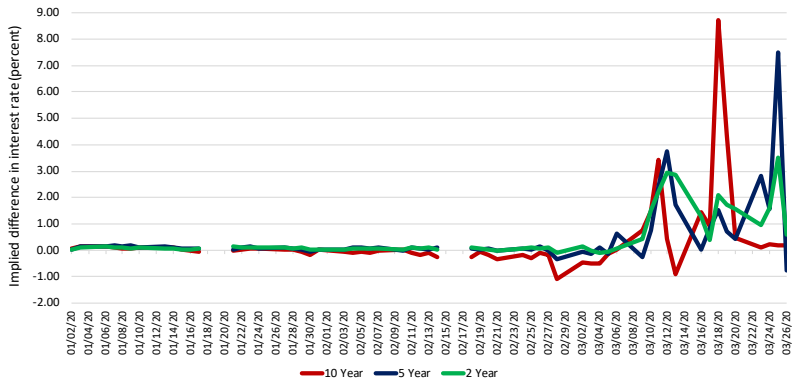


Figure: The difference, in percent, between (a) the repo rate implied by selling treasury futures, purchasing the cheapest-to-deliver underlying treasury note, and closing the futures contract at maturity by delivering the treasury note, and (b) the actual market general-collateral one-month repo rate. The data shown in the figure were provided to the author by Andreas Schrimpf, Hyun Song Shin, and Vladyslav Sushko, from Graph 3 of their paper “Leverage and Margin Spirals in Fixed Income Markets During the Covid-19 Crisis,” BIS Bulletin, Number 2, April 2, 2020.

Bid-Offer Spreads

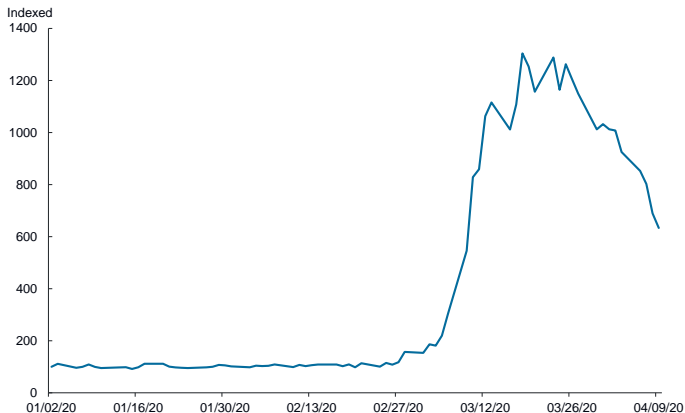


Figure: U.S. treasury bid-offer spreads, indexed to 100 at January 2, 2020. This figure by Lorie Logan, Manager of the System Open Market Account and Head of the Open Market Trading Desk, Federal Reserve Bank of New York, was published with her speech of April 14, 2020. The underlying data source is Bloomberg Financial LP. Bloomberg publishes dealer bid and offer prices in the dealer-to-customer market.

Market depth

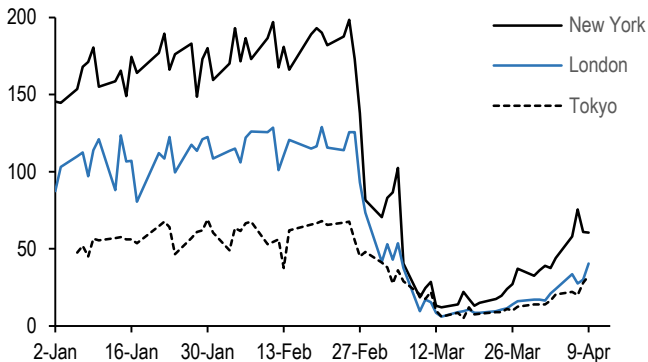


Figure: Treasury market depth on Brokertec, in millions of dollars. The market depth shown is the average of the largest three amounts bid or offered on Brokertec's interdealer central limit order book market (New York, London, and Tokyo, respectively) for on-the-run 10-year U.S. treasuries between 8:30am and 10:30am EST. The figure was obtained from JP Morgan, US Fixed Income Strategy, Joshua Younger and Henry St. John, April 2, 2020.

Total treasury market trade volumes

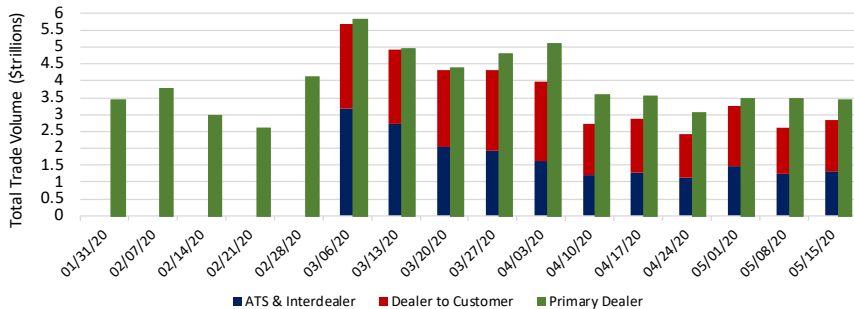


Figure: Total treasury market volumes, dealer-to-customer and interdealer (including ATS), for weeks ending on the indicated dates, and primary dealer volumes (which double counts trades between primary dealers). Data sources: FRBNY and TRACE (FINRA).

Financing of primary-dealer treasury inventories

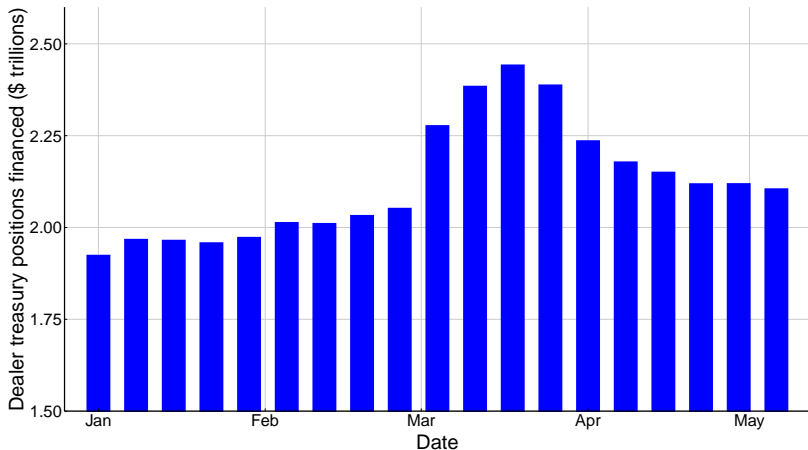


Figure: Total of all treasury positions for which primary dealers received financing with repurchase agreements and securities lending, January to May, 2020. Data source: Federal Reserve Bank of New York.

Central clearing of treasury transactions is still limited

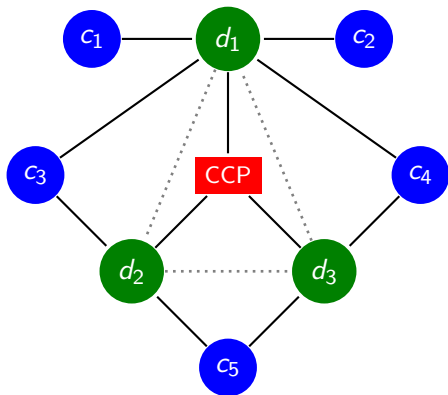


Figure: Data gathered by Treasury Market Practices Group (2018) implies that a firm faces a CCP on about 22% of Treasury transactions.

Broad central clearing frees up dealer balance sheet space

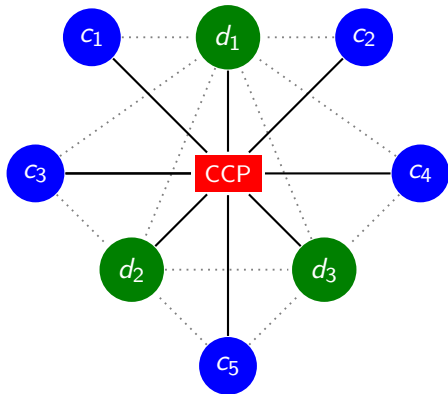


Figure: A rule requiring the central clearing of transactions of firms actively trading Treasuries, or engaging in Treasury repos, would relieve some of the need to warehouse trade flows on dealer balance sheets. Dealers would be better able to net their buy and sell trades with central counterparties (CCPs). Central clearing is a pre-requisite to all-to-all trade. With a broad-market CCP, some treasury transactions could flow directly from ultimate sellers to ultimate buyers, without necessarily impinging on dealer balance sheet space.

One-day settlement risk: SPDR SP500 versus 10-year note

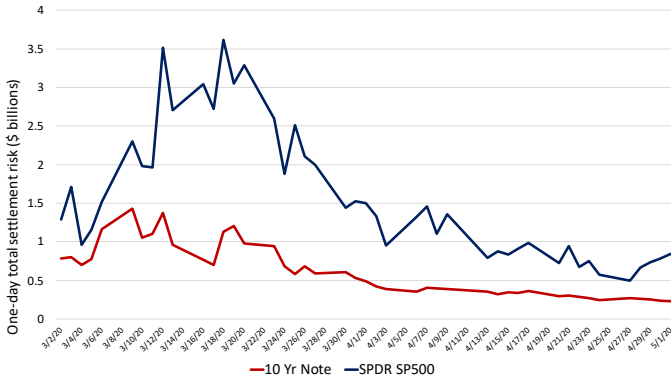


Figure: Estimated market-total one-day gross settlement risk, on-the-run 10-year U.S. treasury notes and SPDR SP 500 ETF. One-day gross settlement risk is estimated as the dollar market value of the volume of trade multiplied by the option-implied standard deviation of daily returns. Treasuries trades normally settle in one day (T+1), whereas exchange-traded equities such as the SPDR SP500 ETF settle in two days (T+2). Underlying data sources: FINRA, U.S. Treasury Department, CBOE, NYSE-Arca.

Settlement fails

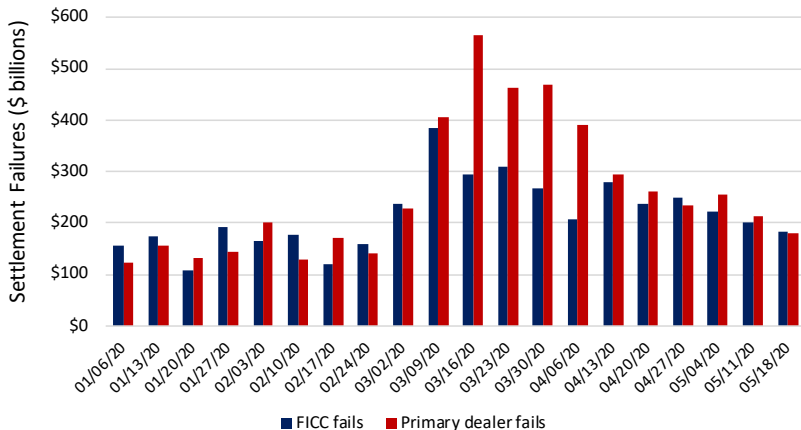


Figure: Settlement fails in treasury securities transactions involving primary dealers, and centrally cleared settlement fails at FICC. Data sources: Federal Reserve Bank of New York and FICC.

Appendix charts

Yield Curve Noise and Volatility

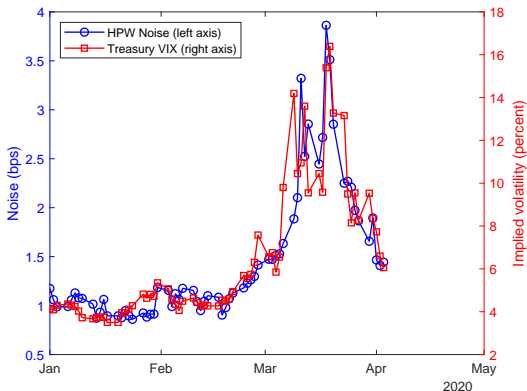
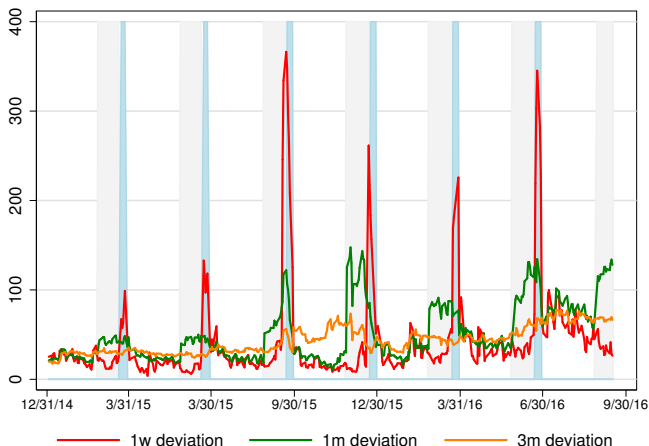


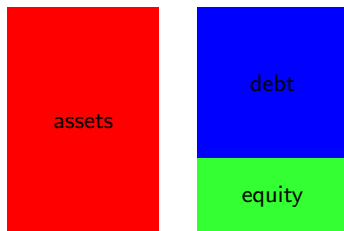
Figure: Implied volatility of the 10-year treasury note and the Hu-Pan-Wang measure of yield curve noise, in basis points. The implied volatility measure is from CBOE TYVIX data, based on options on the 10-year treasury note. The Hu-Pan-Wang (2013) noise measure of treasury market illiquidity is the square root of the mean squared error (RMSE) obtained when fitting the prices of treasury securities to a smooth model of the yield curve. Figure source: Professor Jun Pan.

Balance-sheet space is expensive: The USD-JPY CIP basis

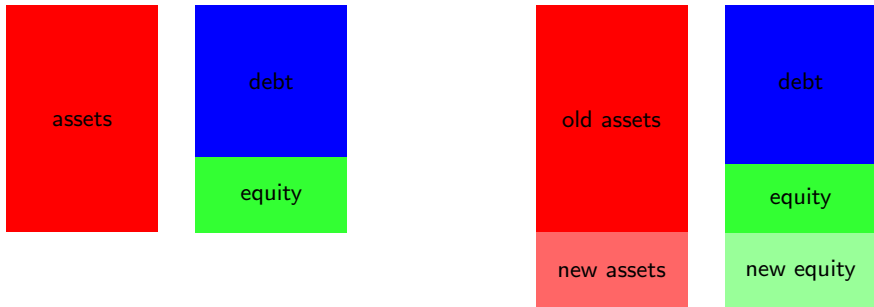


Source: Du, Tepper, and Verdelhan (2016).

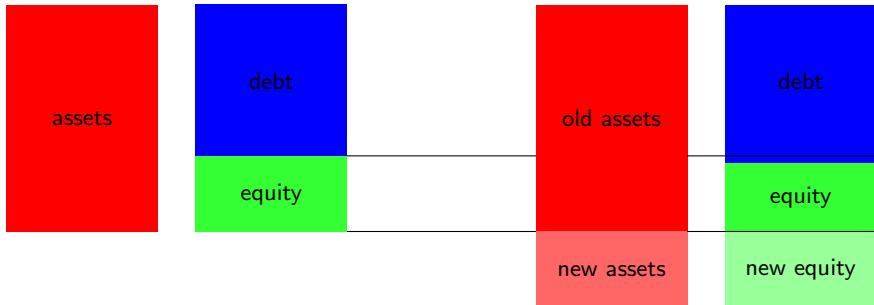
Dealer-bank balance sheet



When equity funds more assets

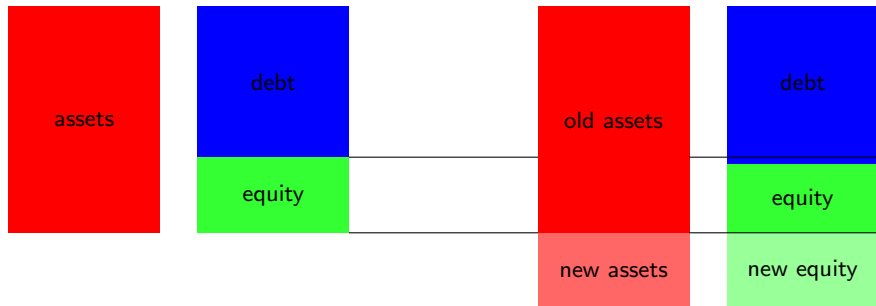


Legacy shareholders have subsidized creditors



Higher capitalization implies a value transfer from legacy shareholders to creditors.

Debt overhang impedes arbitrage



For shareholders to break even, the new assets must be purchased at a profit that exceeds the value transfer to creditors.

Andersen, Duffie, Song (2019) quantify the funding cost to shareholders of mixtures of equity and debt financing.