Governance Risk and the Cross-section of Stock Returns: Do Business Cycles Help to Solve the Puzzle?

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Abstract

This paper investigates the asset-pricing implications of corporate governance decisions.

Since Gompers et al. (2003), the question of whether governance indices are priced into stocks has been debated. *From an asset pricing perspective, it remains a puzzle that firms with low indices or good governance also deliver higher risk premiums.*

This research shows both theoretically and empirically that adding shifts in economic conditions between expansion and recession periods helps explain why on average lower governance risk translates into higher risk premiums.

We frame and define *governance risk* and confirm our intuition by providing strong evidence that higher governance risk in recession results in higher risk premiums.

Introduction

Understanding the asset-pricing implications of corporate governance decisions has been a challenge for at least the last two decades.

Corporate finance models with agency costs operate in a riskless environment or do not make predictions on the risk premium, whereas the papers that do make predictions do so empirically. Moreover, these empirical studies mostly document a weak relationship between governance quality (proxy by E- and G-indices) and equity prices.

Unlike previous studies, we utilize *governance risk*, measured by the *instruments* of the G- and E-index instead of agency costs, proxied in the literature by the actual G- and E-index. The later are shown to have endogenous problems.

- In the model, we have in the cross-section (on average):
  - High governance risk leads to underleverage. However, underleverage produces lower equity risk premium.
  - Greater governance risk in recession translates into higher risk premium.
- Empirically, we provide evidence (using data covering 2 business cycles) that:
  - There is a negative correlation between average G- and E-index IPO-based instruments and equity returns.
  - Firms with greater differences in G- and E-index GEO-based instrument in recession vs expansion periods have higher equity returns.

Economic environment

The stream of **consumption** follows:

$$\frac{dC_t}{C_t} = \theta_{s_t} dt + \sigma_{s_t} dB_{c,t}, \qquad s_t = \{R, E\}$$

where $\theta_E > \theta_R$ and $\sigma_E < \sigma_R$. s_t is the state of the economy expansion (E) or recession (R). The agent has **Epstein-Zin preferences** with a state-price density π_t :

$$\pi_t = \left(\beta e^{-\beta t}\right)^{\frac{1-\gamma}{1-\frac{1}{\psi}}} C_t^{-\gamma} \left(p_{C,t} e^{\int_0^t p_{C,u}^{-1} du}\right)^{\frac{\gamma-\frac{1}{\psi}}{1-\frac{1}{\psi}}}$$

where γ is the RRA's coefficient, ψ the EIS of consumption, β the time discount factor, and $p_{C,t}$ the price-consumption ratio. When $\psi > 1$, $p_{C,t}$ is procyclical.

The **dynamic of firm *i*'s cash flow**:

$$\frac{dX_{i,t}}{X_{i,t}} = \mu_{i,s_t} dt + \sigma_i dB_t^i + \sigma_{s_t}^{sy} dB_t^{sy}, \qquad s_t = \{R, E\}$$

where μ_{s_t}, σ_i and $\sigma_{s_t}^{sy}$ are the conditional expected growth rate, unconditional specific volatility, and conditional systematic volatility of the firm's cash flow.

Asset valuation and equity pricing

The firm *i*'s governance risk represents $\kappa_{s_0}^i$ % of its net income at IPO time and $\kappa_{s_t}^i$ % over the business cycle. Firm *I's* equity and debt values are:

$$S_{s_0 s_t}^i = \left(1 - \kappa_{s_0}^i\right) \Phi_{s_0 s_t}^i I_{s_0 s_t}^i, \qquad s_t = \{R, E\}$$

$$B_{s_0 s_t}^i = b_{s_0 s_t}^i + \sum_{s_U} \Phi_{s_0 U}^i b_{s_0 U}^i, \qquad s_t = \{R, E\}$$

where $I_{s_0 s_t}^i$ ($b_{s_0 s_t}^i$) is the PV of the firm net income (coupon payments) up to the next default or refinancing and is the gain in value from all future refinancing. The firm value is $F_{s_0 s_t} = S_{s_0 s_t} + B_{s_0 s_t}$ and leverage is $L_{s_0 s_t} = (1-\delta) B_{s_0 s_t} / F_{s_0 s_t}$, δ are issuance costs. $\Phi_{s_0 s_t}^i$ represents the gain in value during refinancing.

Self-interested Insiders maximize their own claim to derive optimal decisions:

$$V_{s_0 s_t}^i = \underbrace{\nu_{s_0} F_{s_0 s_t}^i}_{\text{Stake}} + \underbrace{\kappa_{s_0}^i \Phi_{s_0 s_t}^i I_{s_0 s_t}^i}_{\text{Private benefits}}$$

Investors dislike changes in governance risk, particularly when it increases during recessions and so they adjust stock prices accordingly over the business cycle:

$$P_{i,s_t} = \left(1 - \kappa_{s_t}^i\right) \Phi_{s_0 s_t}^i I_{s_0 s_t}^i, \qquad s_t = \{R, E\}$$

Equity risk premium

The **equity risk premium** RP_{i,s_t} in state s_t:

$$RP_{i,s_t} = \underbrace{\rho_{i,s_t} \theta_{s_t}^B \sigma_{i,s_t}^B}_{\substack{\textit{due to conso shocks} \\ \textit{or } \textbf{Consumption CAPM risk}}} + \underbrace{\boldsymbol{\lambda_{s_t} \theta_{s_t}^P \sigma_{i,s_t}^P}}_{\substack{\textbf{due to changes of state} \\ \textbf{or Business cycle risk}}}, \qquad s_t = \{R, E\}$$

- ρ_{i,s_t} is the cash flow-consumption correlation, $\theta_{s_t}^B = \gamma \sigma_{s_t}$ the price of consumption shocks, σ_{i,s_t}^B the volatility of stock i returns;
- **λ_{s_t} is the probability of leaving state s_t, $\theta_{s_t}^P = 1 - \frac{\pi_j}{\pi_{s_t}}$ is the price of risk due to the change of state from s_t to j, and $\sigma_{i,s_t}^P = \frac{P_{i,j}}{P_{i,s_t}} - 1$ the change in equity valuation caused by the change of state.**

Asset pricing implications

Asset-pricing implication 1:

Higher governance risk
=>
Lower leverage
=>
Lower average equity premium

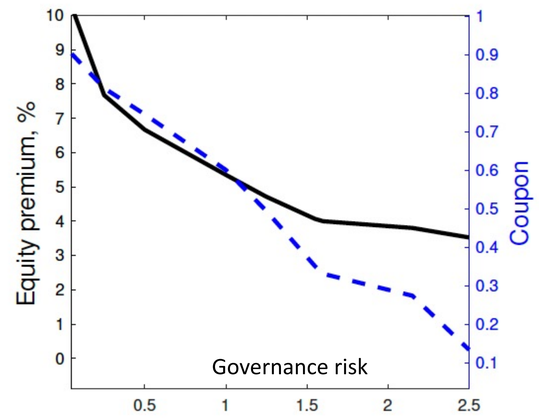

Figure 1. Governance risk and equity premium

Asset-pricing implication 2:

Higher governance risk in recession vs. expansion
=>
Greater stock price fluctuation over the business cycle
=>
Higher average equity premium

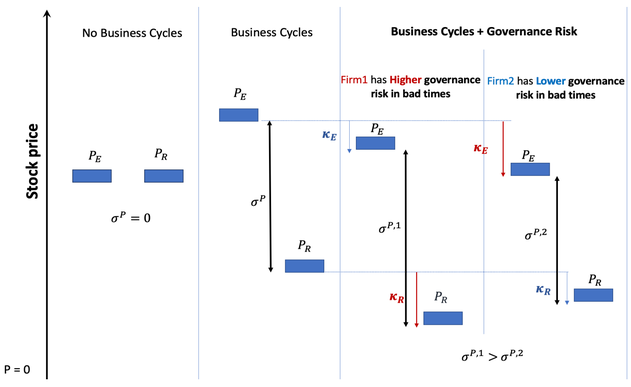

Figure 2. Change in governance risk and equity premium

Empirical evidence

Cross-section regressions

$$RP^i = a + b\,\widehat{Diff}^i + c\,\overline{\widehat{Index}}^i + controls\ (\text{FF5, momentum...})^i + \epsilon^i$$

- RP contains the vector of firms' average returns, $\widehat{Diff}$ the average difference in G- and E-index instruments in bad vs good times, and $\overline{\widehat{Index}}$ the average G- and E-index instruments. We use the IPO- and geography-based instruments by Karpoff et al. (2018).

Instruments		**IPO**			**GEO**	
		E-index	**G-index**		**E-index**	**G-index**
$\overline{\widehat{Index}}$	**Coefficient**	**-5.311**	**-1.709**		-0.518	-0.030
	p-value	**0.000**	**0.000**		0.508	0.922
$\widehat{Diff}$	**Coefficient**	4.784	1.138		**3.847**	**2.612**
	p-value	0.161	0.631		**0.013**	**0.-001**
Controls		YES	YES		YES	YES
Results		**Confirms asset-pricing implications 1**			**Confirms asset-pricing implication 2**	

Table 1. Coefficients and p-values of the cross-sectional regressions

Conclusions

We show both theoretically and empirically that adding business cycles can help improve our understanding of the link between corporate governance and asset prices.

References

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2. Karpoff, J. M., Schonlau, R. J. and Wehrly, E. W. (2017), Do takeover defense indices measure takeover deterrence?, Review of Financial Studies 30(7), 2359–2412.

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