Corporate Debt Overhang and Credit Policy

PRINCETON UNIVERSITY BCF

Webinar with Markus

Arvind Krishnamurthy
Stanford

Introductory remarks by

Markus Brunnermeier
Princeton

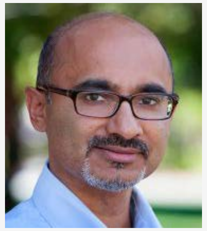
PAST AND FUTURE SPEAKERS

- Last

Erik Hurst

"The US Labor Market during COVID: Real Time Evidence from Payroll Data"

- Today



Arvind Krishnamurthy

"Corporate Debt Overhang and Credit Policy"

- Next webinar (Monday, July 6th)

Mike Spence

- Related:

Nellie Liang

Jeremy Stein

Darrell Duffie

CENTRAL BANK INTERVENTION

- Tail risk insurer
  - Funding against collateral: Lender of last resort a la Bagehot
  - Selling of claims: Backstop a la Draghi
  - Secondary Market: Market maker of last resort

Funding Liquidity

Market Liquidity

(Buiter-Sibert 2007)

See also
Webinar by
Darrell Duffie

	2008	2020
Pre-crisis	Build-up of imbalances - Run-up of credit/housing - Thinly capitalized (shadow) banks	Well balanced - US gov. debt expansion - Corporate debt
Trigger	Re-evaluation: real estate - Regional correlation	Corporate cash flow crash
Amplification	**HH & banks' balance sheets**	**Corporate sectors balance sheets**
Fin-sector	Shadow banks (part of banks)	FinTechs for mortgages Banks still for SMEs
Structured finance	CDOs	CLOs
Policy objective	**Demand stimulus**	**Survival**
Speed	Fast	Extremely fast

PAYMENT: EX-POST IMPLEMENTATION OF ARROW-DEBREU

		t=1	*t=2*	*t=3*	*t=…*	*t=x*
Ex-ante Arrow-Debreu contracting	Normal state	\$-1000	\$-1000	\$-1000	\$-1000	\$-1000
	COVID state	\$0	\$0	\$0	….	\$-1000

First uncertainty:
Pandemic or not

Second uncertainty:
Length of pandemic

PAYMENT: EX-POST IMPLEMENTATION OF ARROW-DEBREU

		t=1	*t=2*	*t=3*	*t=…*	*t=x*
Ex-ante Arrow-Debreu contracting	Normal state	$-1000	$-1000	$-1000	$-1000	$-1000
	COVID state	$0	$0	$0	….	$-1000
Ex-post (bankruptcy/no eviction)		$-1000	$0	$0	…	$-1000

Bankruptcy Protection (no eviction)

PAYMENT: EX-POST IMPLEMENTATION OF ARROW-DEBREU

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	COVID state	$0	$0	$0	….	$-1000
Ex-post (bankruptcy/no eviction)		$-1000	$0	$0	…	$-1000
Gov. subsidy		$-1000 $+1000	$-1000 $+1000	$-1000 $+1000		??

- Landlord/credit card receivables are winners
- Who should pay the taxes?

POLL QUESTION

1. Key economic concepts for COVID crisis
   a. Demand management (e.g. distribute to high MPC consumers)
   b. Impaired balance sheets

2. Focus of COVID crisis analysis should be on
   a. Household sector (mortgage, credit card debt)
   b. Corporate sector (debt overhang, zombie firms, …)

3. Who should be ex-post taxed to finance “crisis transfers”?
   a. All citizens
   b. Asset owners whose assets were supported
   c. Firms that unexpectedly win from COVID, e.g. Amazon, IT firms,…

4. Should bankruptcy be avoided
   a. At all costs (since COVID was nobodies fault)
   b. No, it is an ex-post contingent implementations

Corporate Debt Overhang and Credit Policy

Markus Brunnermeier and Arvind Krishnamurthy
Princeton University and Stanford University

June 29, 2020
Princeton COVID-19 Webinar

Credit dimensions of 2020 and 2008

2008

- Banking, Households
  - Fed/Treasury liquidity and capital injections in the financial system
  - Household liquidity via HAMP, HARP and Fed MBS purchases

- Policy objective
  - Stimulus

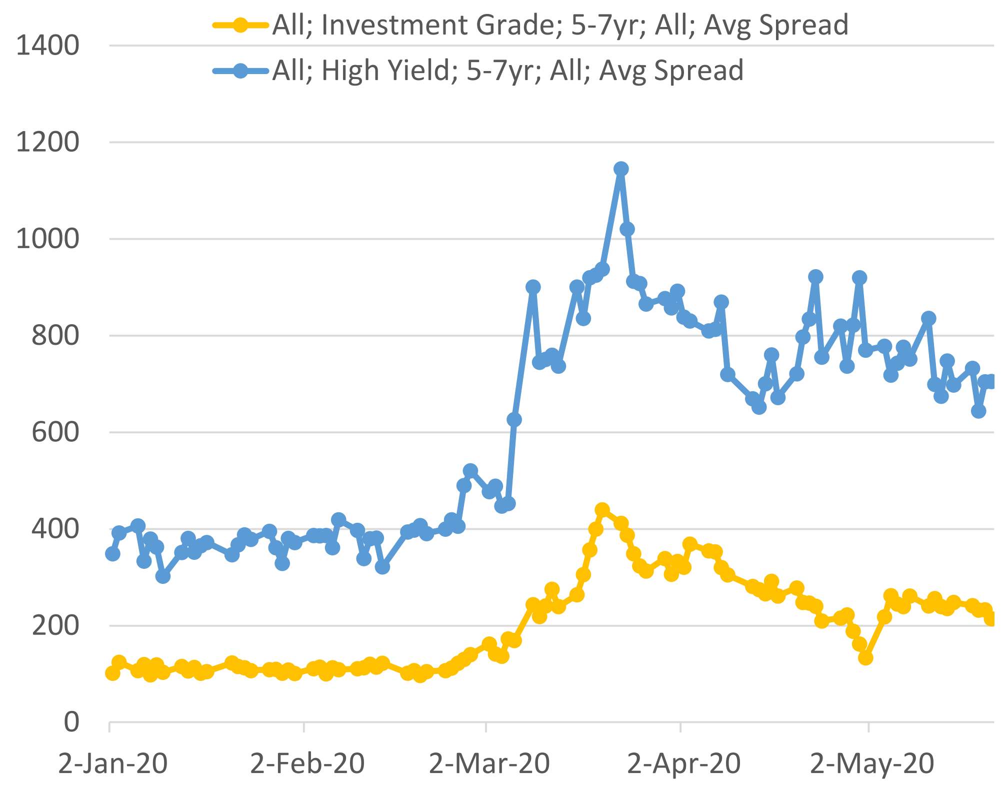
2020

- Corporate sector
  - Fed/Treasury corporate bond purchase programs
  - Main Street Lending Program, SBA's Paycheck Protection Program

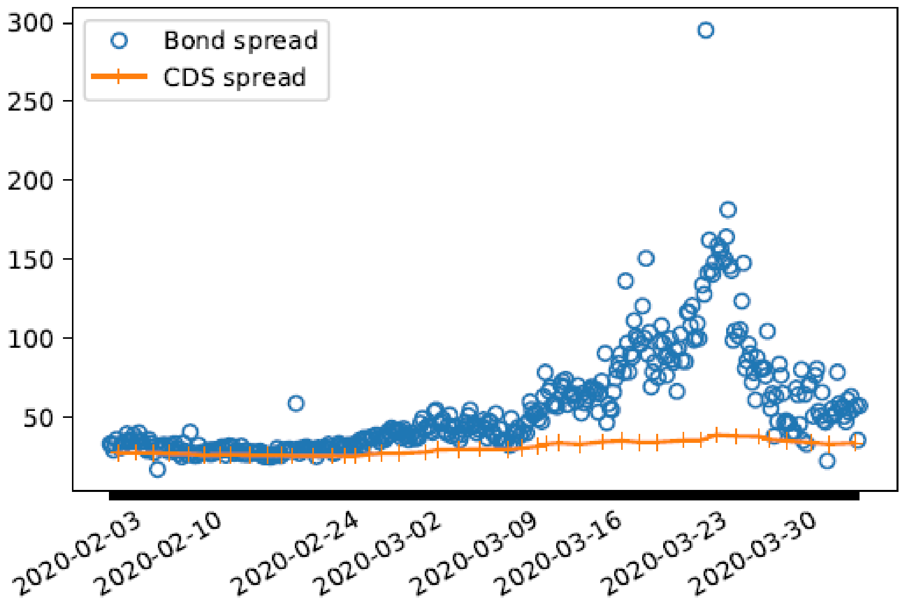
- Policy objective
  - Insurance

  against scarring that would slow a recovery once the pandemic is past

A. Corporate bond spread = Prob of Default X Risk Premium on Default Risk



High Yield and Investment Grade Corporate Bond Spreads



Google Bond and CDS spread

Source: Haddad, Moreira and Muir (2020)

A. Fed actions in March/April

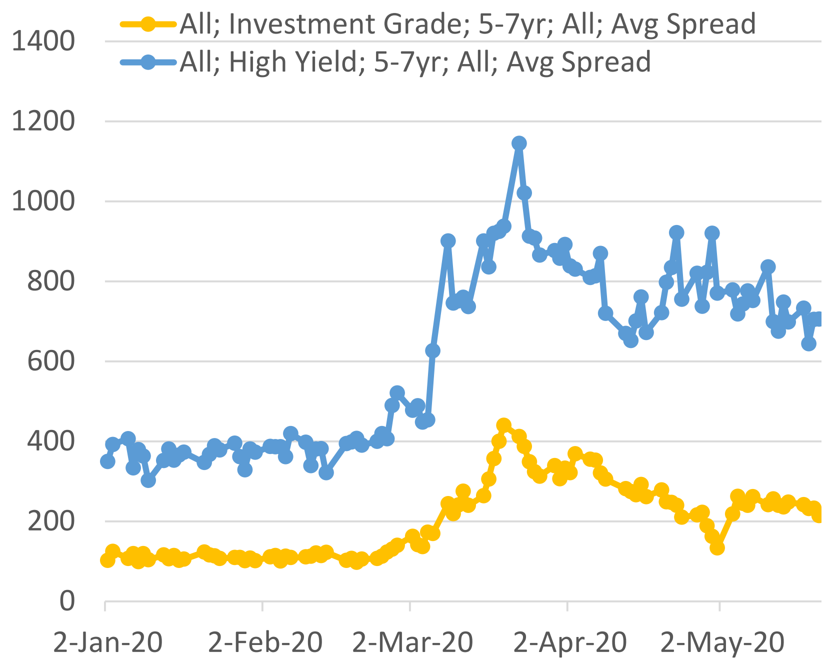
- Liquidity
  - Purchases of Treasury bonds
  - Plus lending facilities
  - Other: Discount Window, Primary Dealer Credit Facility, Currency Swaps
  - ~ $2.5 trn
- Risk-bearing capacity
  - Corporate bond announcement to purchase on March 23
    - Expanded to include HY segment on April 8
  - Commitment to take out tail-risk

"The PMCCF will provide a funding backstop for corporate debt to Eligible Issuers so that they are better able to maintain business operations and capacity during the period of dislocation related to COVID-19."

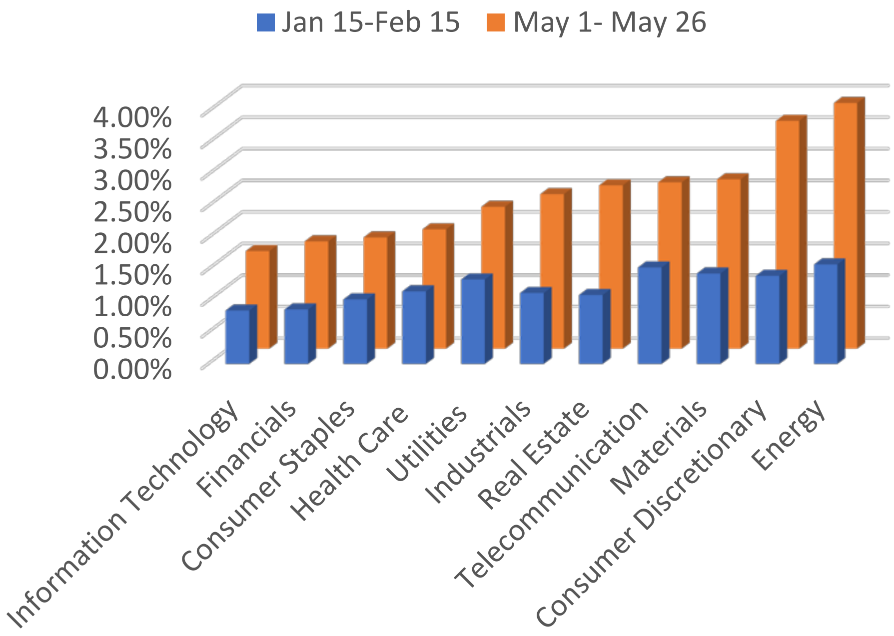
  - Corporate bond programs are still rolling out. Small as of now ~ 40 bn[1]

[1] See https://www.federalreserve.gov/releases/h41/current/

A. Corporate bond spreads now are about default risk

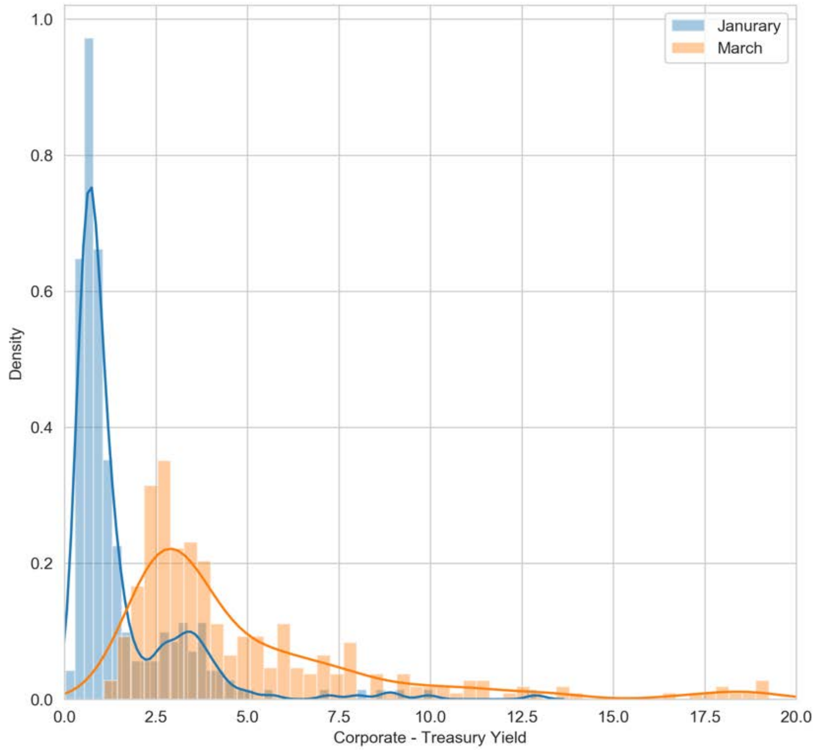


High Yield and Investment Grade Corporate Bond Spreads

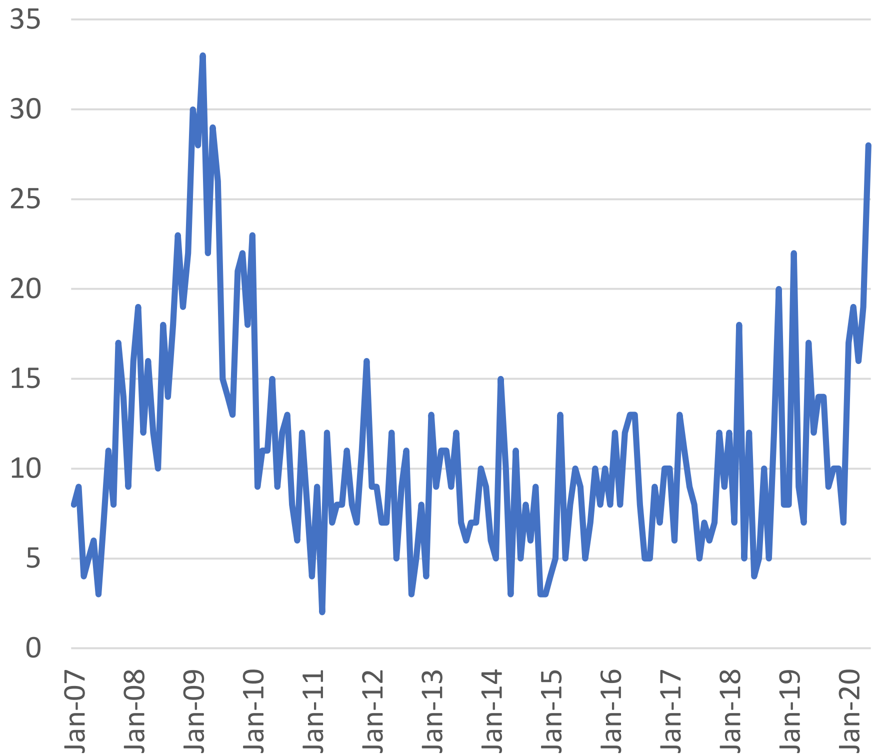


Industry Average Credit Spreads

A. Corporate sector: dispersion in risk exposure



Credit Spread Histogram, January and March



Large Corporate Bankruptcy Filings Monthly Count, Jan 2007 to May 2020

B. Macroeconomic concern about debt

- Corporate finance and debt:
  1. Bankruptcy costs: inefficient liquidation is a scarring concern

  2. Corporate financing: debt can be a drag on firm operations; underhiring and underinvestment erodes enterprise value

- Both (1) and (2) are macroeconomic concerns
  - Scarring that will impede a recovery once pandemic is past

- Credit policy aims to mitigate these concerns
  - Corporate bond QE
  - Main street lending facility
  - Paycheck protection program

Credit subsidy programs

B. Policy question we evaluate

Suppose policy could inject $1 into a firm,
where should this subsidy go to maximize macroeconomic benefits?

Absent corporate financing friction (Modigliani-Miller),
no role for credit policy

- Only path of policy rate matters for economic outcomes
- Giving a $1 to a Modigliani-Miller firm will have no impact on its real operations
- Firm will take the subsidy and pay it out as a dividend to shareholders

B. Policy question we evaluate

Suppose policy could inject $1 into a firm,
where should this subsidy go to maximize macroeconomic benefits?

- Case 1:
  - Large corporation run by management in the interest of outside equity holders
  - Solvency and debt overhang
  - Chapter 11 reorganization is bankruptcy process
- Case 2:
  - Small owner-run enterprise
  - Liquidity constraints and debt service concerns
  - Chapter 7 liquidation is bankruptcy process

B. Case 2: SME and liquidity constraints

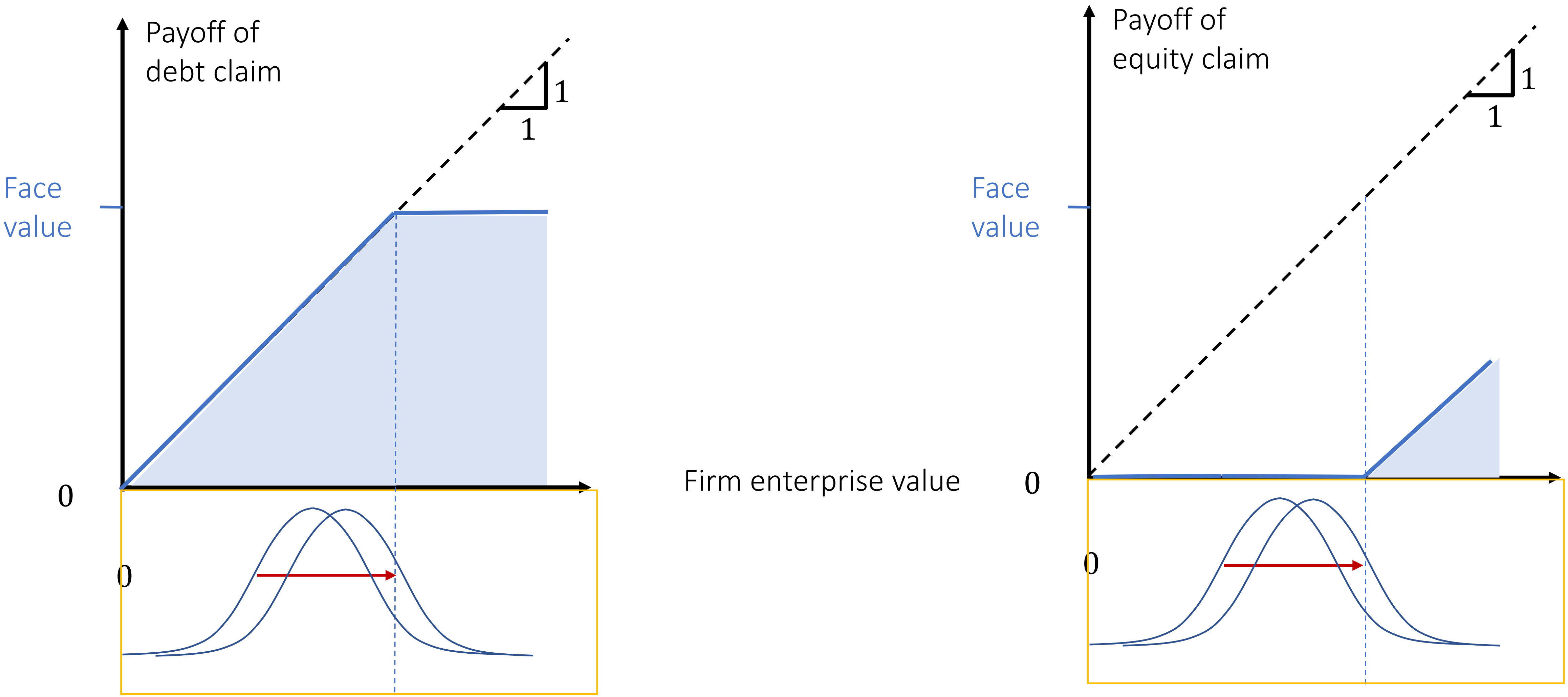
- Owner-manager has pledged firm + personal assets towards a loan
- Earnings decrease triggers debt servicing problems
  - Owner’s equity tapped out: liquidity constraint
  - Prioritize scarce liquidity towards debt service, rather than actions that maintain enterprise value (maintaining work force, capital)
  - Eventual Chapter 7 bankruptcy, firm liquidation, and possible personal bankruptcy
- Scarring:
  - In the recession, firm value erodes as real expenditure falls
  - Post-bankruptcy, firm will scale up slowly even if pandemic ends because net worth of owner remains low

- Policy: provide cheap liquidity to firm
  - Close analogy to high MPC households in 2008 recession

B. Case 1: Debt overhang for large corporate

- Solvency problem creates debt overhang (Myers, 1977)
  - Management runs firm in interest of deep-pocketed outside equity-holders
  - Expenditures to maintain enterprise value (labor, capital) partly benefit debt-holders
  - Underinvestment erodes enterprise value

Debt and equity, with high debt



B. Case 1: Large corporate bankruptcy

- Eventually firm files for bankruptcy
- Filing for Chapter 11 can eliminate debt overhang
  - Automatic stay on debt payments
  - Creditors become new owners of firm, and restructure the debts to ensure firm is viable
- Chapter 11 has direct and indirect bankruptcy costs

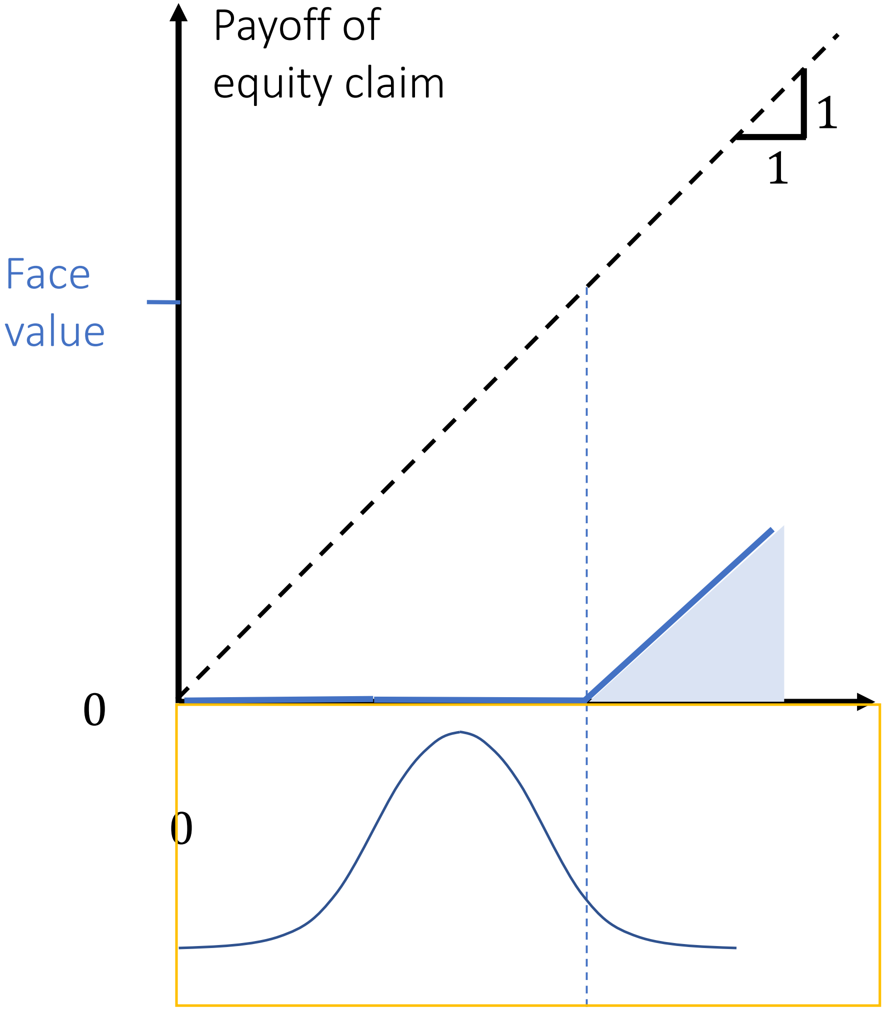
B. Case 1: Large corporate decision to file

The private-equity owners of some bankrupt companies had no shortage of cash to spend. Ares Management Corp., which bought Neiman Marcus in 2013 alongside the Canada Pension Plan Investment Board, was sitting on more than $33 billion of dry powder shortly before the luxury retailer filed for bankruptcy last month. Ares declined to comment, and the CPPIB didn't respond to a request for comment.

From WSJ June 28, 2020: **Private Equity's Trillion-Dollar Piggy Bank Holds Little for Struggling Companies**

B. Case 1: Large corporate decision to file

- Consider a case of zero Chapter 11 bankruptcy costs
- Filing for Chapter 11 reorg is a decision of the equity-holders
  - Equity holders own a call option on the firm (Leland, 1994)
  - Debt service is the equity-holders payment to retain the option
  - Option logic: volatility, “in-the-money”
- Equity-holders delay longer than is socially efficient
  - In the process, firm underinvests and enterprise value erodes



B. Case 1: Credit subsidy for large corporates

- Credit subsidy
  - Long pandemic/low bankruptcy costs
    - No credit subsidy: it enables equity-holders to delay a Chapter 11 filing
    - While enterprise value erodes, enabling “zombie” firms
  - Short recession/high bankruptcy costs
    - Credit subsidy to avoid fixed bankruptcy cost

- Given current Fed’s current economic assessment (zero rates for two years) policy should not direct subsidy to large corporates
  - Corporate bond programs should be left on stand-by, to be used in event of a risk dislocation (like March 2020)
  - Corporate bond QE is not warranted

B. Chapter 11 Bankruptcy costs

- Reduction of bankruptcy costs is unambiguously beneficial
- Reduces direct financial cost of bankruptcy and subsidizes debt restructuring
- Less need for a credit subsidy to distressed firms

B. How to reduce bankruptcy costs?

- Subsidized debtor-in-possession (DIP) financing
  - A firm in Chapter 11 needs cash to maintain operations
  - Typically from a specialized DIP lender, and often same as senior creditor

  - Proposal: government credit subsidy to DIP financing
    - Either directly by providing the DIP loan
    - Or indirectly by subsidizing loans to DIP lender

- Bankruptcy infra-stucture
  - Courts may become overwhelmed ⟹ Scale up expertise
  - Although, some evidence that congested courts favor continuation rather than liquidation (Iverson, 2019)

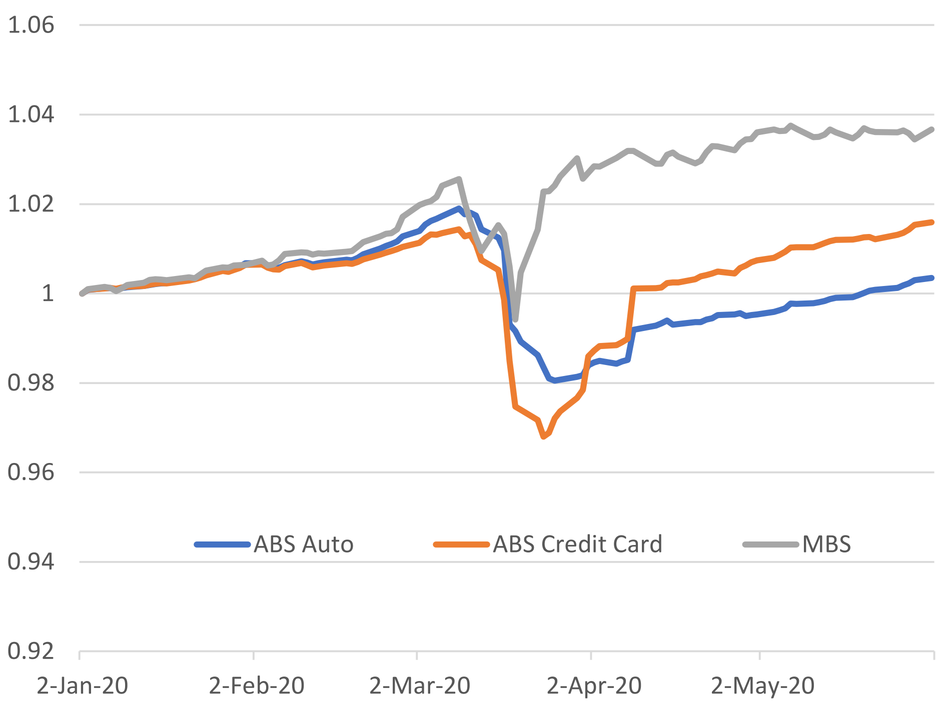
B. How to reduce bankruptcy costs?

- Bankruptcy has indirect spillover costs
  - Most significant are spillovers to banks, via losses on bonds/loans
  - Pre-emptive actions to shore up bank capital such as trigger C-CYB, especially now while markets are operating smoothly and embed low risk prices

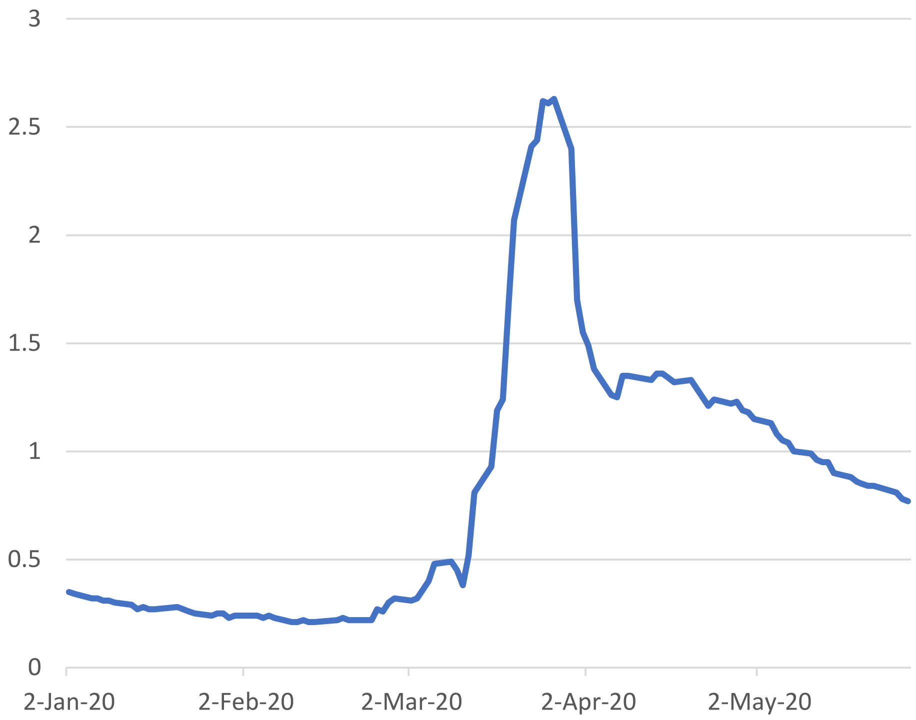
C. Credit policy as insurance

- In an Arrow-Debreu ex-ante allocation
  - Firms would write debt contracts to be state-contingent, falling in a pandemic
    - Avoids erosion of enterprise value due to debt overhang and bankruptcy scarring
  - Workers in pandemic-affected industries would receive insurance payments while furloughed from their employers
    - Avoiding personal bankruptcy and consumption insurance
- Credit policy of government fills in the contract ex-post
  - Subsidies to firms and households avoid debt costs and default

C. Benefits flow to lenders: household ABS



Asset Backed Securities Cumulative Returns



Credit Card ABS Spreads

C. Taxation to restore ex-ante AD allocation

- In AD allocation, lenders would have lost money in pandemic
- Ex-post credit subsidy flows to lender; without subsidy lenders would have lost money
- To replicate AD allocation, incidence of taxes should fall on asset owners (i.e., lenders) rather than workers

Policy conclusions

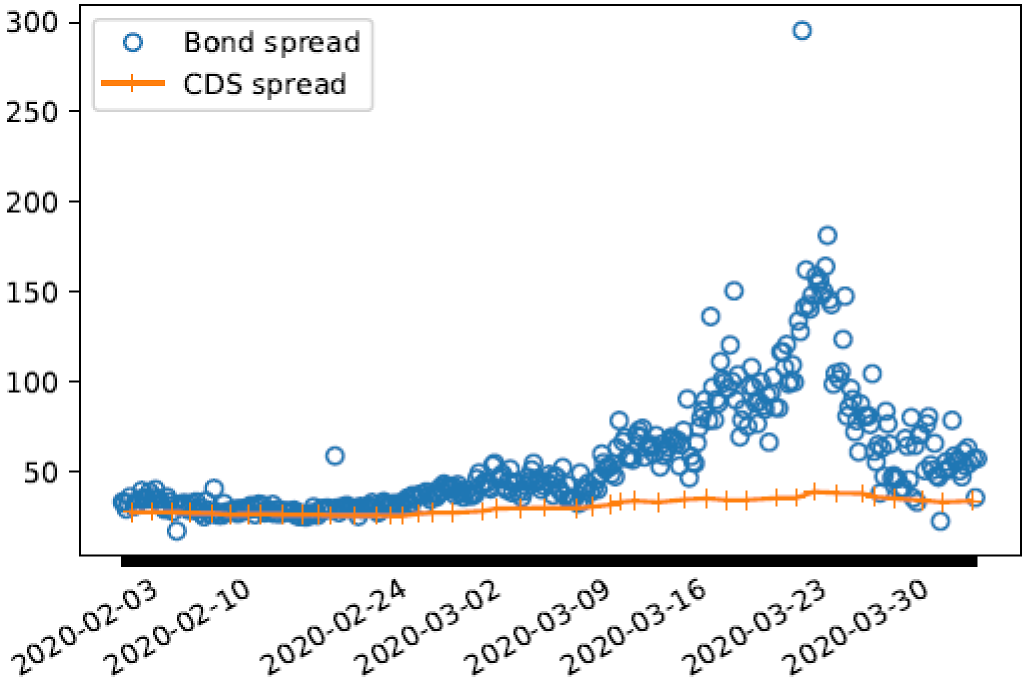
- Subsidize credit to SMEs

- Given current Fed's current economic assessment (zero rates for two years) policy should not direct subsidy to large corporates
  - Corporate bond programs left on stand-by
  - Instead subsidy to reducing direct financial costs of bankruptcy
  - And shore-up bank balance sheets to reduce indirect costs

- Credit programs are ex-post insurance
  - To mimic ex-ante allocation, taxes needed to fund insurance should come from asset-owners

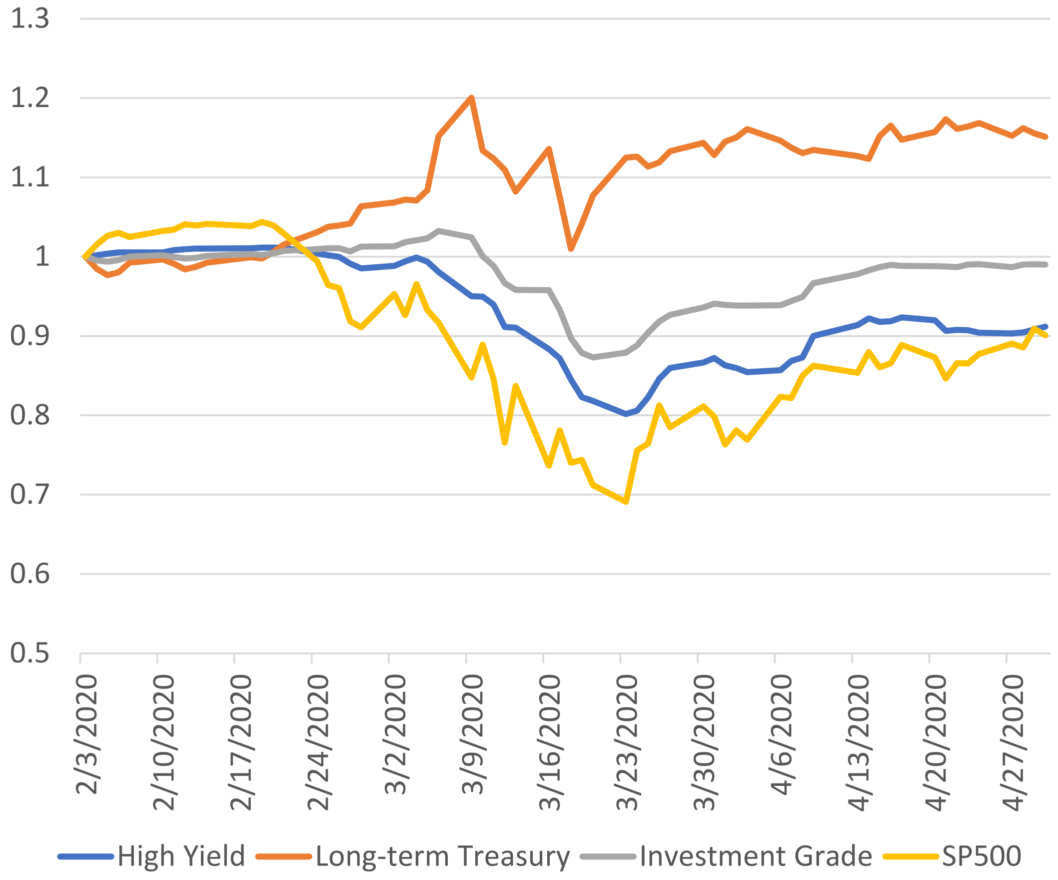
More on March 2020

A. IG corporate bond spreads

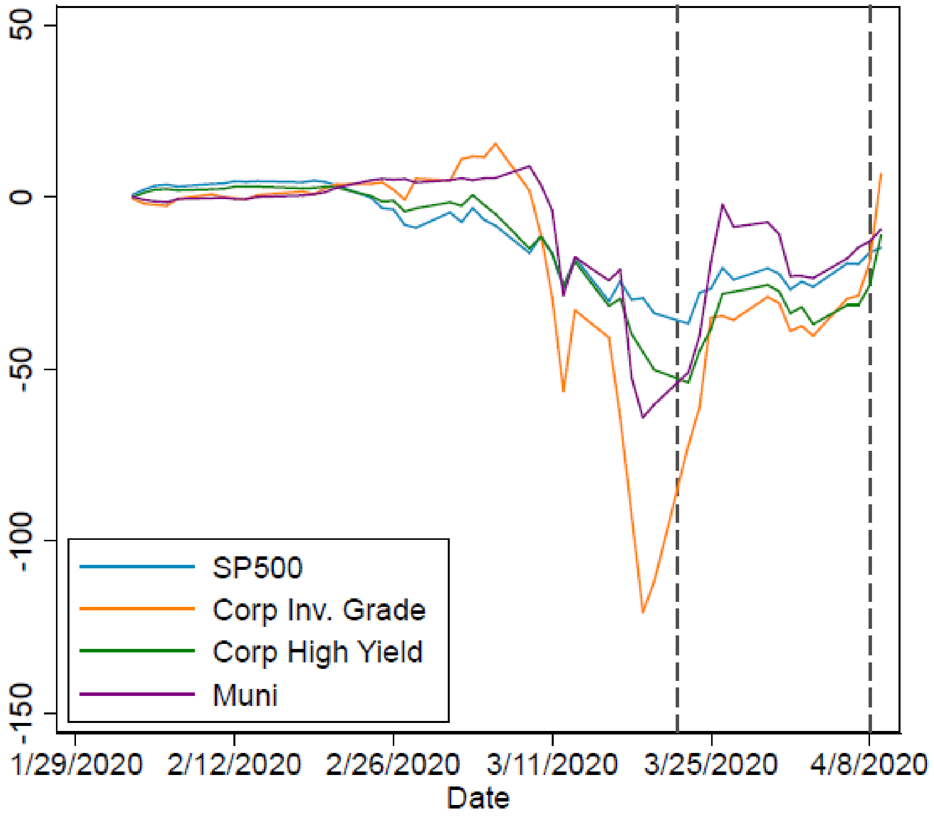


- Google Bond and CDS spread, from Haddad, Moreira and Muir (2020)

A. March 2020



Raw Returns



Beta-adjusted Returns (Haddad, Muir, Moreira, 2020)