

# A Discussion of “**Intermediary-Based Equity Term Structure**”

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# Overview

- This paper builds an equilibrium model of intermediary asset pricing and show that the model can simultaneously explain:
  - ▶ Pro-cyclical **equity yield** term structure.
  - ▶ Counter-cyclical **equity term premium**.
- Additional results on the pricing of convenience yields.
- A great paper that fills an important gap in the literature!

# Basic Definitions: Equity Yield and Equity Term Premium

- What is equity yield?

- ▶ For a dividend strip (constructed from stock-index dividend futures or stock-index put/call options) paid at time  $t + n$  (think it as an  $n$ -period nominal bond), the equity yield is

$$e_{n,t} = \frac{1}{n} \log\left(\frac{D_t}{P_{n,t}}\right)$$

- ▶ Difference from bond yield: The actual dividend payment is  $D_{t+n} = D_t g_{t,t+n}$ , where the dividend growth  $g_{t,t+n}$  is random – “cash flow effect”.

- What is equity term premium?

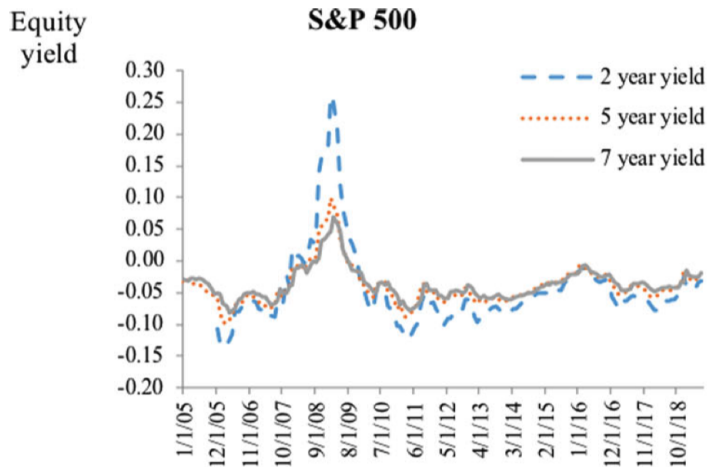
- ▶ The one-period return of an  $n$ -period dividend strip,

$$r_{n,t+1} = \log\left(\frac{P_{n-1,t+1}}{P_{n,t}}\right)$$

- ▶ Term premium:  $E_t(r_{n,t+1} - r_{1,t+1})$

## Basic Facts: Equity Yield Term Structure

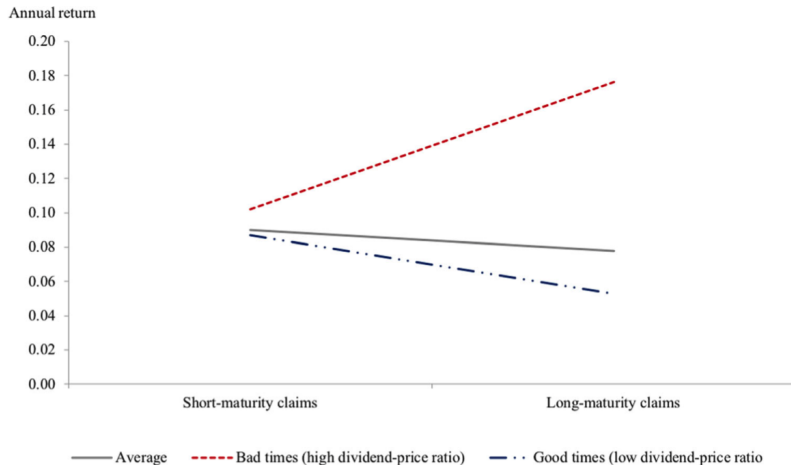
- Downward-sloping in recessions.



Reference: Gormsen 2021 JF.

## Basic Facts: Equity Term Premium

- Upward-sloping in recessions, but downward-sloping in expansions.
- On average is downward-sloping, but if we add error bars, the result is not significant.

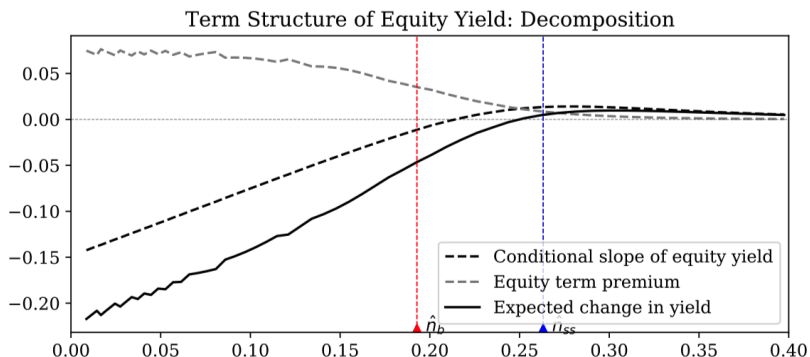


Reference: Gormsen 2021 JF.

## Model Mechanisms

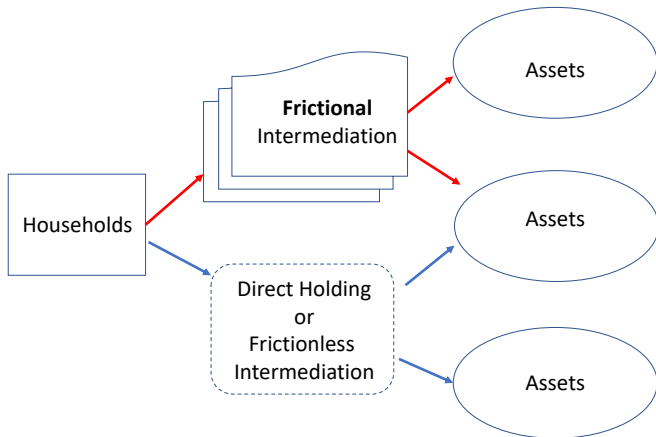
- An equilibrium model with occasionally binding constraint of financial intermediaries that hold risky assets, a la Gertler and Kiyotaki (2010).
- When intermediaries are constrained, the price of risk is high, and equity yield is high. But the economy is expected to recover quickly.

Equity yield term spread = Equity term premium + Expected change of short-term equity yield



## Model Mechanisms: Intermediary Asset Pricing

- Typical critique: equity is mainly held by households directly or through passthrough institutions such as mutual funds. Thus, intermediary asset pricing doesn't apply to equity.
- Nevertheless, equity divided strips are traded in the derivative market, so we **should expect** intermediary capital to play a role.



## Parallel predictions on bond returns?

- The “expectation hypothesis” component of equity term structure is very strong.
- A similar argument applies to the bond market: short rate is expected to mean revert, so the bond term spread predicts future short rate.
- However, in bond markets, term spread positively predict bond returns. Can the model generate an opposite prediction in the bond market?

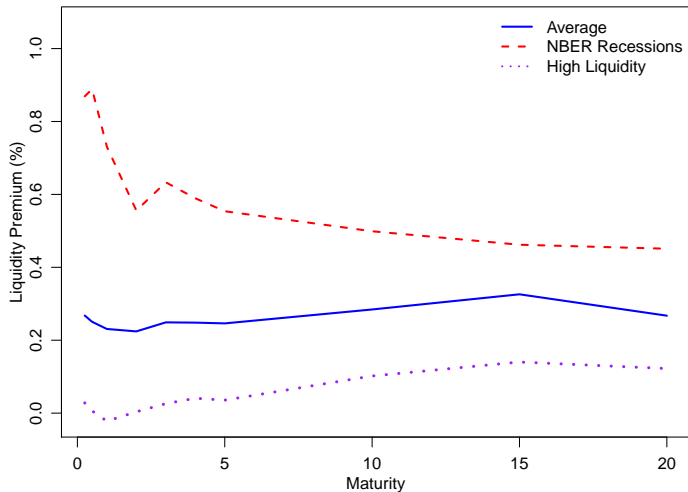


## Term Structure of Convenience Yields (Liquidity Premium)

- The model also extends to analyze convenience yield term structure: Treasury securities have better pledeability and requires less balance sheet than other bonds.
- Van Binsbergen et al (2021) measures convenience yield as Box rate - Treasury rate, up to 18 months, from 2004 to 2018. The cyclical patterns are not prominent.
- Joslin, Li, and Song (2021) instead measures convenience yield up to 30 years via Refcorp bonds, from 1991 to 2021.

# Term Structure of Convenience Yields

- Downward-sloping in recessions.



# Balance Sheet Cost and Treasury Yield Term Structure

- Pre 2008: holding Treasuries via repo does not incur much balance sheet cost, but has a funding advantage.
  - ▶ Indicator: CIP basis is close to zero, positive swap-Treasury spread.
- Post 2008: capital regulation indicates a balance sheet cost of Treasury securities.
  - ▶ Small difference between Treasury-repo rate and interbank rate.
  - ▶ Treasuries are “inconvenient”.
- Regime shifting: intermediaries shift from net short to net long.
- Big picture: intermediary pricing of Treasuries is regime-dependent (Du, Hebert, and Li 2022).

# Summary

- An important contribution that shows how intermediary asset pricing can explain the equity term structure.
- Possibly another paper on bond premium and bond convenience yield, but definitely interesting to further explore!

# References

- Van Binsbergen, Diamond, and Grotteria (2022). Risk-free interest rates. *Journal of Financial Economics*, 143(1), 1-29.
- Du, Hebert, and Li (2022). Intermediary Balance Sheets and the Treasury Yield Curve. USC Marshall School of Business Research Paper
- Joslin, Li, and Song (2021). The term structure of liquidity premium. USC Marshall School of Business Research Paper.