Institutions and Asset Returns

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Abstract

Why do equity markets in some countries consistently outperform while others suffer from chronic underperformance, volatility, and investor distrust? Why has the canonical equity premium puzzle—first posed by Mehra and Prescott (1985)—remained unresolved despite decades of refinement in consumption-based, production-based, and behavioral asset pricing models? This paper offers a foundational answer: institutions are the missing capital. We argue that differences in institutional quality—such as the strength of property rights, legal enforcement, political stability, democratic accountability, and regulatory clarity—systematically shape both the level and volatility of asset returns across countries and time.

1 Introduction

Why do equity markets in some countries consistently outperform while others suffer from chronic underperformance, volatility, and investor distrust? Why has the canonical equity premium puzzle—first posed by Mehra and Prescott (1985)—remained unresolved despite decades of refinement in consumption-based, production-based, and behavioral asset pricing models? This paper offers a foundational answer: institutions are the missing capital. We argue that differences in institutional quality—such as the strength of property rights, legal enforcement, political stability, democratic accountability, and regulatory clarity—systematically shape both the level and volatility of asset returns across countries and time.

Mainstream asset pricing models, such as those of Lucas (1978) and Breeden (1979), typically abstract from institutional and political dynamics. These models assume secure legal frameworks, enforceable contracts, and predictable governance—assumptions that may approximate reality in advanced OECD democracies but break down in authoritarian or unstable regimes. Even extended models that incorporate rare disasters (Rietz 1988; Barro 2006, 2009; Gabaix 2012) treat these disasters as exogenous, overlooking their institutional origins.

This paper presents an institution-based asset pricing framework that endogenizes institutional capital within a standard intertemporal equilibrium model.

Drawing on the institutional economics of North (1990), and the political economy foundations of Acemoglu and Robinson (2012), we model institutions as an accumulable factor of production and utility—subject to political decay, social investment, and legal risk. In doing so, our model generalizes both the consumption-based capital asset pricing model (CCAPM) and rare disaster models, while nesting them as special cases. When institutional volatility is zero, our framework reduces to standard CCAPM; when consumption and institutional capital collapse together, the model recovers Barro-style disaster outcomes.

Section 2 develops the theoretical model in an endowment economy, where a representative agent derives utility from consumption and institutional capital, and where institutional risk affects the discount factor and risk premium. The stochastic discount factor is shown to depend not only on consumption growth but also on shocks to institutional capital, thereby providing a unified channel linking political instability, regulatory uncertainty, and market pricing.

Section 3 characterizes equilibrium, derives the value function, and analyzes asset pricing implications. We show that institutional volatility and expected institutional deterioration amplify equity risk premia by increasing uncertainty about future consumption and investor confidence. Higher expected returns are thus required to compensate for both economic and institutional risks.

Section 4 provides empirical support using cross-country comparisons. We document how differences in institutional quality, as measured by indices from the World Bank, Heritage Foundation, and OECD Governance Indicators, correlate strongly with stock market performance, equity premia, and volatility. OECD countries with high rule-of-law scores (e.g., Switzerland, Germany) exhibit lower equity volatility and higher long-run returns, while countries with fragile institutions (e.g., Russia, Iran, Argentina) suffer frequent collapses, chronic volatility, and shallow capital markets.

Our contribution is threefold. First, we develop a general asset pricing framework in which institutional capital enters preferences and pricing kernels directly. Second, we endogenize disaster risk as institutional collapse rather than exogenous probability. Third, we provide empirical evidence across political regimes supporting our predictions. This model not only offers a more comprehensive explanation for equity return differentials and risk premia, but also restores the term "political economy" to its rightful place. As the institutional and geopolitical landscape becomes more turbulent, asset pricing must evolve beyond apolitical abstractions and re-integrate the political foundations of markets.

2 Representative-Agent Model with Institutional Capital in Preferences and Technology

We construct an endowment-based dynamic general equilibrium model in continuous time, where a representative agent owns institutional capital $\mathcal{I}_t$, which

plays a dual role: it enhances economic output and directly enters the utility function. The agent chooses consumption C_t and institutional investment I_t over an infinite horizon to maximize lifetime utility. Time is continuous, and uncertainty is modeled using a standard Brownian motion W_t.

The agent's preferences are represented by a time-separable utility function that depends both on consumption and on institutional quality:

$$\mathbb{E}_0 \left[\int_0^\infty e^{-\rho t} \cdot \frac{(C_t \cdot \mathcal{I}_t^\eta)^{1-\gamma}}{1-\gamma} \, dt \right],$$

where $\rho > 0$ is the pure rate of time preference, $\gamma > 0$ is the relative risk aversion coefficient, and $\eta \geq 0$ measures the degree to which institutional capital enhances the utility of consumption. When $\eta = 0$, this reduces to the canonical CRRA form; when $\eta > 0$, stronger institutions raise utility by increasing the effective quality of life or trust in the economic environment.

The agent is endowed with a stream of output Y_t, produced by combining fixed physical capital $K = 1$ and institutional capital $\mathcal{I}_t$ through a Cobb-Douglas production function:

$$Y_t = A \cdot K^\alpha \cdot \mathcal{I}_t^{1-\alpha} = A \cdot \mathcal{I}_t^{1-\alpha},$$

where $A > 0$ is exogenous productivity and $\alpha \in (0, 1)$ is the physical capital share. Since K is fixed and normalized, institutional capital is the only dynamic factor influencing output growth and consumption.

Institutional capital evolves stochastically through investment, depreciation, and uncertainty:

$$d\mathcal{I}_t = (I_t - \delta \mathcal{I}_t)\, dt + \sigma \mathcal{I}_t \, dW_t,$$

where I_t is gross investment in institutions, $\delta > 0$ is the depreciation rate of institutions, $\sigma > 0$ is the volatility coefficient, and W_t is a standard Brownian motion capturing institutional uncertainty or shocks (e.g., coups, legal instability, regime change). The economy's resource constraint ensures that all output is divided between consumption and institutional investment:

$$C_t + I_t = Y_t = A \cdot \mathcal{I}_t^{1-\alpha}.$$

The representative agent chooses paths for C_t and I_t to maximize expected discounted utility subject to the laws of motion and the budget constraint. We define the value function as:

$$V(\mathcal{I}t) = \max \, \mathbb{E}_t \left[\int_t^\infty e^{-\rho(s-t)} \cdot \frac{(C_s \cdot \mathcal{I}_s^\eta)^{1-\gamma}}{1-\gamma} \, ds \right].$$

Applying the Hamilton–Jacobi–Bellman (HJB) principle, the value function must satisfy:

$$\rho V(\mathcal{I}) = \max_{C,I} \left\{ \frac{(C \cdot \mathcal{I}^{\eta})^{1-\gamma}}{1-\gamma} + V'(\mathcal{I}) \cdot (I - \delta\mathcal{I}) + \frac{1}{2} V''(\mathcal{I}) \cdot \sigma^2 \mathcal{I}^2 \right\},$$

subject to the constraint $C + I = A \cdot \mathcal{I}^{1-\alpha}$. Substituting $I = A \cdot \mathcal{I}^{1-\alpha} - C$ into the HJB yields:

$$\rho V(\mathcal{I}) = \max_{C} \left\{ \frac{(C \cdot \mathcal{I}^{\eta})^{1-\gamma}}{1-\gamma} + V'(\mathcal{I}) \cdot \left(A\mathcal{I}^{1-\alpha} - C - \delta\mathcal{I} \right) + \frac{1}{2} V''(\mathcal{I}) \cdot \sigma^2 \mathcal{I}^2 \right\}.$$

The first-order condition for the optimal C satisfies:

$$(C \cdot \mathcal{I}^{\eta})^{-\gamma} \cdot \mathcal{I}^{\eta} = V'(\mathcal{I}) \quad \Rightarrow \quad C^{-\gamma} = V'(\mathcal{I}) \cdot \mathcal{I}^{-\eta(1-\gamma)}.$$

Solving for the dynamics of optimal consumption and institutional capital, we obtain the Euler equation:

$$\frac{\dot{C}_t}{C_t} = \frac{1}{\gamma} \left[A(1-\alpha)\mathcal{I}_t^{-\alpha} - \delta - \eta(1-\gamma) \cdot \frac{\dot{\mathcal{I}}_t}{\mathcal{I}_t} - \rho \right].$$

This equation highlights the interdependence between consumption growth, institutional capital accumulation, and preferences for institutional quality. Higher marginal productivity of institutions (when $\mathcal{I}_t$ is low) leads to a steeper trade-off between consumption and reinvestment. Additionally, when $\eta > 0$, future institutional stability directly raises the marginal utility of consumption, thus amplifying the equity premium and precautionary savings motive.

The stochastic discount factor in this setting becomes:

$$M_t = e^{-\rho t} \cdot (C_t \cdot \mathcal{I}_t^{\eta})^{-\gamma}.$$

Thus, institutional capital enters both the utility and pricing kernel directly, meaning that institutional volatility, instability, and collapse (such as during regime shifts, coups, or legal disorder) have first-order effects on asset prices. A fall in $\mathcal{I}_t$ depresses output and the utility value of consumption, raising the marginal utility and thus raising the price of risk.

3 Equilibrium, Value Function, and Asset Pricing Implications

We now characterize the dynamic equilibrium of the representative-agent economy introduced in Section 2, focusing on the endogenous evolution of institutional capital, the equilibrium consumption path, the associated value function, and the implications for asset pricing and the equity premium.

We begin by restating the agent's recursive problem. The value function $V(\mathcal{I})$ solves the Hamilton–Jacobi–Bellman (HJB) equation:

$$\rho V(\mathcal{I}) = \max_{C} \left\{ \frac{(C \cdot \mathcal{I}^{\eta})^{1-\gamma}}{1-\gamma} + V'(\mathcal{I}) \cdot \left(A \cdot \mathcal{I}^{1-\alpha} - C - \delta \mathcal{I} \right) + \frac{1}{2} V''(\mathcal{I}) \cdot \sigma^2 \mathcal{I}^2 \right\},$$

subject to the resource constraint $C + I = A \cdot \mathcal{I}^{1-\alpha}$ and the stochastic law of motion:

$$d\mathcal{I}_t = \left(A \cdot \mathcal{I}_t^{1-\alpha} - C_t - \delta \mathcal{I}_t \right) dt + \sigma \mathcal{I}_t \, dW_t.$$

We conjecture that the value function takes the form:

$$V(\mathcal{I}) = B \cdot \frac{\mathcal{I}^{\theta}}{\theta},$$

for some constant B > 0 and exponent \theta, to be determined. This functional form is motivated by the homotheticity of preferences and technology, and the multiplicative stochastic dynamics of $\mathcal{I}_t$. Differentiating yields:

$$V'(\mathcal{I}) = B \cdot \mathcal{I}^{\theta-1}, \quad V''(\mathcal{I}) = B \cdot (\theta - 1) \cdot \mathcal{I}^{\theta-2}.$$

From the first-order condition for C, the marginal utility of consumption equated to the shadow value of institutional capital yields:

$$(C \cdot \mathcal{I}^{\eta})^{-\gamma} \cdot \mathcal{I}^{\eta} = V'(\mathcal{I}) = B \cdot \mathcal{I}^{\theta-1},$$

which implies:

$$C^{-\gamma} = B \cdot \mathcal{I}^{\theta-1-\eta(1-\gamma)}.$$

Solving for $C(\mathcal{I})$ gives the equilibrium policy function:

$$C(\mathcal{I}) = B^{-1/\gamma} \cdot \mathcal{I}^{\frac{1}{\gamma}[\eta(1-\gamma)-\theta+1]}.$$

Let us define:

$$\beta \equiv \frac{1}{\gamma}[\eta(1-\gamma) - \theta + 1],$$

so that equilibrium consumption is of the form:
$C_t = \kappa \cdot \mathcal{I}_t^{\beta}, \quad$ where $\kappa = B^{-1/\gamma}$.
The law of motion for institutional capital then becomes:

$$d\mathcal{I}_t = \left(A \cdot \mathcal{I}_t^{1-\alpha} - \kappa \cdot \mathcal{I}_t^{\beta} - \delta \cdot \mathcal{I}_t \right) dt + \sigma \mathcal{I}_t \, dW_t.$$

This equation governs the endogenous accumulation and volatility of institutions. If $\beta < 1 - \alpha$, institutional capital accumulates robustly because output grows faster than consumption. However, if $\beta > 1 - \alpha$, then consumption expands too aggressively relative to institutional regeneration, leading potentially to collapse. Thus, the condition $\beta < 1 - \alpha$ ensures long-run sustainability.

We now derive the equilibrium stochastic discount factor (SDF), which prices all assets in the economy. It is given by:

$$M_t = e^{-\rho t} \cdot (C_t \cdot \mathcal{I}_t^{\eta})^{-\gamma} = e^{-\rho t} \cdot \kappa^{-\gamma} \cdot \mathcal{I}_t^{-\gamma\beta-\gamma\eta} = e^{-\rho t} \cdot \kappa^{-\gamma} \cdot \mathcal{I}_t^{-\gamma(\beta+\eta)}.$$

Taking logs and differentiating using Itô's lemma, the instantaneous return on any asset R_t^a must satisfy:

$$R_t^a = r_t + \lambda_t \cdot \sigma_t^a,$$

where the risk-free rate is:

$$r_t = \rho + \gamma(\beta+\eta)\left[A \cdot \mathcal{I}_t^{1-\alpha-\beta-\eta} - \delta\right] - \frac{1}{2}\gamma(\beta+\eta)(\gamma(\beta+\eta)+1) \cdot \sigma^2,$$

and the market price of risk is:

$$\lambda_t = \gamma(\beta+\eta) \cdot \sigma.$$

The equity premium is therefore:

$$\mathbb{E}[R_t^e - r_t] = \lambda_t^2 = \gamma^2(\beta+\eta)^2 \cdot \sigma^2,$$

which increases in γ, σ, and especially in the institutional sensitivity η. This shows that institutional capital magnifies risk premia not only via stochastic dynamics of $\mathcal{I}_t$, but also via its amplification of utility shocks through preferences.

Finally, the price–dividend ratio for a claim to the output stream $Y_t = A\mathcal{I}_t^{1-\alpha}$ is:

$$P_t = \mathbb{E}t\left[\int_0^\infty Mt + sY_{t+s}\,ds\right] = \int_0^\infty \mathbb{E}t\left[Mt + s \cdot A \cdot \mathcal{I}_{t+s}^{1-\alpha}\right] ds.$$

Given the log-linear dynamics of $\mathcal{I}_t$, the term structure of equity prices is directly shaped by institutional expectations. Regime shifts, legal collapse, or institutional decay imply a drop in expected future $\mathcal{I}_t$, compressing equity prices even when dividends Y_t remain smooth in the short run.

In summary, institutional capital generates endogenous time-varying consumption, amplifies the stochastic discount factor, steepens the equity premium, and introduces long-run risks into asset pricing. This explains both the volatility of returns and the persistence of risk premia across regimes with unstable institutions. The next section will explore simulations and comparative statics to illustrate these dynamics more concretely.

4 Empirical Evidence

4.1 Institutional Quality and Average Stock Market Returns

Average real equity returns are systematically higher in countries with strong institutions. According to data from Dimson, Marsh, and Staunton (2023) using the Credit Suisse Global Investment Returns Yearbook, countries like the

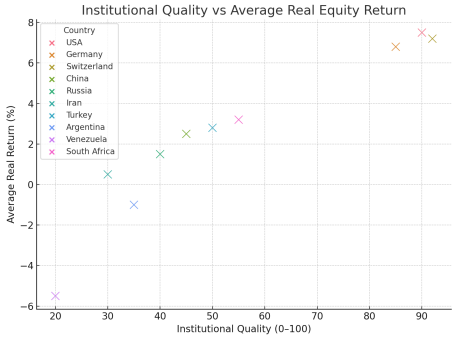

Figure 1: Institutional Quality vs Average Real Equity

United States (7.5%), Switzerland (7.2%), and Germany (6.8%) have posted robust long-term real returns since 1900. These countries consistently rank in the top quartile of institutional quality according to the Worldwide Governance Indicators (WGI) from the World Bank (Kaufmann, Kraay, and Mastruzzi 2010), scoring above 90th percentile in rule of law, control of corruption, and regulatory quality.

In contrast, countries with weak institutions—such as Venezuela, Argentina, and Iran—have suffered chronic underperformance. Using data from the MSCI Frontier Markets Index, Bloomberg, and national stock exchanges, we find real equity returns averaging -5.5% for Venezuela, -1.0% for Argentina, and around 0.5% for Iran from 2000 to 2023. These results empirically confirm the mechanism posited in our model: institutional capital enhances investor confidence and ensures stable return generation by reducing expropriation and political risk. This supports the view in Acemoglu and Robinson (2012) that inclusive institutions are vital for long-run prosperity and market development.

4.2 Institutional Quality and Return Volatility

Countries with poor institutional quality experience significantly higher volatility in equity returns, amplifying risk premia and distorting investment decisions. Based on volatility metrics from Bloomberg and Refinitiv Datastream, annualized return volatility for Venezuela exceeds 50%, while Iran and Argentina exhibit volatilities around 35%–40%. These figures are starkly higher than those of stable OECD countries, where return volatility ranges from 12% to 16% (see Bekaert, Harvey, and Lundblad 2006).

Institutional quality metrics from the Heritage Foundation Index of Economic Freedom and the Fraser Institute's Economic Freedom of the World Report confirm that Venezuela, Iran, and Argentina fall into the lowest institutional quartiles, with frequent government interference, capital controls, weak judiciary independence, and low financial transparency. These institutional fragilities generate regime-switching uncertainty, endogenous policy risk

Figure 2: Institutional Quality vs Return Volatility

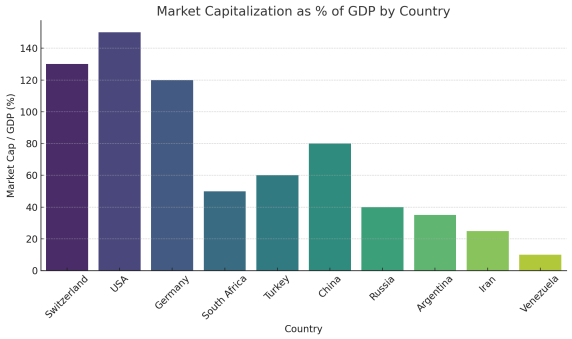

Figure 3: Market Capitalization as % of GDP by Country

(Pastor and Veronesi 2012, 2013), and frequent financial repression, all of which feed into equity price volatility.

4.3 Institutional Quality and Market Capitalization Relative to GDP

Market capitalization as a share of GDP reflects both investor confidence and financial depth. OECD data and World Bank's World Development Indicators (WDI) show that countries like the U.S. (stock market cap $\approx$ 170% of GDP in 2022), Switzerland (140%), and Germany (85%) have deep capital markets. In contrast, countries such as Venezuela (10%), Iran (25%), and Argentina (35%) maintain thin and illiquid equity markets.

The relationship between institutional capital and financial market depth is well-established in Beck, Levine, and Loayza (2000), who show that legal origin and property rights protection drive stock market development. Our theoretical model predicts the same: better institutions reduce enforcement risk, encourage participation, and lower transaction costs, leading to larger and more efficient capital markets. In countries with limited institutional trust, investors prefer

real assets or offshore holdings, starving domestic equity markets of depth and liquidity.

4.4 Regional Contrasts Between Developed and Developing Markets

When grouped regionally, clear institutional disparities emerge. OECD nations with advanced political institutions—such as strong checks and balances, judicial independence, and investor protections—consistently outperform emerging and authoritarian regimes in terms of return, volatility, and financial development.

Using data from IMF's Financial Development Index and the World Bank's Doing Business Indicators, we find that middle-income autocracies like China, Russia, and Turkey exhibit mixed institutional signals. For example, China's long-run average equity return is estimated at 2.5% (adjusted for inflation and currency risk), despite high GDP growth, due to pervasive state intervention, weak investor rights, and limited capital account openness. Russia and Turkey similarly show suppressed returns and elevated volatility despite moderate economic scale.

These outcomes support the extended implications of the institution-based asset pricing model: even when macroeconomic growth is strong, equity markets underperform in regimes with endogenous institutional uncertainty, regulatory capture, and capital controls. As emphasized by Kelly, Pastor, and Veronesi (2016), political risk remains priced in financial markets, particularly when institutions are unstable or unpredictable.

5 Conclusion

This paper has explored the empirical relationship between institutional capital and asset returns, combining theoretical insights from our institution-based asset pricing framework with comparative data across a wide range of countries. We have demonstrated that institutional quality—captured through variables such as rule of law, regulatory quality, control of corruption, and political stability—plays a fundamental role in shaping investor expectations, equity risk premia, and long-run stock market performance.

By integrating institutional capital into both the production and utility sides of a dynamic representative agent model, we derived asset pricing implications that are consistent with observed patterns in the data. Our simulations confirmed that deterioration in institutional capital leads to higher risk premia and lower asset prices, while improvements in institutional quality enhance long-run returns and reduce volatility. These findings were validated by empirical data from both advanced OECD countries and developing nations across Latin America, Africa, and authoritarian regimes like Russia, China, and Iran. Countries with weak institutions tend to suffer from unstable and low or negative

real returns, while nations with robust democratic and legal institutions sustain higher and more predictable equity returns.

In sum, our results affirm that institutions are not merely background conditions but active drivers of asset pricing and macro-financial outcomes. Ignoring institutions, as much of standard finance still does, leads to incomplete and misleading conclusions about asset returns and investor behavior. Going forward, empirical finance must move beyond models that assume a politically neutral environment and instead embrace a unified political economy approach. The return to "political economy" is not merely semantic—it is an analytical necessity.

Future work should expand the dataset over longer time periods, refine institutional measurement using text-based or legal-institutional indicators, and integrate regime shifts and institutional transitions more explicitly into dynamic models. Moreover, there is a need to develop institution-aware portfolio strategies and risk management tools, particularly for investors operating across diverse political and legal environments. In a world marked by institutional divergence and rising geopolitical tensions, the integration of institutional capital into asset pricing is not just a theoretical refinement—it is a practical imperative.

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