Asset Prices and Institutional Investors: Discussion

Suleyman Basak and Anna Pavlova

Ralph S.J. Koijen

University of Chicago and NBER

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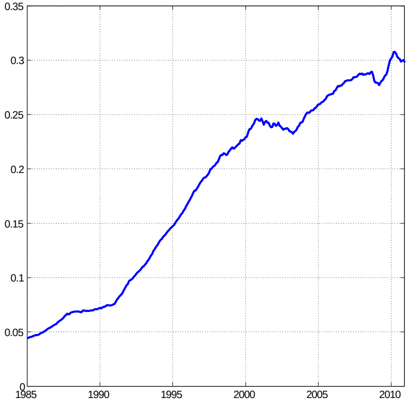
Delegation and Asset Pricing

- Lot of asset pricing theory abstracts from delegation and decentralization
- Quite remarkable given how important agency theory is in finance and economics more broadly
- This paper argues that we may need to understand the interaction between delegation and asset pricing
  - I agree
- Important and transparent paper, with hopefully many followers

Size of the Mutual Fund Industry

- For instance, consider the size of the mutual fund industry relative to total market cap



Model: Endowments and Preferences

- Two agents endowed with initial wealth shares λ and $1-\lambda$
- Agents differ in terms of their preferences/objective function
  - Retail investors:
$$u^{\mathcal{R}}\left(W_T\right) = \log W_T$$
  - Institutional investors ($a, b > 0$):
$$u^{\mathcal{I}}\left(W_T, I_T\right) = \left(a + bI_T\right)\log W_T$$
- These preferences imply:
$$\partial u^{\mathcal{I}}\left(W_T, I_T\right)/\partial W_T = \frac{a + bI_T}{W_T},$$
and hence increasing in the benchmark, I_T
- Same in other models of preferences, for instance:
$$u^{\mathcal{I}}\left(W_T, I_T\right) = \frac{1}{1-\gamma}\left(W_T/I_T\right)^{1-\gamma},$$
just a lot more tractable in GE!

Model: Technology

- N assets of which M are included in the benchmark
- Log-normal dividends:

$$\mathrm{d}D_{jt} = D_{jt}\left[\mu_j \mathrm{d}t + \sigma_j \mathrm{d}\omega_t\right],$$

  where the last asset of the market and the index are residuals
- The market and index have geometric dividends too:

$$\begin{aligned} \mathrm{d}I_t &= I_t\left[\mu_I \mathrm{d}t + \sigma_I \mathrm{d}\omega_t\right], \\ \mathrm{d}D_{MKT,t} &= D_{MKT,t}\left[\mu_{MKT} \mathrm{d}t + \sigma_{MKT} \mathrm{d}\omega_t\right] \end{aligned}$$

- Useful trick to make the problem tractable

Main Insights and Mechanism

1. For stocks in the index:
   - Stock values are higher
   - Volatility higher and counter-cyclical
   - Sharpe ratios lower and counter-cyclical
   - Stocks tend to comove "excessively" and correlation varies over time
2. No effect for non-index stocks
3. Credit markets play an important role
   $\Longrightarrow$ Restricticting leverage may *lower index values*

Main mechanism:
Wealth shocks determine the relative weight on the two agents' objective functions

Discussion

1. Wealth effects play central role: What drives wealth effects?
2. How does delegation affect asset pricing?
    1. Frequency
    2. Performance measurement

All comments should be interpreted as a wish list – paper is great as it is!

Discussion: Wealth distribution

- In two-agent models, the wealth distribution among agents plays an important role
- In this case, we are interested in I_t / S_t, where I_t is the size of the fund industry and S_t is the size of the equity market
  - Note: Size MF industry as a proxy for institutional investors

Discussion: Wealth distribution

- To understand empirical determinants, it may be useful to start from two budget constraints:
  1. Size market:
  $$S_{t+1} = S_t R^S_{t+1} + E_{t+1},$$
  where R^S_t is the market return and E_t net issuances minus cash dividends
  2. Size mutual fund industry:
  $$I_{t+1} = I_t R^I_{t+1} + F_{t+1}$$
  where R^I_t is the fund industry return and F_t the net flow
- Follows long tradition in finance and macro
  - Campbell and Shiller (1988), Lettau and Ludvigson (2001), Gourinchas and Rey (2007), Corsetti and Konstantinou (2011)
- Natural application to mutual fund industry

A Valuation Equation

- We are interested in an expression of $m_t - v_t$
- Write:

$$V_{t+1} = (V_t + E_t)\, R^S_{t+1} = V_t \left(1 + \frac{E_t}{V_t}\right) R^S_{t+1},$$

where $V_t = S_t - E_t$

- In logs:

$$v_{t+1} = v_t + \ln\left(1 + \frac{E_t}{V_t}\right) + r^S_{t+1}$$

- We do the same for the mutual fund industry

$$m_{t+1} = m_t + \ln\left(1 + \frac{F_t}{M_t}\right) + r^I_{t+1},$$

where $M_t = I_t - F_t$

A Valuation Equation

- It then follows:

$$
\begin{aligned}
&(m_{t+1} - v_{t+1}) - (m_t - v_t) = \\
&\left(r^I_{t+1} - r^S_{t+1}\right) + \ln\left(1 + \frac{F_t}{M_t}\right) - \ln\left(1 + \frac{E_t}{V_t}\right),
\end{aligned}
$$

or:

$$
\begin{aligned}
&(m_{2010} - v_{2010}) - (m_{1980} - v_{1980}) = \\
&\underbrace{\sum_{j=1981}^{2010}\left(r^I_j - r^S_j\right)}_{\text{Valuation effect}} + \underbrace{\sum_{j=1980}^{2009}\ln\left(1 + \frac{F_j}{M_j}\right)}_{\text{Flow effect}} - \underbrace{\sum_{j=1980}^{2009}\ln\left(1 + \frac{E_j}{V_j}\right)}_{\text{Financing effect}}
\end{aligned}
$$

- Hence, we can measure the importance of the wealth effect coming from three channels!

Implication of the Valuation Equation

- By taking conditional expectations, we $m_t - v_t$ has to predict either relative returns, future flows or net issuances:

$$m_t - v_t - \lim_{s\to\infty} E_t\left(m_s - v_s\right) = \underbrace{-\sum_{s=1}^{\infty} \mathbb{E}_t\left(r^I_{t+s} - r^S_{t+s}\right)}_{\text{Valuation effect}}$$

$$\underbrace{-\sum_{s=0}^{\infty} \mathbb{E}_t\left(\ln\left(1 + \frac{F_{t+s}}{M_{t+s}}\right)\right)}_{\text{Flow effect}}$$

$$\underbrace{+\sum_{s=0}^{\infty} \mathbb{E}_t\left(\ln\left(1 + \frac{E_{t+s}}{V_{t+s}}\right)\right)}_{\text{Financing effect}}$$

- Logic as in Cochrane (2008): PD has to predict returns or dividends, or both

Derivations: Valuation equation

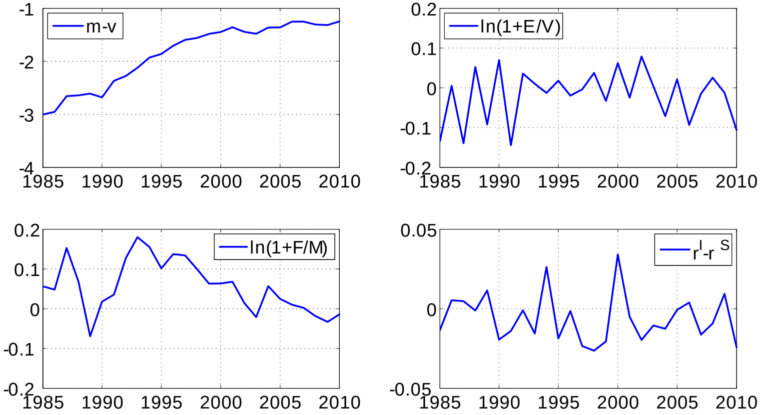
- I will use the accounting equation in this discussion to interpret the history between 1980 and 2010:

$$(m_{2010} - v_{2010}) - (m_{1980} - v_{1980}) = \underbrace{\sum_{j=1981}^{2010} \left(r_j^I - r_j^S\right)}_{\text{Valuation effect}} + \underbrace{\sum_{j=1980}^{2009} \log\left(1 + \frac{F_j}{M_j}\right)}_{\text{Flow effect}} - \underbrace{\sum_{j=1980}^{2009} \log\left(1 + \frac{E_j}{V_j}\right)}_{\text{Financing effect}}$$

- This paper concentrates on the first component
- Could be that all terms co-move, which would provide a broader interpretation of the model

A Valuation Equation: Empirical Results

- Decomposition of changes in $m_t - v_t$ in $\ln\left(1 + E_t \,/\, V_t\right)$, $\ln\left(1 + F_t \,/\, M_t\right)$, and $r_t^l - r_t^S$



A Valuation Equation: Empirical Results

- Average change ("Trend")
  - $\mathbb{E}\left(r^{I} - r^{S}\right) = -0.6\%$
  - $\mathbb{E}\left(F/M\right) = 5.6\%$
  - $\mathbb{E}\left(E/V\right) = -1.9\%$
- Standard deviation of changes ("Cycle")
  - $\sigma\left(r^{I} - r^{S}\right) = 1.5\%$
  - $\sigma\left(F/M\right) = 6.5\%$
  - $\sigma\left(E/V\right) = 6.6\%$
- Contemporaneous correlations below 10%
  $\Longrightarrow$ Caveat: For instance flows from past returns, so correlations require more work to be conclusive

Discussion: Frequency

- Perhaps the most striking feature of the wealth distribution is the secular trend
- Model implies trends in volatilities, Sharpe ratios, index values for index versus non-index stocks:
  - Long-term decline in risk premia
  - Long-term increase in volatility
  - Differential predictability
  - What if all was unexpected?

Discussion: Performance measurement

- To measure the performance of fund managers, it is common practice to regress fund returns on a benchmark:

$$r_{MF} = \alpha + \beta R_{BM} + \varepsilon$$

- One can imagine two benchmarks now:
  - Aggregate stock market
  - Index of the institutional investor
- Neither of them will give a zero alpha as:
  - There is a two-factor structure now
  - Risk prices move over time due to the share of fund managers changing $\Longrightarrow$ Benchmarks are now endogenous
- I'd be interested in understanding the implications for performance measurement

Summary

- Great paper on a topic that deserves a lot more attention
- Closed-form solutions very helpful and this model is a "benchmark" going forward
- Wealth distribution plays an important role in many of these models
- I use two budget constraints to quantify some of the forces that drive the wealth distribution
- The interaction with flows and the financing decisions of firms may be particularly interesting directions to extend the model

Derivations: Dynamics Aggregate Market

- Start from the return definition:

$$R^S_{t+1} = \frac{N_t P_{t+1} + N_t D_{t+1}}{N_t P_t}$$

- This implies:

$$S_{t+1} = S_t R^S_{t+1} + N_{t+1} P_{t+1} - N_t P_{t+1} - N_t D_{t+1}$$

- This results in E_t:

$$E_{t+1} = \underbrace{N_{t+1} P_{t+1} - N_t P_{t+1}}_{\text{Net issuances}} - \underbrace{N_t D_{t+1}}_{\text{Aggregate cash dividends}}$$

Derivations: Computing the Terms

- We observe:
  - Aggregate market cap, S_t
  - Total return, R_t^S
  - Capital gain, R_t^{CG}
- From the definition of the total return and the market cap, we uncover:

$$N_t P_{t+1} + N_t D_{t+1} = R_{t+1}^S N_t P_t = R_{t+1}^S S_t$$

- The capital gain is defined as P_{t+1}/P_t, and hence:

$$N_t P_{t+1} = R_t^{CG} N_t P_t = R_t^{CG} S_t,$$

which implies:

$$\underbrace{N_{t+1} P_{t+1} - N_t P_{t+1}}_{\text{Net issuances}} = S_{t+1} - R_t^{CG} S_t,$$

$$\underbrace{N_t D_{t+1}}_{\text{Aggregate cash dividends}} = \left(R_{t+1}^S - R_t^{CG} \right) S_t$$

Derivations: Dynamics Mutual Fund Industry

- We observe:
  - Size mutual fund industry, I_t
  - Net flow, F_{t+1}
- This directly implies the return as:

$$R^I_{t+1} = \left(I_{t+1} - F_{t+1}\right) / I_t$$

- We then have:

$$\begin{aligned} I_{t+1} - F_{t+1} &= M_{t+1} \\ &= \left(I_t - F_t + F_t\right) R^I_{t+1} \\ &= \left(M_t + F_t\right) R^I_{t+1} \\ &= M_t \left(1 + \frac{F_t}{M_t}\right) R^I_{t+1} \end{aligned}$$