# Notes on Empirical Asset Pricing

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# 1 Introduction

This notes is based on my study of Ralph S.J. Koijen's PhD teaching notes on empirical asset pricing[1]. Some research and text generation is also aided by ChatGPT.

# 2 Return Predictability and the Term Structure of Returns

## 2.1 Frequencies in Return Predictability

- The expected returns extracted from the price-to-dividend ratio are highly persistent that moves at generational frequencies.

- Cochrane (2011) uncovered a business-cycle frequency in expected returns.

- The persistence in the price-dividend ratio suggests a highly persistent component. CAY from Lettau and Ludvigson or the cross-section of valuaiton ratios from Kelly and Pruitt point to a higher-frequency component.

- **Consumption Walth Ratio (Lettau and Ludvigson, 2001)**. In the context of the Lettau-Ludvigson model, the Consumption-Wealth Ratio (CAY) is a key variable used to predict stock returns. The CAY is the ratio of aggregate consumption to aggregate wealth. The authors propose that this ratio has predictive power for future stock returns because it reflects the behavior of investors who face fluctuations in their wealth relative to their consumption needs. The intuition behind the CAY's predictive power lies in the intertemporal choice of investors. When the CAY is high, it suggests that consumption is relatively low compared to aggregate wealth. In such periods, investors might be more inclined to invest in riskier assets like stocks to increase their consumption in the future. Conversely, when the CAY is low, indicating that consumption is relatively high compared to aggregate wealth, investors may be more inclined to reduce their exposure to risky assets like stocks.

- Cross-section of valuaiton ratios from Kelly and Pruitt.

- Evidence from the variance risk premium points to predictability that disappears after weeks or months, rather than years or decades.

# References

[1] Phd notes: Empirical asset pricing: https://www.koijen.net/phd-notes-empirical-asset-pricing.html.