Duration-Based Stock Valuation:

Reassessing Stock Market Performance and Volatility

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Discussant: **Andrei S. Gonçalves**

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Outline

The Paper's Message

- Two stylized facts in Asset Pricing:
- This paper: long duration of equities drives such stylized facts
- Important implications:

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  - Large equity premium $\Rightarrow \mathbb{E}[R_e - R_f] \in [4\% \, , \, 8\%]$
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$$R_b = \sum_{n=1}^{\infty} w_n \cdot R_b^{(n)} = \sum_{n=1}^{N} \widehat{w}_n \cdot \widehat{R}_b^{(n)}$$

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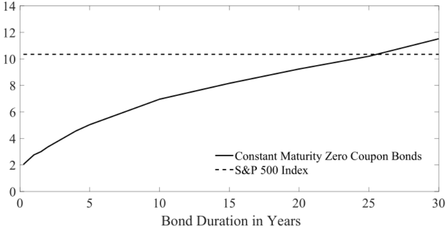

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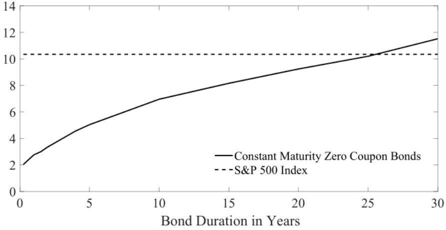

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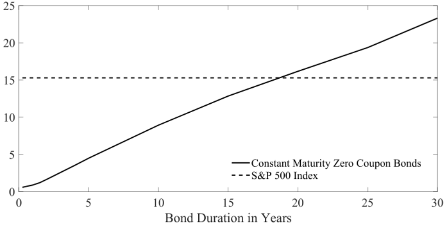

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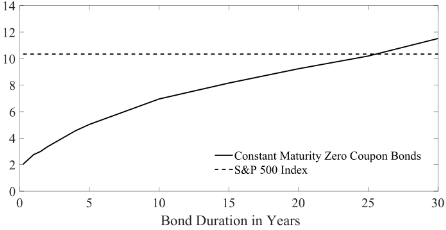

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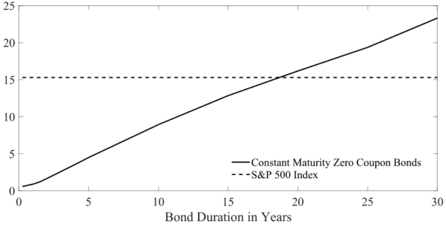

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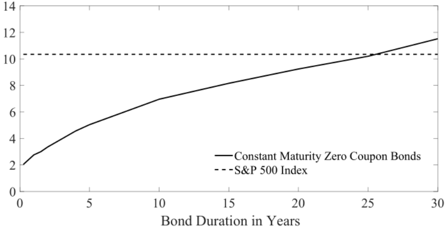

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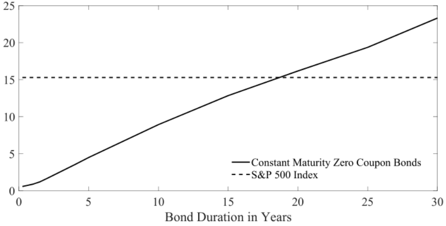

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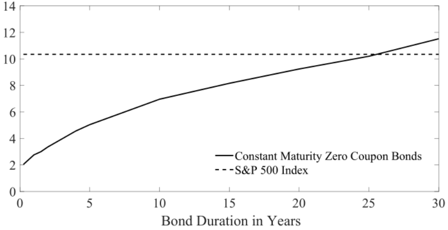

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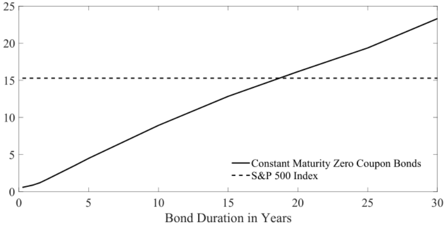

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	1996-2021				1970-2021			
N	30	40	30	40	30	40	30	40
Dividend Yield	3%	3%	2%	2%	3%	3%	2%	2%
Duration	19.9	23.4	22.6	27.6	19.9	23.4	22.6	27.6
$\mathbb{E}[R_e - R_b]$	1.4%	-0.3%	0.7%	-1.7%	-0.9%	-8.0%	-2.1%	-12.1%
$\sigma[R_e] - \sigma[R_b]$	-0.0%	-1.1%	-0.6%	-2.4%	-2.7%	-6.7%	-4.3%	-10.7%

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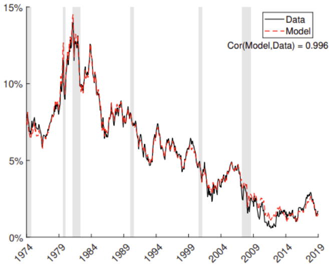
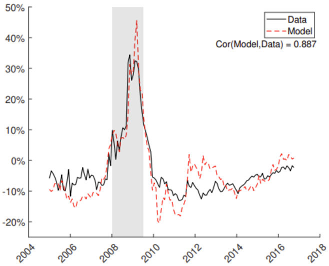


(b) $y_e^{(1)}$



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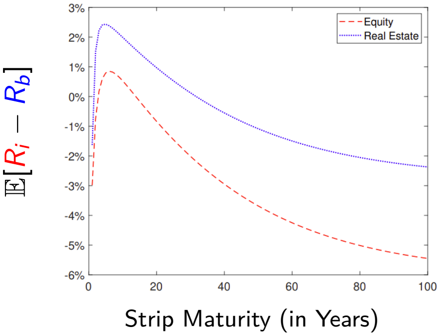

2) Formalizing the Potential Explanations

- From Gonçalves (2021), we have (with $\widetilde{x}_t \equiv x_t - \mathbb{E}_{t-1}[x_t]$):

- Similarly, we have (derivations in slide appendix):

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$$\approx \mathbb{E}[R_e - R_b] + \frac{\Sigma_{t=1}^{T} N_{\Delta d,t}}{T} + \frac{\Sigma_{t=1}^{T} N_{\Delta \pi,t}}{T} - \frac{\Sigma_{t=1}^{T}(N_{rd,t} - N_{rb,t})}{T}$$

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Outline

Final Remarks

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Return Components (Derivation)

- $\$R_{t+1}^{(n)} = P_{t+1}^{(n-1)} / P_t^{(n)}$
  (where $P_t^{(0)} = CF_t$ is the asset nominal cash flow)
- $\$r_{t+1}^{(n)} = p_{t+1}^{(n-1)} - p_t^{(n)} = pcf_{t+1}^{(n-1)} - pcf_t^{(n)} + \Delta cf_{t+1}$
  (where $pcf_t = log(P_t / CF_t)$)
- $r_{t+1}^{(n)} = \$r_{t+1}^{(n)} - \Delta\pi_{t+1} = pcf_{t+1}^{(n-1)} - pcf_t^{(n)} + \Delta cf_{t+1} - \Delta\pi_{t+1}$
  (where $\Delta\pi_t = log(\Pi_{t+1}/\Pi_t)$ is the growth in an inflation index)
- Iterating $pcf_t^{(n)}$ forward and using $\widetilde{r}_t^{(n)} = \widetilde{pcf}_t^{(n-1)} + \widetilde{\Delta cf}_t - \widetilde{\Delta\pi}_t$:

$$\widetilde{r}_t^{(n)} = (\mathbb{E}_t - \mathbb{E}_{t-1}) \left[\Sigma_{j=0}^{n-1} \Delta cf_{t+j} - \Delta\pi_{t+j} \right] - (\mathbb{E}_t - \mathbb{E}_{t-1}) \left[\Sigma_{j=0}^{n-1} r_{t+j}^{(n-j)} \right]$$

- Dividend strips: $\Delta cf_{t+1} = log(D_{t+1}^{\$} / D_t^{\$}) = \Delta d_{t+1} + \Delta\pi_{t+1}$
- Nominal Bond strips: $\Delta cf_{t+1} = log(1/1) = 0$
- Real Bond strips: $\Delta cf_{t+1} = log(\Pi_{t+1}/\Pi_t) = \Delta\pi_{t+1}$