

Asset Pricing and Risk Sharing Implications of Alternative Pension Plan Systems

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Discussion by Dan Greenwald



Overview



- Defined benefit pension plans are large asset holders
 - This paper develops a structural model to take them seriously
- Key mechanisms:
 1. Force asset accumulation by impatient households, increasing asset demand and reducing returns
 2. Fixed benefits means that funds must change required contributions depending on returns, adding cash flow risk
- Results: higher equity premium in model with defined benefit pensions vs. pay as you go system

Evaluation



- Great to see a paper taking DB pensions seriously!
 - Quantitative results from an impressive structural model
- Mechanism the authors emphasize (cash flow exposure to pension surpluses/shortfalls) is intuitive
 - But possibly overstated
- In the model, value of risky assets is driven by cash flow risk that has large effect on pension funding
- In reality, value of the stock market may be more driven by shocks to risk premia or factor shares with smaller impact

Risky Equity Exposure



- Model assumes that firms face:
 - Transitory (business cycle) productivity shocks
 - Stochastic depreciation that depends on business cycle
- Stochastic depreciation is convenient to match return volatility
 - But implies that main equity risk is fundamental (cash flow) risk
- Empirical analysis (think Campbell-Shiller) usually finds that movements in expected returns (risk premia) play larger role

Risky Equity Exposure

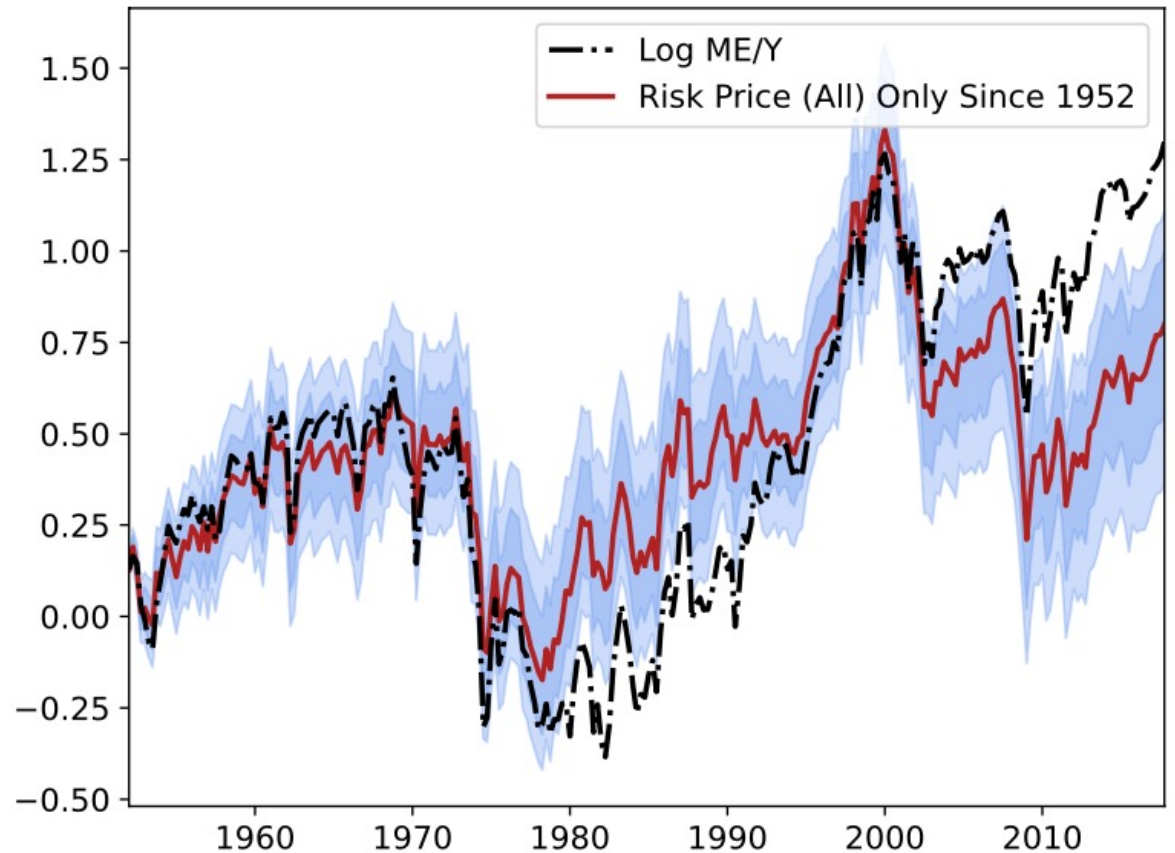


- This is important for the results because shocks to depreciation (capital) and risk premia have very different impacts on pension
- Risk premium shocks, by themselves, may not matter
 - Imagine cash flows expected to match pension payouts on average
 - When risk premium \uparrow , value of equity \downarrow , but expected returns \uparrow
 - No need to collect additional funds for pension
- Depreciation shock destroys capital, reduces future cash flows
 - Original cash flows now insufficient following negative shock
 - Need infusion of cash to keep pension funded

Which Shocks Drive Equity Returns?



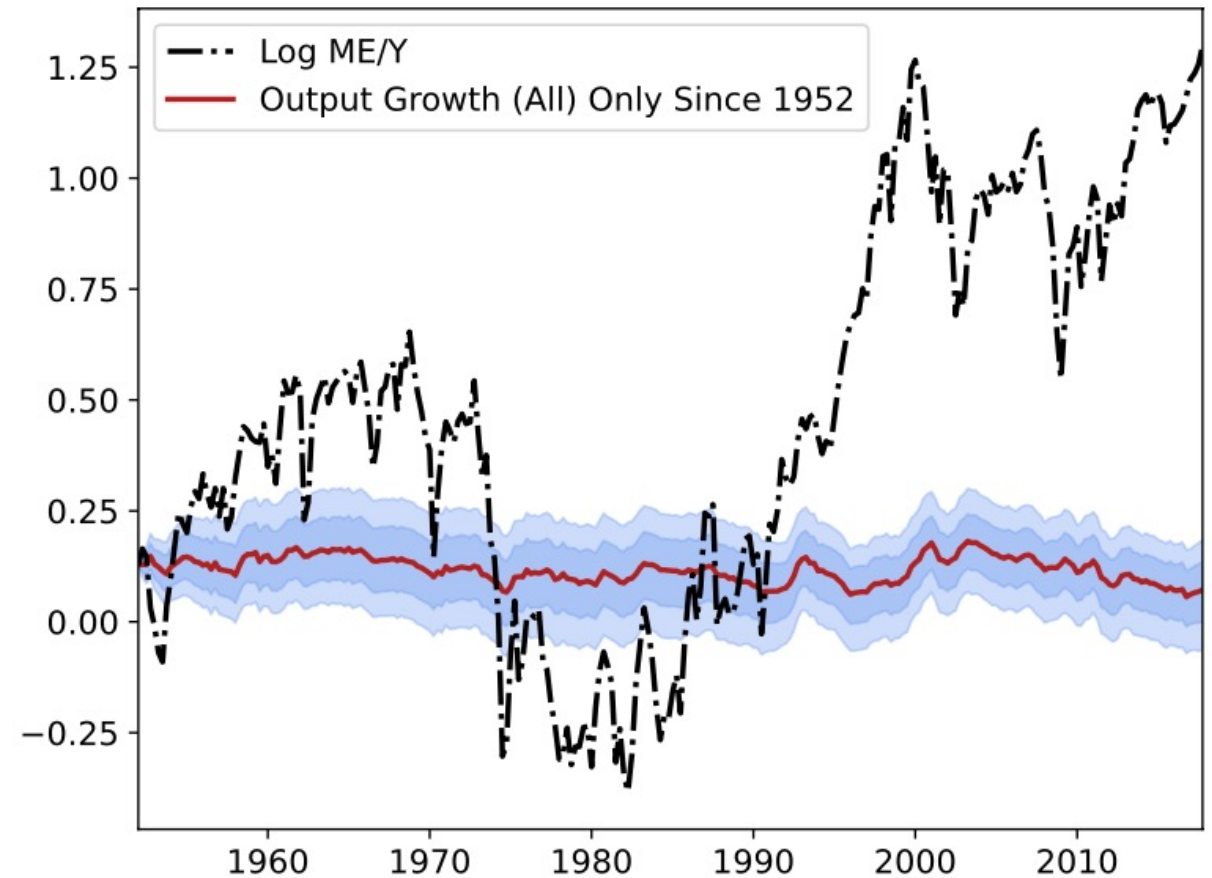
- Greenwald, Lettau, Ludvigson (2023) estimates contribution of different shocks to value of market equity
- Most high frequency movements driven by risk price shocks that do not directly affect cash flows



Which Shocks Drive Equity Returns?



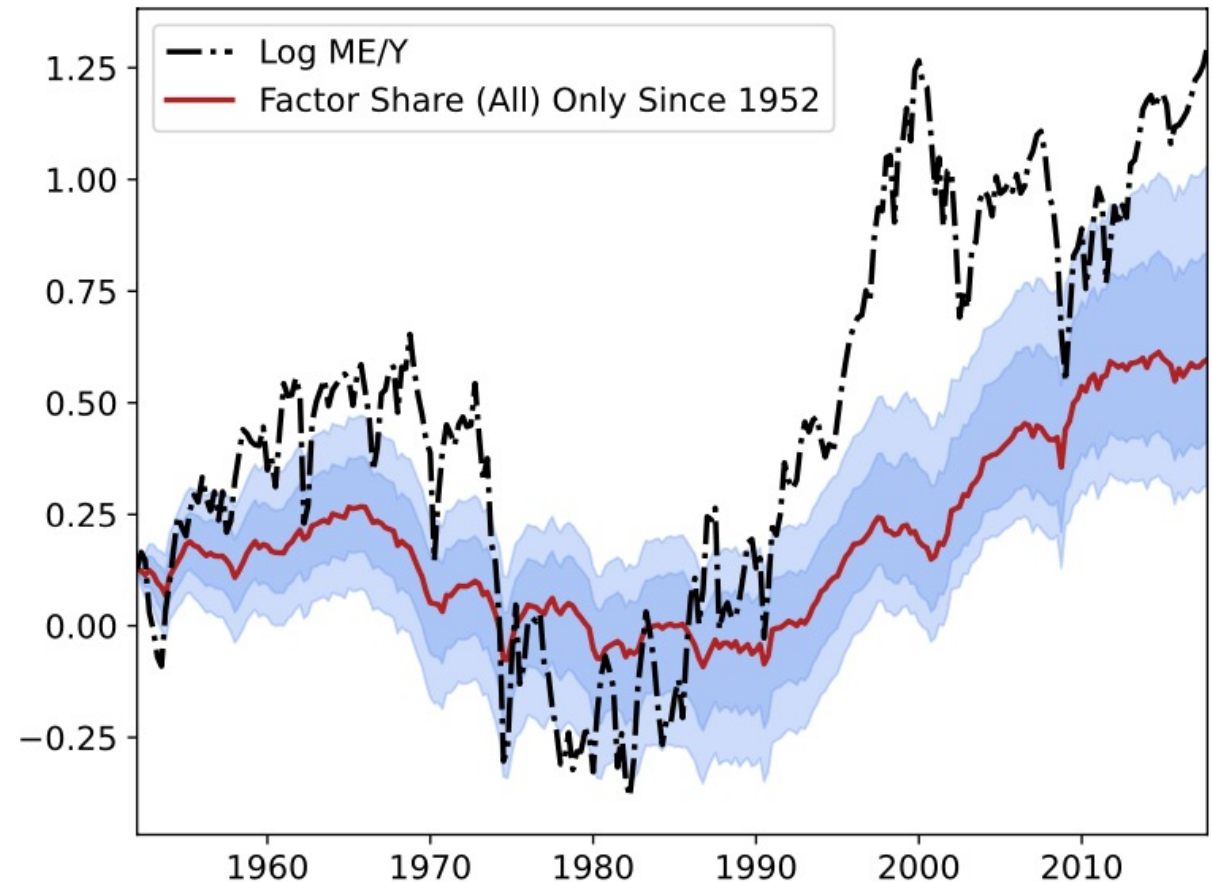
- Shocks to corporate output (productivity) drive almost zero growth
- Why? Just not large enough proportionally
- Note: this component would pickup the stochastic depreciation in the paper



Which Shocks Drive Equity Returns?



- Shocks to factor shares (redistribution between workers and shareholders) have a large impact at low frequencies
- Might be relevant horizon for pensions
- But these shocks are **negatively correlated** with labor income!



Summary



- Great paper with important point and interesting mechanism
- I would like to see more evidence that the model is not overstating the volatility of pension shortfalls/surpluses
- How much of equity risk is due to fundamentals (shocks to capital) vs. risk premia or redistribution?
- This can in principle be measured in the data, so hopefully straightforward to get this ironed out.