A Unified Model of Political Risk: Online Appendix

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Abstract

Purpose: Political risk is a complex phenomenon. This complexity has incentivized scholars to take a piecemeal approach to understanding it. Nearly all scholarship has targeted a single type of political risk (expropriation) and, within this risk, a single type of firm (MNCs) and a single type of strategic mechanism through which that risk may be mitigated (entry mode). Yet "political risk" is actually a collection of multiple distinct risks that affect the full spectrum of foreign firms, and these firms vary widely in their capabilities for resisting and evading these risks. Design: We offer a unified theoretical model that can simultaneously analyze: the three main types of political risk (war, expropriation, and transfer restrictions); the universe of private foreign investors (direct investors, portfolio equity investors, portfolio debt investors, and commercial banks); heterogeneity in government constraints; and the three most relevant strategic capabilities (information, exit, and resistance). Findings: We leverage the variance among foreign investors to identify effective firm strategies to manage political risk. By employing a simultaneous and unified model of political risk, we also find counterintuitive insights on the way governments trade off between risks and how investors use other investors as risk shields.

The full text of this article is forthcoming in Advances in Strategic Management. This document contains only the online appendix to that article.
1 Online Appendix

Proof of Proposition 1

Using the process of backwards induction, we begin with the final move of the game; the government’s expropriation decision. First, assume that the investor (F) does not expedite the repatriation of his capital (ε = 0) (we provide this condition below).

Suppose the government (G) chooses transfer breach (t'). G will play ¬E when his payoff for expropriation (ω - C_E - C_T) is less than his payoff for not expropriating (Ra(1 - μ) + Vγμ(t'(1 - ε) + t0ε) - C_T). Solving for ω, and substituting ε = 0, this condition reduces to:

\[ ω ≤ Ra(1 - μ) + Vγμt' + C_E. \] (1)

Suppose that the government chooses t0, instead. G will play E when his expropriation payoff (ω - C_E) is greater than his payoff for not expropriating (Ra(1 - μ) + Vγμt0). Solving for ω, this condition reduces to:

\[ ω ≥ Ra(1 - μ) + Vγμt0 + C_E. \] (2)

Notice that, because t' ≥ t0, this condition will be always be consistent with condition 1.

Working backwards, we look at the investors decision to expedite his repatriation at level ε.

The investor will select the amount to expedite which maximizes his expected payoff. While G knows his transfer policy (t) before it goes into effect, F only sees a probability p of a change to t'. If G does not change transfer policy, F will always prefer not to expedite repatriation:

\[ \frac{∂}{∂ε}(-V) ≤ 0 \]

(which is satisfied: 0 ≤ 0). If G instead plays t', F’s preference is conditional. For this SPE, we are looking for a condition under which F will play ε = 0. We see that increasing ε decreases F’s payoff (Vγ(1 - μ) + Vγμ[(1 - t')(1 - ε) + (1 - t0)ε] - λε) when the first
derivative with respect to $\epsilon$ is negative. Solving for $\lambda$, this reduces to:

$$\lambda \geq V\gamma\mu\tau. \quad (3)$$

Thus, when $\lambda \geq V\gamma\mu\tau$, $\epsilon = 0$ is optimal, regardless of $p$!

Continuing the backwards induction, with $G$ playing $\neg E$ following $t'$ and $E$ following $t_0$, and $F$ selecting $\epsilon = 0$ (for both cases), we now look at $G$’s choice of transfer policy. He will choose $t'$ when the payoff for playing $t_0$ ($\omega - C_E$) is less than the payoff for playing $t'$ ($Ra(1 - \mu) + V\gamma\mu t' - C_T$). Solving for $C_T$, the condition reduces to:

$$C_T \leq Ra(1 - \mu) + V\gamma\mu t' + C_E - \omega. \quad (4)$$

Solving this condition for $\omega$, we find: $\omega \leq Ra(1 - \mu) + V\gamma\mu t' + C_E - C_T$. Notice that this will be consistent with condition (1) (because $C_T \geq 0$), but will only be consistent with condition (2) when $Ra(1 - \mu) + V\gamma\mu t' + C_E - C_T \geq Ra(1 - \mu) + V\gamma\mu t_0 + C_E$. Solving for $C_T$, this condition reduces to:

$$C_T \leq V\gamma\mu\tau. \quad (5)$$

Working backwards, Nature moves and determines a value for $C_T$. $F$ does not see this move for sure; he sees a $p$-likelihood of condition (4) being satisfied. Then, working backwards again, Nature determines whether or not war occurs. $F$ does not see this move for sure: he sees an $r$-likelihood of war. Finally, with conditions (1), (2), (3), (4), and (5), we now analyze the first move of the game: $F$’s decision to invest or not.

$F$ faces a $C_T$-lottery and a war-lottery. He will play $I$ when his expected payoff for investing is greater than his break-even point of not investing (0). Given the probabilities of transfer breach ($p$) and war ($r$), and the expectation of the moves above, $F$’s expected payoff for investing is thus a composite of two weighted averages: 1) of his payoff in the case of transfer breach ($V\gamma(1 - \mu) + V\gamma\mu(1 - t')$) and no breach ($-V$): $p[V\gamma(1 - \mu) + V\gamma\mu(1 - t')] + (1 - p)(-V)$, and 2) of his payoff in the case of war ($r[(1 - q)V(\gamma - c) - qV]$)
and no war \([1 - r][p[V\gamma(1 - \mu) + V\gamma\mu(1 - t')] + (1 - p)(-V)]\). Altogether, his expected payoff of investing is: \((r[(1 - q)V(\gamma - c) - qV]) + ([1 - r][p[V\gamma(1 - \mu) + V\gamma\mu(1 - t')] + (1 - p)(-V)])\). Comparing this weighted average to the payoff for not investing (0), and solving for \(r\), we see that \(F\) will play \(I\) when:

\[
r \geq \frac{1 - p - p\gamma(1 - \mu t')}{1 - p - p\gamma(1 - \mu t') + (1 - q)(\gamma - c) - q}.
\]

In words, if \(F\) attributes the probability of war as greater than condition (6), he will invest.

We conclude that if \(\omega \leq R\alpha(1 - \mu) + V\gamma\mu t + C_E\) (condition 1), \(\omega \geq R\alpha(1 - \mu) + V\gamma\mu t_0 + C_E\) (condition 2), \(\lambda \geq V\gamma\mu T\) (condition 3), \(C_T \leq V\gamma\mu T\) (condition 5), and \(r \geq \frac{1 - p - p\gamma(1 - \mu t')}{1 - p - p\gamma(1 - \mu t') + (1 - q)(\gamma - c) - q}\) (condition 6), a political risk equilibrium (as defined in proposition 1) exists for the game.