WHERE TO MAKE AN INVESTMENT? IF HOME POLITICAL RISK OCCURS

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Abstract

In this paper, we put political risk into the model of international asset allocation to analyze international investors' decisions. We assume that when home investors have perceived home political risks, they override other factors of their portfolio decision and move to hold more foreign assets to hedge those risks. To model political risk, we use a stochastic differential equation with a Poisson jump diffusion process to simulate international asset allocation. The numerical result confirms our hypothesis, i.e., foreign bias exists. That is, home investors would prefer to hold more foreign assets than the optimal asset allocation to hedge against home political risk.

Keywords: Political Risk, Foreign Bias, International Asset Allocation, Poisson Jump Process

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1 Introduction

Economists, such as Errunza and Losq (1987), Solnik (1991), French and Poterba (1991) and Lessard (1985) have pointed out that political or country risk affected investor's international portfolio investment decisions. As international investors perceived political/country risks[4], they requested an additional political risk premium to compensate the losses incurred from political risks. Rajan & Friedman (1997) also provided empirical evidence that international portfolio returns contain a country risk premium to reflect the possibility of default risk. Thus, assessing political uncertainty becomes a key issue of international portfolio investment decision-making.

Checking with the empirical tests of international diversification, investors' portfolio components show a strong home bias that specifies the asymmetric correlation in international return. Many explanations try to put forward in the literature[5]. Besides these explanations, Dahlquist and Robertsson (2001) argued that investors allocate their wealth to foreign country, as they expect no political risk arriving on foreign country. Kang and Stulz (1997) also suggested that investors invest in more liquid securities to keep away the possibility of unexpected shocks in foreign political risk. From those two arguments, investors can easily diversify

[4] As discussed in the literature, political risk is a broad concept with many sources. However, there are three main categories in the literature (Rivoli and Brewer, 1997). The first one treats risk as a "system" term, which is a basic characteristic of a national political system. This includes whether the political system is democratic/autocracy, the presence of fundamental change in the constitutional order or arbitrary government decisions that reflect legal, economic, monetary and social policies. The next category of political risk is a change in government regime. This includes the frequency of change, conflicting ideologies among political parties and coups d'etat in regime change. The final category of political risk is related to violent conflict. These are civil war, riot, terrorism, blockades, saber rattling etc. This kind of risk is rare, but changes the prospect of the return of a given international asset allocation. Oetzel, Bettis and Zenner (2001) and Rajan and Friedman (1997) argued that political risk might be divided into macro and micro-risk. Macro-risk includes unexpected and politically motivated environmental changes that are directed at all foreign companies. On the contrary, micro-risk is concerned with the environmental changes that have impact on related industries and firms. We just focus on macro-risk in this paper.

[5] Reviewed from literatures, there are seven possible explanations in this home bias puzzle. They are: 1) asymmetric information (Matsen, 2000; Jaske, 2001), 2) human capital (Coen, 2001), 3) inflation hedging (Cooper and Kaplanis, 1994; Adler and Dumas, 1983), 4) taxes, information cost and barrier to trading (Kang and Stulz, 1997; Cooper and Kaplanis, 1986), v) differences in expectations (Strong and Xu, 2002), vi) currency risk hedging (Glen and Jorion, 1993), vii) emerging markets (Errunza, Hogan and Hung, 1999) etc. According to Dahlquist and Robertsson (2001) and Kang and Stulz (1997), there are two potential categories to explain home bias. The first category is when international investors face explicit and implicit barriers in investing in foreign assets. The explicit barriers are foreign exchange control, tax and other institutional barriers. The implicit barriers are information asymmetries and political, or country, risk. The second category is departure from the IAPM or mean-variance optimization. The possible reason for this departure is that investors want to hedge against some of state variables, such as hedging against unexpected changing in purchasing power.

foreign political risk to assure their own wealth. Generally, they tend a bias to their own domestic assets, if they perceive risky to invest in foreign countries.

In the past, researchers seldom testified the immediate relation between international portfolio choice and political risk. A possible explanation is political risk can be diversified by international investors through insurance or other channels. However, political risks are hard to expect, they cannot be diversified completely. The main reason is that we do not know the exactly arrival timing, shock magnitude and investors responsiveness. What is more, we should be concerned with how home investors do allocate their own wealth, as they face the arrival of home political risk. Since there is no literature to study about this interesting issue, we want to investigate the behavior of international asset allocation from the perspective of home investors who face home political risk. As a consequence, our model confirms that home investors tend to a bias to foreign assets, depends on their own relative risk aversion, frequency and size of home political shocks.

If there were no political risk, home investors depend on the international mean-variance optimization to decide their optimal portfolio weight. As home political risks arrive, they request more political risk premium to compensate for the possible losses incurred from those uncertainties. Moreover, they adjust their portfolio choice to response to new investment environment. As home investors are risk-averters, they override other factors of their portfolio decision and move to hold more foreign assets to hedge against home political risks[6]. This implies that they have a foreign bias. Liu et al. (2003) confirmed that home investors reduce more portfolio weight on risky asset and hold more weight on risk-free assets, when home investors perceive home political risk. But their model is in a domestic setting, not an international setting. Otherwise, home risk-free assets will be more risky, since seriously home political risks arrive. So we want to extend their model into international asset allocation.

Ang and Bekaert (2002) pointed out that the correlations between returns on international equity market tend to increase in highly volatility times. We want to use the market correlation as a function of portfolio choice to examine home investors asset allocation, under the condition of home political jumps. Our model shows that home investors are more sensitive to their own portfolio choice, as both markets are positively correlated. We argue that home investors want to ensure their wealth safety through international diversification.

Historically, there have been plenty of examples of response to political risk in developed and developing countries. For example, France suffered capital outflows in 1982 and 1983, when President Mitterrand nationalized some industries and increased workers' wages (Gibson and Tsakalotos, 1993). When the Swedish government joined the Europe Union (EU) in 1991, there was a capital out-flow due largely to higher relative costs and interest rates. During 1983, when the UK was negotiating the return of Hong Kong to China, there were huge capital outflows from Hong Kong. All of the above are examples of a response to a political risk. Kim and Mei (2001), Lensink et al. (2000), Clark and Jokung (1998), Clark and Tunaru (2004) all confirm the relationship between political risk and capital outflows. Nowadays, political risks are more prevalent globally, such as 911 terrorist attacks and killings in USA, Spain, the Middle East and the Far East, and political tension in other areas. Those risks are difficult to anticipate both in timing as well as magnitude. Therefore, it is necessary to develop a portfolio selection model that takes into consideration the impact of country risk on an international portfolio.

In this paper, our aim is to show that political risk is an important feature in international portfolio choice. We extend Wu (2003) and Liu et al. (2003) model into an international setting. We assume that investors make their portfolio choice between two risky assets: one home risky asset and one foreign risky asset, in a frictionless and integrated continuous-time market. We use additional factor – the Poisson jump diffusion to capture the potential political risk effect on international asset allocation. The advantage of Poisson jump diffusion is to simulate asset price moves discontinuously and also to generate more extreme realizations than implied by a normal distribution. We suppose that all investors have CRRA utility function. The optimal portfolio weight is derived by Hamilton-Jacobin-Bellman (HJB) equation. A key result of the paper is that we find that home investors do have a bias toward foreign or home asset, depended on the level of relative risk-aversion, frequency and size of home political jumps.

The rest of the paper is organized as follows. Section 2 gives a theoretical model of asset allocation using the Poisson jump diffusion model and analytical solutions to the optimal portfolio allocation. Section 3 provides numerical results. A conclusion is provided in Section 4.

2 Model

In this section, we set up the model and solve the optimal asset allocation in the presence of political shocks. To capture the impacts of political risk on

[6] Accumulation of those capital outflows, we can easily observe a phenomenon of capital flight in this situation. Many papers test the relationships between capital flight and political (country) risk empirically and theoretically, such as Collier, Hoeffler and Pattillo (1999) and Dooley (1988). Collier, Hoeffler and Pattillo (1999) find that the rating of political (country) risk have impacts on capital flight, as they test the East Asia Crisis in 1997 and 1998. Dooley (1988) find that increasing in political risk premium has a negative impact on capital flight.

international portfolio choice, we use a dynamic model with Poison jump diffusion to examine investors' reactions to this kind of political event.

We assume there are two countries in the international financial market – home and foreign. Each country has one stock market in the economy. We also assume that the international financial market is integrated, foreign exchange rate does not exist in this international financial market. There is one home risk-free asset that has a constant compounded rate of return, r. When home risk-free rate as a numeraire, the price of foreign risky asset, P^*, obeys stochastic differential equations (SDE).

$$\frac{dP^*}{P^*} = \left(r + \beta^* \sigma^*\right) dt + \sigma^* dB^* \tag{1}$$

Where σ^* is the standard deviation of foreign risky asset, B^* is a standard Brownian motion as well as the only source of uncertainty in the foreign country and $\beta^* = (\mu^* - r)/\sigma^*$ is a foreign market price of risk or Sharpe ratio that is driven by B^*, μ^* is expected rate of return on foreign risky asset.

The home risky asset whose price, P, is subject to jump events that are related to politics. If home asset has political jumps, investors anticipate to be compensated for these additional risks associated with the possibility of jumps. The stochastic return of the home stock follows SDE with Poisson jump-diffusion process, according to the following form[3].

$$\frac{dP}{P} = \left(r + \beta\sigma\right) dt + \sigma dB + \phi dM$$

Where σ is the standard deviation of home risky asset, B is a standard Brownian motion in the home country, $\beta = (\mu - r)/\sigma$ is market price of risk that is driven by B, μ the expected rate of return on home risky asset, ϕ is the random percentage jump size conditionally on home political shocks arrives and a draw from lognormal distribution ~ $N(k, \sigma_q^2)$. Since this kind of political jumps such as wars or seriously political crisis have a downward impact on home asset, this impact usually have resulted in huge losses for investors. Liu et al. (2003) and Wu (2003) argue that the downward jump magnitude induce investors significantly to reduce their exposure on the stock market, as they perceive event risk. Ang and Bekaert (2002) and De Santis and Gerard (1997) also argue that correlations of international stock market returns are closer within bear market. To measure the impact of unfavorable political jumps on international portfolio, we take the jump size to be negative. Simultaneously, different sources of political risk have different probability and magnitude that not only depend on the types of sources and the circumstances but also is hard to expect. By the way, we argue that two market prices of risk are equal; that is, $\beta = \beta^*$, when the international financial market is complete without jump. The law of one price (LOOP) holds in this international financial market. In contrast, when political risk is imminent, the LOOP is violated, i.e. the international financial market is not completed. Investors need a risk premium to compensate them for additional risk associated with political shocks. This complies with investors' requirement for an additional political risk premium, as they perceive political risks.

To follow martingale or risk neutral measure, we define $dM = dq - \lambda dt$ that M is the compensated Poisson martingale. Taking this equation into the former equation, we get another form as follows.

$$\frac{dP}{P} = \left(r + \beta\sigma + \lambda k\right) dt + \sigma dB - \phi dq \tag{2}$$

Where λ is the probability of jump risks, dq defines a Poisson jump-diffusion with intensity λ, that is, $Prob(dq = 1) = \lambda dt$. There are two sources of risk, B and q, existing in home country. We also argue that the negative political shocks to the asset price can be compensated by the positive political risk premium - λk. This complies with investors will request additional risk premium to compensate political shocks. Note that the correlation among B, B^* and q is given by $E[dBdB^*] = \rho dt$ as well as $E[dBdq] = E[dB^* dq] = 0$. We argue that the value of ρ and λk represents the market correlation between home and foreign markets as well as political risk premium, individually.

In order to analyze an investor's problem, we assume that investors maximize a time-additive von Neumann Morgenstern expected utility of lifetime utility consumption function and that utility functions are homothetic and CRRA. So investors try to maximize the expected present discounted value of their utility function and then determine their optimal consumption or portfolio plans. We define the objective function as,

$$\underset{C,\theta}{Max}\ E_t \int_t^T V(C,s)ds \tag{3}$$

Where C is personal consumption and θ is the ratio of wealth invested at home.

Let W denote the investors' current wealth. Assumed that there is no labor or other income, the component of the dynamic of wealth, dW is given by the following relation:

$$dW = \left[\theta \frac{dP}{P} + (1-\theta)\frac{dP^*}{P^*}\right]W - Cdt \tag{4}$$

This equation is the dynamic budget constraint. Again, since home risky assets follow a pure diffusion process without jump, the diffusive process is proportional to dt. Investor's change in wealth dW would go to zero which means investor can fully control the portfolio weight to respond to a market situation to avoid any negative wealth effect on the portfolio. The portfolio weight is optimal in this situation. When asset price paths include a discontinuous term because of home political jumps, the uncertainty with the investor's change in wealth $dW = W_t - W_{t-}$ does not go to zero. As political risk arises, an investor's wealth changes significantly from its current value and there is no chance to rebalance the portfolio quickly. So the portfolio weight is not optimal. After the shocks occur, international investors rebalance their optimal portfolio weight to react new situation.

To solve the optimal portfolio strategy, we define $J(W, t)$ to be the maximum value of the objective function subject to the budget constraint. Based on the principle of optimal stochastic control, we use the HJB equation to solve the optimal portfolio choice, θ, and consumption, C. Even though our financial market is not complete, we may apply stochastic dynamic programming, due to we set our model in a Markovian framework.

$$0 = \underset{C,\theta}{Max}\begin{cases} V(C,t) + J_t + J_W \left\{\left[\theta\left(r+\beta\sigma+\lambda k\right) + (1-\theta)\left(r+\beta^*\sigma^*\right)\right]W - C\right\} \\ +\frac{1}{2}J_{WW}W^2\left[\theta^2\sigma^2 + (1-\theta)^2\sigma^{*2} + 2\theta(1-\theta)\rho\sigma\sigma^*\right] + \lambda E_t\left[J(W',t) - J(W,t)\right] \end{cases} \tag{5}$$

Where J_W and J_t denote the derivatives of $J(W, t)$ with respect to W and t, and similar for the higher derivatives, $W' = W(1-\theta\phi)$ is the wealth level conditional on jumps occurring.

Similar with Liu et al. (2003), we solve for the optimal portfolio weight, θ, linking that the indirect utility function is the following form:

$$J(W,t) = \frac{W^{1-\gamma}}{1-\gamma} \tag{6}$$

Where $\gamma > 0$. By this form, we take derivatives of $J(W, t)$ with respect to its argument; thereafter substitute into the equation (5). Let $V_C = J_W$, the optimal nonlinear portfolio decision is obtained from the first-order condition with respect to

$$\theta = \frac{\mu - \mu^* + \lambda k}{\gamma(\sigma^2 + \sigma^{*2} - 2\rho\sigma\sigma^*)} + \frac{\sigma^{*2} - \rho\sigma\sigma^*}{\sigma^2 + \sigma^{*2} - 2\rho\sigma\sigma^*} - \frac{\lambda k E_t(1-\theta\phi)^{-\gamma}}{\gamma(\sigma^2 + \sigma^{*2} - 2\rho\sigma\sigma^*)} \tag{7}$$

Where the value of $(\sigma^2 + \sigma^{*2} - 2\sigma\sigma^*\rho)$ is the international portfolio variance that is positive.

The first order-condition can be broken into three components in this optimal portfolio weight. The first term, $\frac{\mu-\mu^*+\lambda k}{\gamma(\sigma^2+\sigma^{*2}-2\sigma\sigma^*\rho)}$, is designed to account for myopic demand for discrepancies in the risk premium. If the sum of the expected rate of return and the political risk premium on home assets were larger than the rate of return on foreign assets, an investor would prefer to hold more home assets. Otherwise, they hold more foreign assets than usual. This is in line with portfolio choice arising from return differential incentives. We also argue that investors' risk parameter mitigates the value of this term, if investors are moderate risk-averse. This implies that Home investors who are more risk averse have a bias much less to Home assets than those who are not risk averse.

The second term, $\frac{\sigma^{*2}-\sigma\sigma^*\rho}{\sigma^2+\sigma^{*2}-2\sigma\sigma^*\rho}$, is the minimum-variance portfolio share. This term shows portfolio choice as riskiness in foreign assets relative to international portfolio riskiness. That is identical for all investors and not influenced by relative risk aversion. We argue that home investors allocate more portfolio weight on home asset, as foreign asset is much riskier; otherwise, they would like holding more foreign assets.

The last term, $-\frac{\lambda k E_t(1-\theta\phi)^{-\gamma}}{\gamma(\sigma^2+\sigma^{*2}-2\sigma\sigma^*\rho)}$, is the political risk hedging term induced by the Poisson jump process in asset movement. This is a jump demand that measures the degree toward foreign asset to hedge against shocks from political risk. As a result, an investor holds more foreign assets depending on the jump size and the probability of jump occurrence. Again, if no political risk arises, investors decide their asset allocation on the first two terms. By the way, the value of relative risk parameter also lessens this term value. We should specify that equation (7) is an implicit function of the portfolio weight on home asset, θ. This implies the value of jump demand depends on investors' whole position on home asset with political risk. We can easily obtain the optimal portfolio weight from this non-linear equation by recursive solution technique.

3 Numerical simulation

In this section, we extend the theoretical jump diffusion model for investor's portfolio choice to examine foreign bias through simulations. For daily data, we assume that there are 252 business days a year and totally 35 years in our model. We have 8820 observations for Home and Foreign, respectively. Then we apply Eq. (1) and (2) to simulate Home and Foreign daily indexes. Table 1 summarizes the statistical properties of the daily return data. Both value of mean and standard deviation are annualized value. Home daily data have more negative skewness and extreme kurtosis than Foreign daily data. The sample correlation of two markets is 0.6%. Observed from the simulation data, the minimum daily jump value of Home and Foreign are –15.8% as well as – 7.93%, individually. Checked from the Table 1, both Home and Foreign Sharpe ratio are 0.3859 and 0.2721. That implies investors have arbitrage opportunities to earn excess return theoretically on condition that no political shocks. Finally, the market power pushes both ratios equally. To simplify our model, we also suppose that Home and Foreign stock markets are more liquidly and have no control on capital flows as well as limit on the changing in stock market index. Investors can easily rebalance their portfolio position and move their wealth free.

Table 1. Summary statistics for simulation daily rate of return on home and foreign countries

Both daily data of Home and Foreign countries are obtained from the simulation. We assume that there are 252 business days a year and totally 35 years. There are 8820 observations for Home and Foreign countries. Mean is the sample mean (annualized), Standard deviation is the sample standard deviation (annualized).

	Home	Foreign
Mean	0.1157	0.0881
Standard Deviation	0.2998	0.3238
Excess Kurtosis	4.6557	0.0801
Skewness	-0.1225	-0.1188
Minimum	-0.1587	-0.0793
Maximum	0.1695	0.0811
Sharpe Ratio	0.3859	0.2721
Numbers of Observations	8820	8820
Sample Correlation	0.006	

To estimate the parameters $(\mu, \sigma, \lambda, k, \sigma_q)$ of Home political jump diffusion model, we apply method of moments to match the first six moments of the index return. Followed Beckers (1981) methodology, we can estimate those five parameters. Table 2 show the calibration of the jump diffusion model in (2) to the Home simulated daily return data, assuming constant drift (μ) and diffusion volatility (σ). All parameters are annualized. The estimated jump intensity for Home is $\lambda_{Home} = 3.846$. This implies that Home have a probability 97.86% to undergo one or more jumps within one year[7].

[7] The probability of having *n* jumps over investment horizon τ is described by the following Poisson probability: $Pr(n\ jumps\ over\ \tau) = e^{-\lambda\tau}\frac{(\lambda\tau)^n}{n!}$.

Table 2. Calibrating home daily data into a jump-diffusion process

All parameters are the Method of Moments that specified by Beckers (1981) estimates for the following jump-diffusion process on Home simulated daily data:

$$\frac{dP}{P} = \left(r + \beta\sigma + \lambda k\right)dt + \sigma dB - \phi dq.$$

All parameters are annualized. The data used for the calibration are obtained from the Home simulation database. There are 8820 observations for Home country.

	Daily data estimates
Parameter	Home
μ	0.11570
σ	0.27578
λ	3.84605
k	0
σ_q	0.0600

Except for the frequency of jump and jump size, we get all required mean and standard deviation from Table 2 for Home and Table 1 for Foreign. To observe Home investors asset allocation, we assume that Foreign have no political jump in the model. All parameters keep constant throughout the model.

If the jump size ϕ takes any value from the interval $(-1,\infty)$, this implies that home investors do not take a leverage or short position in home or foreign assets. We set that the bounded price jump size is from -1 to 0; even we have simulated negative jump size. To get the optimal portfolio weight, we define

$$0 \equiv \theta - \frac{\mu - \mu^* + \lambda k}{\gamma(\sigma^2 + \sigma^{*2} - 2\rho\sigma\sigma^*)} - \frac{\sigma^{*2} - \rho\sigma\sigma^*}{\sigma^2 + \sigma^{*2} - 2\rho\sigma\sigma^*} + \frac{\lambda k E_t(1-\theta\phi)^{-\gamma}}{\gamma(\sigma^2 + \sigma^{*2} - 2\rho\sigma\sigma^*)}$$

Then we may obtain the optimal portfolio weight by solving the Newton's Method for nonlinear equations. Simultaneously, we set that $E_t(1-\theta\phi)^{-\gamma} = (1-\theta\phi)^{-\gamma}$, since all price jumps are deterministic.

To illustrate our result, Table 3 shows risk-averter's optimal portfolio weight, θ, to present specific numerical numbers. As shown, the optimal portfolio weight is sensitive to the jump size. When home political risk increases in the downward jump direction, Home investors choose a short position on home assets and a long position on foreign assets. In the special case, Home investors will avoid obtaining Home assets, i.e. $\theta \to 0$. This implies Home investors have much higher "flight to safety" effect on capital outflow. Home investors don't depend on their CRRA preference to allocate their wealth anymore. Therefore, the potential triggers for Home political risks reduce the Home assets attraction to the Home investors. In contrast with Home investors, this also implies the reason why foreign investors have a home bias to their own domestic assets. (Dahlquist and Robertsson, 2001; Kung and Stulz, 1997).

When optimal portfolio weight as a function of the frequency of political jumps, Table 3 also report the value of θ for different value of the probability of jumps. Checked with the benchmark that the jump size is zero, the optimal portfolio weight is reduced largely when the frequency of jumps arriving is low. Two points are worth noting in our table. To begin with, given relative risk parameter ($\gamma = 1$), the optimal portfolio weight is sensitive to the different frequency of jumps. For example, as a –100% jump occurs at a 0.5-year frequency, the portfolio weight is much smaller than the weight value of 50-year frequency. This implies Home investors face too much uncertainty. They need to adjust their portfolio weight repeatedly and take additional time as well as transaction costs to diversify those uncertainties. To make their wealth safety, they have a bias to foreign assets to hedge against Home political risk. Second, when a –100% of jump occurs at a 50-year frequency, the optimal portfolio weight is less than 30% of what it be without jumps. We also observed that the effect of jumps on portfolio weights have the same expressed for investors with lower levels of risk aversion.

Observed from Table 3, if Home investors were moderate risk-averse, they would choose a short position on home assets and a long position on foreign assets. Compared with different level in relative risk aversion, Home investors who are less risk aversion would hold more Home assets. More interestingly, home investors who face no home political risk are home bias. As home political risk arrives, they override any portfolio decision factor and bias to more Foreign assets to hedge against Home political risk. Again, we confirm that home investors are foreign biased in our model.

As increasing the probability and magnitude of political jump, investors request additional risk premium to compensate for political shocks. Increasing in political risk premium has a negative impact on capital flight (Dooley, 1988). However, both Home and Foreign Sharpe ratios cannot be equal in the real world, when the market is incomplete. The main reason is that increasing jump volatility (σ_q) raises the variance of asset returns. Simultaneously, investors cannot expect exactly the probability and magnitude of jumps. They trend to have either over-reaction or under-reaction to different good or bad news, especially bad news. So the expected hedging usually cannot testify the true framework of compensation for jump risk (Kou, 2002; Naik and Lee, 1990; Branger and Schlag, 2004).

In order to present our result graphically, Panel A and B of Figure I illustrate the optimal portfolio weight as a function of different price jump sizes and risk aversion parameter, respectively. As shown in Panel A of Figure I, the optimal portfolio weights with high frequency of jump are more sensitive to higher price jump size. When there is no political risk jump, home investors are hold more home asset. As increasing in the jump size, home investors override their portfolio decision and bias more to foreign assets. Panel B shows that home investors who are more risk averse hold more foreign assets to hedge against home political risk.

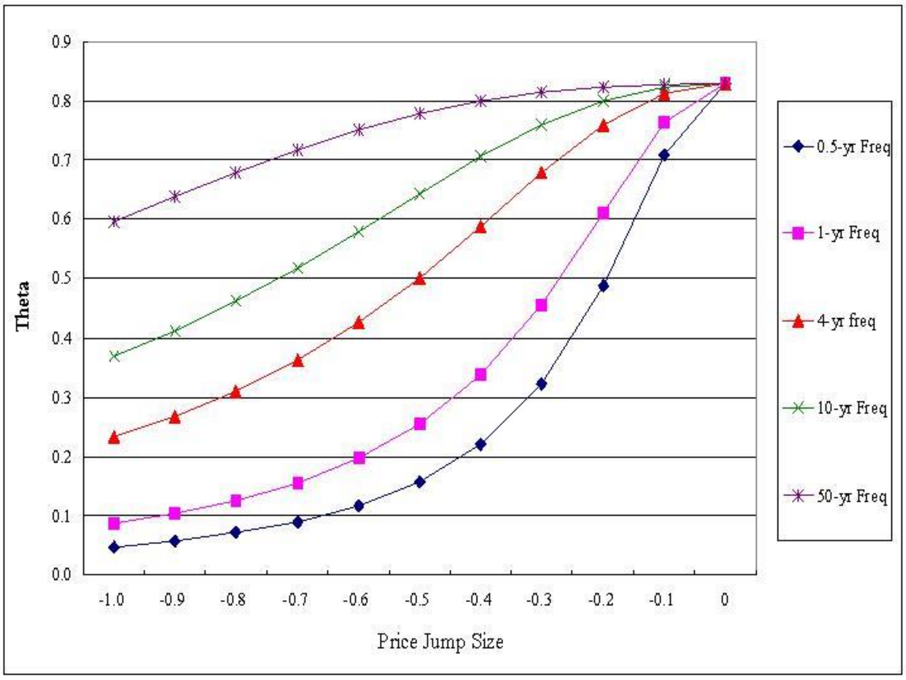
Table 3. Risk averter's portfolio weight

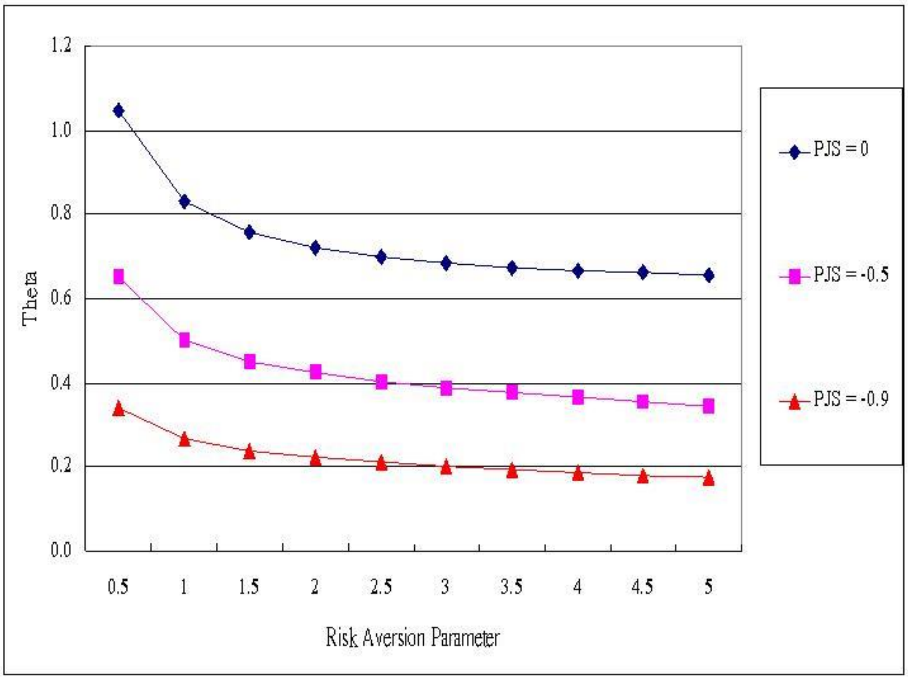
This table reports the possible portfolio weight for asset allocation between home and foreign risky assets for risk averters. We assume two countries' parameters keep constant. For simulation, we set that μ = 0.1157, μ^* = 0.0881, σ = 0.2758, σ^* = 0.3238, ρ = 0.3. The frequencies of jump equal to the reciprocal of the probability of jump and are shown as annual value. The risk aversion parameter is the reciprocal of the risk tolerance.

		Percentage Jump Size				
Risk Aversion Parameter	Frequency of Jumps	-1.0	-0.8	-0.5	-0.2	0
0.5	0.5	0.0600	0.0900	0.1994	0.6179	1.0464
	1	0.1094	0.1594	0.3231	0.7718	1.0464
	4	0.2953	0.3933	0.6340	0.9582	1.0464
	10	0.4666	0.5829	0.8125	1.0089	1.0464
	50	0.7420	0.8523	0.9832	1.0387	1.0464
1	0.5	0.0474	0.0712	0.1577	0.4891	0.8297
	1	0.0865	0.1259	0.2552	0.6111	0.8297
	4	0.2330	0.3105	0.5014	0.7595	0.8297
	10	0.3695	0.4617	0.6435	0.7998	0.8297
	50	0.5970	0.6798	0.7796	0.8236	0.8297
2	0.5	0.0407	0.0609	0.1345	0.4200	0.7214
	1	0.0735	0.1068	0.2163	0.5259	0.7214
	4	0.1936	0.2585	0.4229	0.6582	0.7214
	10	0.3038	0.3828	0.5461	0.6941	0.7214
	50	0.4937	0.5712	0.6716	0.7157	0.7214
5	0.5	0.0354	0.0527	0.1150	0.3659	0.6564
	1	0.0622	0.0897	0.1807	0.4610	0.6564
	4	0.1522	0.2042	0.3456	0.5881	0.6564
	10	0.2307	0.2962	0.4522	0.6265	0.6564
	50	0.3704	0.4491	0.5839	0.6501	0.6564

Figure 1. Optimal portfolio weight for different frequency of jump and risk aversion parameter

The top panel depicts the optimal portfolio weight, when those weights are a function of price jump size. The risk aversion parameter is 1. The bottom panel depicts the optimal portfolio weight as a function different risk aversion parameter, when the frequency of jump is 4-year frequency.



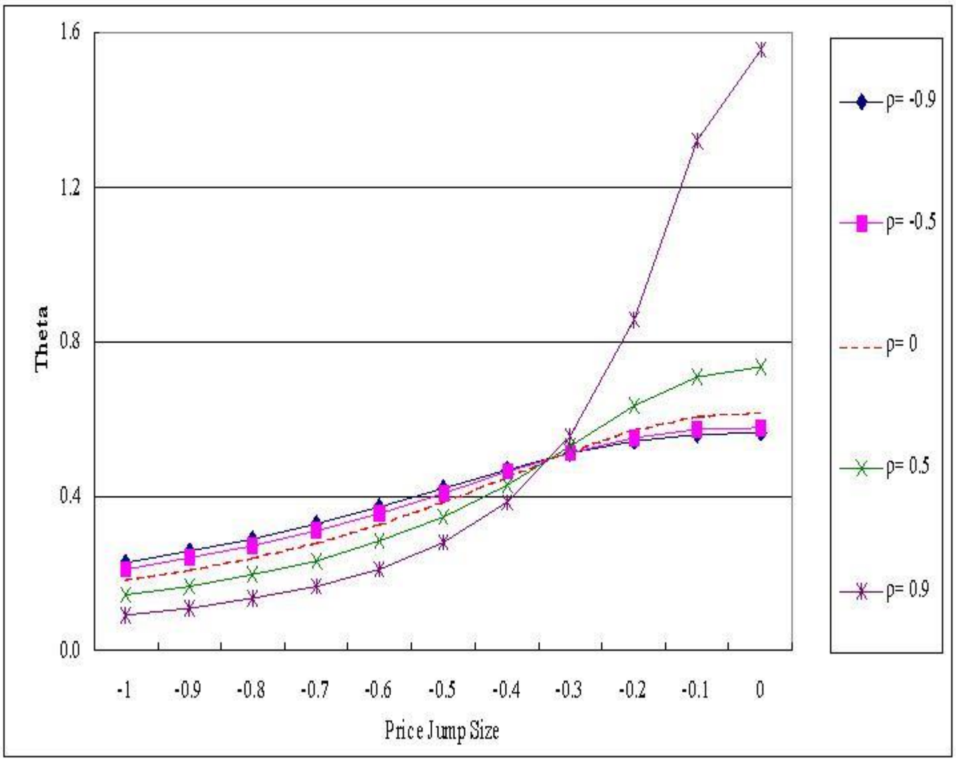


To illustrate how different market correlation, ρ, can be expressed in the home political risk, Figure 2 show the market correlation as a function of optimal portfolio weight. Given the same parameters, we set the frequency of jump is 4-year frequency and investor's risk aversion parameter is 4. As the financial market is negatively correlated with each other, diversification may reduce portfolio risk. Our graphic shows that investors are more sensitive to asset allocation, as market positively correlation is increasing. The possible explanation is that that investors have no choice to other markets. They only can allocate their wealth to safety what they believed to hedge against home political risks. We can observe this from empirical tests that incurred from political risks (Collier, Hoeffler and Pattillo, 1999; Dooley and

Kletzer, 1994). More interestingly, as the percentage jump size is about –32%, the optimal portfolio weights of different market correlations have the same value.

Figure 2. Optimal portfolio weight for different market correlation

Given all parameters, this graph plots the optimal portfolio weight as a function of the market correlation for various jump sizes. The market correlation, ρ, ranges from –0.9 to 0.9. The frequency of jump is 4-year Frequency and risk aversion parameter is 4.



Overall, Home investor reduces her position drastically in the Home risky assets as she expects: i) a higher probability of political jumps, ii) a larger negative political jump magnitude, iii) uncertainty about the political jump magnitude and iv) more positive market correlation.

4 Conclusion

This paper has examined the effect of home political risk in assessing international investment decision-making. We model political risk as a Poisson jump diffusion process associated with particular possible outcomes in a two-country world. By applying stochastic dynamic programming, we get the optimal portfolio weight. In addition, the optimal portfolio weight is composed of three terms. The first item is the myopic demand for discrepancies in the risk premium. The second item is minimum-variance portfolio share and the third item is political risk hedging term to test the bias to home or foreign assets.

Our paper reports some interesting results. First, we show that foreign bias does exist for Home investors who are moderate risk-aversion in the international asset allocation, as they face unexpected Home political shocks. This implies that home investors liquidate their home assets to assure their wealth to diversify the uncertainties what they face. Second, if political risks arrive more frequently, investors allocate their wealth more on foreign assets to avoid the uncertainties. Third, as increasing in negative Home political jump direction, Home investors have a bias to Foreign assets to diversify political risk. Fourth, the asset allocation choice is more sensitive to higher positively market correlation. The main reason is that investors have no choice to other markets. They only can allocate their wealth to safety what they believed.

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