Analyzing International Portfolio Strategy with Home Event Risk versus Foreign Information Asymmetry

Shu-Hsien Chen[1)] Chih-Ling Lin[2)] and Mingshu Hua[3)]

[1)]Department of International Business Studies, Central Taiwan University of Science Technology, 11 Pu-tzu Lane, Pei-tun District, Taichung, Taiwan, R.O.C. (susanch@ntit.edu.tw)

[2)] Department of International Business Studies Central Taiwan University of Science and Technology, Taichung & National Chi-Nan University, Puli 545, Nantou Hsien, Taiwan, R.O.C. (cllin101938@ctust.edu.tw)

[3)] Department of International Business Studies, National Chi-Nan University, Puli 545, Nantou Hsien, Taiwan, R.O.C. (hua@ncnu.edu.tw)

Abstract

This study develops a model for international portfolio choice in the presence of the home asset with event-risk versus foreign asset with stochastic information filtering. The model is constructed from comparing the portfolio fraction changes of domestic assets so as to maximize the expected utility of his terminal wealth by the relative standard deviation on both foreign and home asset returns. We provide a more accurate analysis on international portfolio choice when the home asset suffers a tremendous change in political issue or economic event to a certain level; the investors decrease the proportion of home asset and increase the proportion of foreign asset. The numerical result shows that home bias holds when the home event risk does not happen. Also when there is the home event risk, the relative standard deviation on both asset returns and the jump size play a deterministic role on portfolio weights.

1. **Introduction**

The past studies consider that optimal international portfolios are globally diversified in achieving a higher expected return at a low risk (Levy and Sarnat, 1970). In practice, returns cannot be precisely measured, but instead must be estimated by the investor or the researcher. Estimation risk is the term used for this uncertainty, and it exists in addition to the risk created by the randomness of security returns (Jorion, 1985). Adler and Dumas (1983) present the solution to the well-known international mean-variance model in a variety of ways, including decomposing the solution for optimal portfolio weights. Hason and Simaan (2000) also develop a model that incorporates both the foregone gains from diversification and the informational constraints of international investing but seldom considering the home event risk. They survey the home equity bias that is consistent with rational mean variance portfolio choice and find that the domestic dedication dominates international diversification. After the barriers to international investment have fallen, researchers have put more emphasis on examining the obstacles to foreign investment; it is worthy comparing with the home political or economic instability. More important are information asymmetries that owe to the poor quality and low credibility of financial information in many countries. Kang and Stulz (1997) suggest two main classes of such barriers are political risk differences faced by the domestic and the foreign investors and the information asymmetries. They provide evidence while a direct measure of information costs is impossible; some foreign firms have reduced these costs by publicly listing their securities in the United States, where investor protection regulations elicit standardized, and credible financial information.

As for information asymmetries, if non-resident investors are less well informed about a country in which they invested than the resident investors, the non-resident investors will invest less in that country primarily due to the variance of their predictive distribution is higher. Ahearne, Griever and Warnock (2004) use high quality cross-border holdings data to analyze the quantitative measures of direct barriers to international investment. They use a proxy for the reduction in information asymmetries - the portion of a country's market that has a public US listing to be a major determinant of a country's weight in US investors' portfolios. The results in foreign countries whose firms do not alleviate information costs by opting into the US regulatory environment are more severely underweighted in US equity portfolios. Similar research by Coval and Moskowitz (1999) who find even within countries; investors tend to hold stocks of local companies.

For event risk, Perotti and Oijen (2001) present empirical evidence in emerging economies, suggesting that progress in privatization is indeed correlated with improvements in the perceived political risk. Their analysis further shows that changes in political risk possess general tend of a strong effect on local stock market development and excess returns in emerging economies. Kim and Mei (2001) employ a components jump volatility filter to investigate the political risk on Hong Kong stock returns. Then the result shows that event risks have a significant impact on its market volatility and return. In other view of the analysis, Lensink, Hermes and Murinde (2000) show that in most cases political risk variables do have a statistically robust relationship to capital flight once domestic and international macroeconomic circumstances are added. Keillor, Wilkinson and Owens (2005) argue that the type of political activity engaged in by firms will differ depending on the form of political the threat faced. These studies suggest that asymmetric information between local and non-local investors may be an important factor for investment decision versus domestic rare event. Thus asymmetric information also has a bearing on risk perception. The statement of international diversification allows the elimination of all unnecessary national risks, is contradicted when investors do not share the same information.

This paper focuses on the problem that home asset with infrequent events and foreign asset with incompleteness of observations. We develop a divergent explanation for international assets allocation under the political or economic uncertainty based on the jump framework of Liu, Longstaff and Pan (2003). They study optimal event-related jumps in security prices and volatility on optimal dynamic portfolio strategies. We perceive that a rare event gives rise to risk; thus the dynamics of the prices are driven by Brownian motion and Poisson processes. We have found when the home asset suffers a tremendous change in political issue or economic event to a certain level; the investors decrease the proportion of the home asset and increase the proportion of their foreign asset, suggesting the possibility of foreign bias.

The remainder of the paper is organized as follows. The next section presents the model that describes the return of home asset price process with event-risk and the return of foreign asset price process with information filtration. Section 3 establishes the optimal portfolio and provides analytical solutions to the optimal portfolio choice problem for some specific cases. Section 4 provides numerical results and examines the implications for optimal portfolio decision. Section 5 summarizes the results and makes concluding remarks.

2. **The Basic Model**

For simplicity, suppose there are two countries, Home and Foreign, each has a single risky asset, and that there is also a riskless asset. Investors in both countries can buy Home and Foreign risky and riskless assets without any costs or restrictions. The investor maximizes her terminal wealth over investment horizon $0 \leq t \leq T$. We consider investor's optimal portfolio choice in continuous time settings using the methodology developed by Merton (1971) the risky asset of both countries is described by the same stochastic differential equation, $\{S_t;\ 0 \leq t \leq T\}$, the value of asset is expressed by

$$\frac{dS_t}{S_t} = \mu_t dt + \sigma_t dW_t$$

where μ and σ are positive, bounded, and measurable with respect to a filtration $\{\mathcal{F}_t\}$; where $\{\mathcal{F}_t\}$ is a σ-field generated by the process $\{\delta_t\}$. If P-augmentation of the filtration $\{\sigma(S_t);\ 0 \leq t \leq T\}$ is denoted by $\{\Omega_t\}$ then $\{W_t;\ 0 \leq t \leq T\}$ is a $\{\Omega_t\}$-adapted Wiener process. We also define σ is the instantaneous variance of diffusive returns.

Under the assumption in Merton (1976) that jumps risk is diversifiable and hence no arbitrage in equilibrium. Then, the return of home risky asset price evolves according to the following jump-diffusion process:

$$\frac{dS_D}{S} = (\mu - \lambda \ \mu_j)dt + \sigma dZ_1 + Xdq \ ,$$

where μ is the mean of price S_D, Z_1 is standard Brownian motion, σ is the instantaneous standard deviation of diffusive home asset return, and q is a Poisson process with stochastic arrival intensity λ. The variable X is a random price-jump size with mean μ_j, for the reason that the limited liability and positivity of S, it is assumed to have support on (-1, ∞). Since a realization of q triggers jumps in both prices and return, we study the effects of event-risk cause the uncertainty on portfolio choice. This is the form that risk premium compensates the investor for both the risk of diffusive shocks and the risk of jumps; it follows from Merton (1980) and is also used by Liu (1999) and Pan (2002).

To ensure comparatively, we assume the two countries are symmetric, i.e. in terms of investment preferences and informational structure. Suppose that the value of foreign asset is described by the stochastic differential equation {(S_F)}, then the return of foreign risky asset evolves according to the process:

$$\frac{dS_F}{S} = \mu \cdot dt + \sigma_F dZ_2 \ ,$$

where σ_F is the instantaneous standard deviation of diffusive foreign asset returns and Z_2 is standard Brownian motion. For Foreign asset, since the investors cannot observe the 'true' process of Foreign asset, it is allowed to observe the following $\mathcal{F}_t$-adapted process, {δ_t ; $0 \le t \le T$}, the notation δ_t stands for the process of Foreign asset, which contains incomplete information on {S_t}. We denote it by $d\delta_t = \mu_t^f \delta_t dt + \sigma_t^f \delta_t dZ_t^f$ where μ_t^f and σ_t^f are positive, bounded, and measurable with respect to filtration {$\mathcal{F}_t$} on Foreign asset. We also assume Wiener processes Z_2 and Z^f are mutually independent. However, after carefully observing {δ_t}, then we derive optimal filtering equations for {S_t}. Let us denote the estimate of {S_t} from {δ_t} by $m_t = E[S_t \mid \mathcal{F}_t]$ and the error of filtering by $\varepsilon_t = E[(S_t - m_t)^2 \mid \mathcal{F}_t]$, $\varepsilon_t > 0$. Using the Theorem 8.1 of Liptser and

Shiryayev (1977), the optimal filtering equation m_t, permits the differential

$$m_t = m_0 + \int_0^t [\mu_s m_s]ds + \int_0^t \{\sigma_s m_s + \frac{\mu_t^f [E(S^2 \mid \mathcal{F}_s) - m_s^2]}{\sigma_t^f m_s}\} d\bar{Z}_s, \quad (1)$$

where $d\bar{Z}_s = \frac{d\delta - [\mu_s^f m_s]ds}{\sigma_s^f m_s}$. We note that $\bar{Z}_t$ contains the same information as the process δ_t does. From Equation (1) we obtain

$dm_t = (r + \gamma\sigma)_t m_t dt + [\sigma_t m_t + \varepsilon_t \frac{\mu_t^f}{\sigma_t^f m_t}] d\bar{Z}_t$. The variance difference is the addition of $\varepsilon_t \frac{\mu_t^f}{\sigma_t^f m_t}$, implies $\sigma_F > \sigma$. Thus under incomplete information, the ratio of return standard deviations $f = \frac{\sigma_F}{\sigma} > 1$ is deterministic.

3. The optimal portfolio choice

Following the analytical solutions to the optimal portfolio problem provided by Liu, Longstaff and Pan (2003) that an investor starts with a positive initial wealth W_0 and chooses at each time t, to invest a fraction ϕ of his wealth in the home asset and fraction 1- ϕ of his wealth in the foreign asset, so as to maximize the expected utility of his terminal wealth W_T. Assume the power utility of wealth

$$U(W) = \begin{cases} \frac{1}{1-\gamma} W^{1-\gamma}, & \text{if } W > 0, \\ -\infty, & \text{if } W \le 0, \end{cases}$$

where the constant relative risk aversion coefficient, $\gamma > 0$, and the second part of the utility specification effectively imposes a nonnegative wealth constraint.

Under the condition of transaction cost is zero and the budget constraint $\frac{dW}{W}$ evolves following Merton (1971), the investor starts the indirect utility function by $J(W, t) = \max_{\phi} E[U(W_T)]$, where the wealth process satisfies the self-financing condition as following equation:

$$\frac{dW}{W} = \phi \frac{dS_D}{S} + (1-\phi)\frac{dS_F}{S} = [\phi(\mu - \lambda\mu_j) + (1-\phi)\mu]dt + \sigma[\phi + f(1-\phi)]dZ_2 + \phi X dq,$$

where Z_2 is standard Brownian motion.

In solving for the optimal portfolio strategy, we adopt the standard stochastic control approach. The principle of optimal stochastic control leads to the following Hamilton-Jacobi-Bellman (HJB) equation for the indirect utility function J :

$$\max_{\phi}\{\frac{\partial J}{\partial t}dt + \frac{\partial J}{\partial W}E(dW) + \frac{1}{2}\frac{\partial^2 J}{\partial W^2}Var(dW) + \lambda E[J(W(1+\phi X),t) - J(W,t)]\} = 0 \quad (2)$$

We solve for the optimal portfolio strategy ϕ^* by first conjecturing that the indirect utility function is of the form

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

where $A(t)$ is a function of time but not of the state variables W. Given this function form, we take derivatives of $J(W,t)$ with respect to its arguments, $J_W = W^{-\gamma}e^A,\ J_{WW} = -\gamma W^{-\gamma-1}e^A$, substitute into the HJB equation in Equation (2) as follows

$$\max_{\phi}\{J_t + W^{2-\gamma}\cdot e^A(\mu - \phi\lambda\mu_j)dt + \frac{1}{2}e^A(-\gamma W^{-\gamma-1})W^2\sigma^2[\phi + f(1-\phi)]^2 dt$$

$$+\lambda E[\frac{e^A}{1-\gamma}W^{1-\gamma}(1-\phi X)^{1-\gamma} - \frac{e^A}{1-\gamma}W^{1-\gamma}]\} = 0 . \quad (3)$$

Then we differentiate Equation (3) with respect to the portfolio weight of home asset, ϕ and divided by $e^A \cdot W^{1-\gamma}$ to obtain the following first-order condition:

$$-\lambda\mu_j + (-\gamma)\sigma^2(1-f)[\phi^*(1-f) + f] + \lambda E[(1+\phi^* X)^{-\gamma}\cdot X] = 0, \quad (4)$$

If $\phi^* X$ is small (i.e. $\phi^* < 1, X < 1$), then $E[(1+\phi^* X)^{-\gamma}\cdot X] = E[X\cdot e^{-\gamma\phi^* X}]$.

We consider that $E[Xe^{-\phi^*\gamma X}] = (\mu_j - \phi^*\gamma\sigma_j)\exp[-\phi^*\gamma\mu_j + \frac{1}{2}(\phi^*\gamma)^2\sigma_j{}^2]$, where σ_j is the standard deviation of jump size. Thus Equation (4) can be expressed by

$$-\lambda\mu_j - \gamma\cdot\sigma^2(1-f)[\phi^*(1-f)+f] + \lambda(\mu_j - \gamma\sigma_j\phi^*)\exp(-\gamma\phi^*\mu_j + \frac{1}{2}\gamma^2\phi^{*2}\sigma_j^2) = 0 \quad . \qquad (5)$$

Before solving this first-order condition for optimal home portfolio weight ϕ^*, it is useful to first make several observations about its feature.

(i) In case of the home risk does not happen (no rare home event), then the jump intensity is set equal to zero, $\lambda = 0$, the home asset follows a pure diffusion process. In this case, the investor faces a standard portfolio choice problem in which the first-order condition for optimal home portfolio weight ϕ^* becomes $-\gamma\cdot\sigma^2(1-f)[\phi^*(1-f)+f]$=0. Because information is not sufficiently transparent to foreign assets, the ratio of standard deviation on foreign asset return to the standard deviation on home asset returns becomes greater than one, $f = \frac{\sigma_F}{\sigma} > 1$, implies the relationship between home portfolio weight and the ratio being the formula as $\phi^* = \frac{f}{f-1}$, where $1 < f < \infty$. If the ratio of standard deviation on both asset returns f increases to the limit, $f \to \infty$, and there is no short position, then the optimal home portfolio weight approaches to one, $\phi \to 1$ ($\phi > 1/2$). Otherwise, borrowing policy can be accepted, and then the optimal home portfolio weight will be greater than one, $\phi > 1$. Both home portfolio weights are greater than one half, thus, home bias holds.

(ii) If jump intensity is not equal to zero, $\lambda \neq 0$, this provides some economic intuition for how the investor views his portfolio choice problem in the home event-risk model. At each instant, the investor faces a small continuous return, and with probability λ, may also face a large return similar to that earned on a buy-and hold portfolio over some discrete period. Further research in Equation (5) is crucial.

We analyze the effect of the arguments in home portfolio weight function, $\phi = g(\lambda, \mu_j, \sigma_j^2, \gamma, \sigma^2 f)$, by three segments, $\phi \le 0$, $\phi \ge 1$ and $0 < \phi < 1$, as follows.

Firstly, if the information is transparent to foreign assets, i.e. $\sigma_F \to 0,$ (this is rarely happened even if rare home event does not happen) then the ratio of standard deviation on both asset returns is closed to zero, $f \to 0$. It shows home event-jump matters caused by political or economic risks will incur foreign bias, home portfolio weight is less or equal to zero, $\phi < \frac{1}{2}$. Secondly, if the information is sufficiently opaque to foreign assets then investor prefers the home assets, home portfolio weight is greater or equal to one half, $\phi > \frac{1}{2}$. Lastly, to find the critical weight we set the portfolio weight on home asset and weight on foreign asset are equal to one half $\phi^* = \frac{1}{2}$. From Equation (5), we obtain the critical value for the optimal portfolio weight on both assets being equal is

$$-\lambda\mu_j + \lambda(\mu_j - \frac{1}{2}\gamma\sigma_j)\exp(-\frac{1}{2}\gamma\mu_j + \frac{1}{8}\gamma^2\sigma_j^2) = \frac{1}{2}\gamma \cdot \sigma^2(1 - f^2).$$

Whenever the effect of information filtration on foreign asset return $\frac{1}{2}\gamma \cdot \sigma^2(1 - f^2)$ is higher than the effect of risk-jump diffusion on home asset return $-\lambda\mu_j + \lambda(\mu_j - \frac{1}{2}\gamma\sigma_j)\exp(-\frac{1}{2}\gamma\mu_j + \frac{1}{8}\gamma^2\sigma_j^2)$, then home bias will happen. Otherwise, foreign bias will possibly occur. We show this result by numerical evidence in next section.

4. Numerical Results

In this section, we analyze the implications of home event-related jump parameters, $(\lambda, \mu_j, \sigma_j^2)$, versus foreign information filtering diffusion parameter, $(\sigma^2 f)$, for portfolio choice by differentiating investor's terminal wealth with respect to portfolio weight ϕ^*. To find the effect of jump size, we set risk aversion be 0.5 (represents extreme risk-avert investors) and 3.0 (represents risk-liking investors, some literature use 5 instead)), the volatility of diffusive returns held fixed at 15 percent (σ) and frequency of jumps be 1,5,10 and 100 years in Table 1.

Table 1. Domestic Portfolio Weights with Deterministic Price Jump Sizes and Jumps Frequency

Ratio of standard deviation on both asset returns f	Frequency of jumps ($\frac{1}{\lambda}$)	Jump size				
		-0.9	-0.2	0	0.2	0.9
Risk aversion γ =0.5						
1.5	1	0.0247	1.3763	3.0000	0.2275	0.0178
	5	0.1182	2.7712	3.0000	0.9112	0.0889
	10	0.2245	2.9042	3.0000	1.4237	0.1776
	100	1.2512	2.9706	3.0000	2.7091	1.3681

2.0	1	0.0640	1.5944	2.0000	0.5037	0.0471
	5	0.2768	1.9184	2.0000	1.2842	0.2253
	10	0.4768	1.9594	2.0000	1.5742	0.4227
	100	1.4701	1.9947	2.0000	1.9470	1.5640
10.0	1	0.7878	1.1068	1.1111	1.0737	0.7836
	5	1.0246	1.1102	1.1111	1.0921	1.0303
	10	1.0659	1.1107	1.1111	1.1073	1.696
	100	1.1064	1.1111	1.1111	1.1107	1.1069
Risk aversion γ =3						
1.5	1	0.1182	0.8906	3.0000	0.2368	0.0889
	5	0.1104	1.9844	3.0000	1.0303	0.0937
	10	0.2135	3.7500	3.0000	1.6341	0.1967
	100	1.0631	3.2086	3.0000	2.8629	2.4634
2.0	1	0.0615	0.8553	2.0000	0.6080	0.0506
	5	0.2438	2.9409	2.0000	1.5116	0.3296
	10	0.4021	2.3223	2.0000	1.7379	0.8088
	100	1.4988	2.0245	2.0000	1.9721	1.4988
10.0	1	0.7130	1.1177	1.1111	1.0860	0.9588
	5	0.9975	1.1124	1.1111	1.1060	1.0801
	10	1.0518	1.1118	1.1111	1.1086	1.0955
	100	1.1050	1.1112	1.1111	1.1109	1.1096

It has been found that relative to the benchmark where $\mu_j = 0$, the optimal portfolio weight on home asset can be significantly more even when the ratio of return deviations (f) is extremely low. It also shows that risk premium for a 20 percent downward jump in price has an important effect on the home portfolio, and significant home bias (need to use statistical test to prove whether it is 1% or 5% significant level) on 20 percent upward jump in price of event happens every 5 (or more) years but foreign bias on event-jump once a year with f =1.5. The foreign bias holds when jump size greater than 90 percent regardless upward or downward and type of event once a year with frequencies of five years or ten years on average when ratio of return standard deviation on both assets is less than two. For example, the portfolio weights on home asset for an investor with risk aversion 0.5, jump-frequency of 5 years and the ratio of return standard deviation 2.0, is 0.2253 if jump size is 90 percent and 1.2842 if jump size is 20 percent. The ratio of return standard deviation on both assets has an important influence on the optimal portfolio when this value reaches the level of 10, there appears home bias even though the probability of jump (λ) is high or jump amplifier is large. For example, the ratio of return standard deviation $f = 10$, jump size $\mu_j = 0.9$, jump-frequency $\frac{1}{\lambda} = 1$ and the investor with risk aversion 0.5, it obtains optimal home portfolio weight ϕ^*=0.7836>0.5, that home bias holds. Alternative, under the same condition with downward jump size $\mu_j = -0.9$ then the optimal home portfolio weight ϕ^* =0.7878>0.5, that home bias still holds.

From Table 1, for the event jump related parameters, $(\lambda, \mu_j, \sigma_j^2)$, the basic concept has evidence on $\frac{\partial \phi^*}{\partial \mu_j} > 0$ if $\mu_j < 0$, and $\frac{\partial \phi^*}{\partial \mu_j} \le 0$ if $\mu_j > 0$. For example, the ratio of return standard deviation $f = 1.5$, jump-frequency $\frac{1}{\lambda} = 1$, and investor with risk aversion 0.5, we pick jump size $\mu_j = -0.9$ and -0.2, $\Delta\mu_j = -0.2 - (-0.9) = 0.7$, then the difference of home portfolio weight $\Delta\phi^*$ =1.352, $\frac{\partial \phi^*}{\partial \mu_j} > 0$ is true. As for the information filtering diffusion parameter, $(\sigma^2 f)$, the intuition as $0 < \frac{\partial \phi^*}{\partial f} < 1$, $f \ne 1$ can be evidenced by jump-frequency $\frac{1}{\lambda} = 10$, $\Delta f = 2.0 - 1.5 = 0.5$ then the difference of home portfolio weight $\Delta\phi^*$ =0.4768-0.2245=0.2523, $\frac{\partial \phi^*}{\partial f} = 0.504 < 1$.

Table 2.Portfolio Weight Comparisons with No Jump, One Jump and Jump of Frequency Ten (Jump Size μ_j =-0.5)

Ratio of return standard deviation f	Risk Aversion Parameter	Portfolio Weight		
		No Jumps	Jump Once Only (λ =1)	Jump of Frequency Ten (λ =0.1)
1.5	0.5	3.0000	0.0515	0.4756
	1.0	3.0000	0.0520	0.5149
	2.0	3.0000	0.0530	0.6191

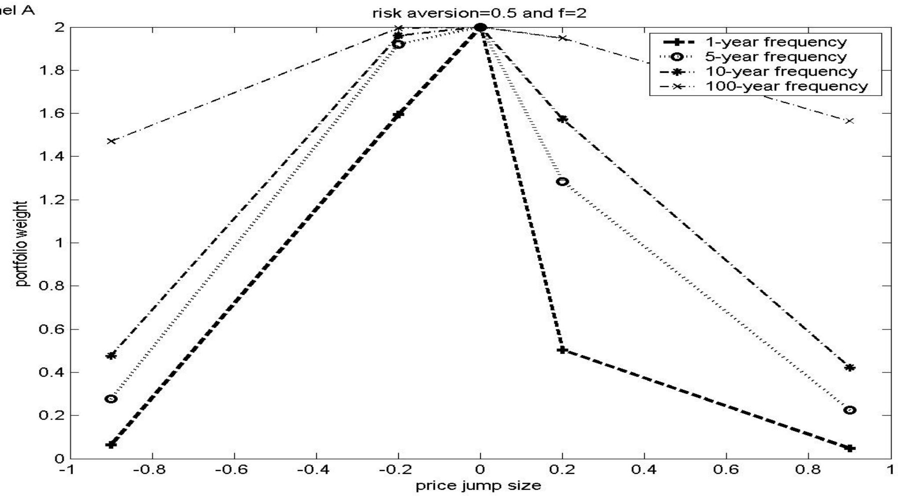
	3.0	3.0000	0.0541	0.7755
	4.0	3.0000	0.0552	0.9980
	5.0	3.0000	0.0563	1.2447
2.0	0.5	2.0000	0.1324	0.8947
	1.0	2.0000	0.1356	0.9809
	2.0	2.0000	0.1423	1.1651
	3.0	2.0000	0.1500	1.3323
	4.0	2.0000	0.1588	1.4579
	5.0	2.0000	0.1689	1.5419
10.0	0.5	1.1111	0.9657	1.0950
	1.0	1.1111	0.9849	1.0975
	2.0	1.1111	1.0143	1.1011
	3.0	1.1111	1.0345	1.1033
	4.0	1.1111	1.0486	1.1048
	5.0	1.1111	1.0585	1.1058
50.0	0.5	1.0204	1.0153	1.0199
	1.0	1.0204	1.0161	1.0200
	2.0	1.0204	1.0171	1.0201
	3.0	1.0204	1.0178	1.0202
	4.0	1.0204	1.0183	1.0202
	5.0	1.0204	1.0186	1.0202

Another interesting issue, other than the size of the price jump appears to have the largest effect on the optimal portfolio weight on home asset, is that the portfolio decision is clearly affected by both the ratio of return standard deviations and the jump-frequency parameters, but risk aversion of investor is trivial. In Table 2, throughout the calculation, by differentiating the investor terminal wealth with respect to portfolio weight ϕ^* and with respect to the risk aversion parameter γ respectively, the investors take the portfolio choice as significant foreign bias under the condition $1 < f \le 2$ and risk aversion parameter from 0.5 to 5 with one jump a year and jump size -0.5 as the static result $0 < \frac{\partial \phi^*}{\partial \gamma} < 0.01$. For the same condition when jump-frequency increases to 10 years, the investor takes the portfolio decision on home bias ($\phi^* > 0.5$) except risk aversion 0.5 with f =1.5 which home portfolio weight ϕ^*=0.4756. However, under previous conditions the optimal portfolio weight on home asset with respect to the parameters implies the comparative static result as $0 < \frac{\partial \phi^*}{\partial \gamma} < 1$.

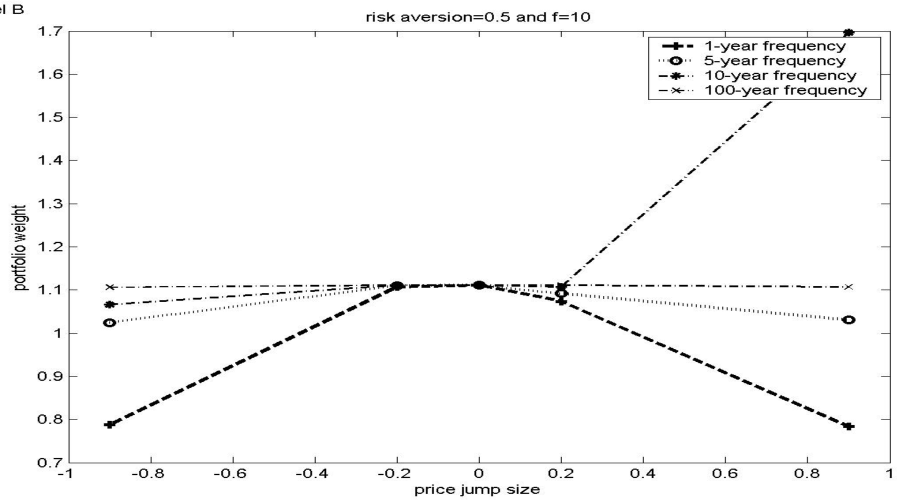
To illustrate this result, Figure 1 graphs the optimal portfolio weight on home asset as a function of the size of price jumps for risk aversion 0.5 on Panel A and B, and f =2 and 10 respectively, as for risk aversion 3 on Panel C and f = 2. In Figure 1 we observed how different portfolio choice can be in the presence of event risk. The increase of risk aversion incurs more preservative portfolio management decision by increasing the weight on home assets. Panel B shows that high ratio of standard deviation on foreign asset return to the standard deviation on home asset return induces the home bias.

Figure 2 plots the optimal portfolio weights on home assets as a function of ratio of standard deviation on foreign asset return to the standard deviation on home asset returns for various values of jump frequency. When μ_j =0, no jumps occur (not true as μ_j is the mean jump size) the investor takes a large position (ϕ^* =3 what does it mean?) in the risky home asset as γ =0.5 are conflicting). In contrast, when there is of any jump frequency, the optimal home portfolio weight is closed to one as $f \to 50$. Foreign bias appears when the ratio of standard deviation on both asset returns is low (i.e. f <5) of jump frequency once a year.

Panel A



Panel B



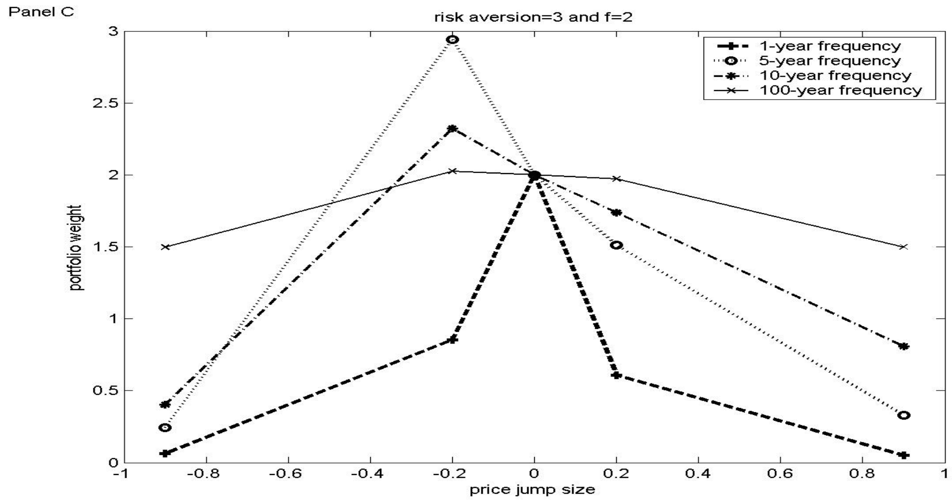


Figure 1. Domestic Portfolio Weights with Deterministic Price Jump Sizes and Jump-Frequency

Figure 2 plots the optimal portfolio weight as a function of the ratio of standard deviation on foreign asset return to the standard deviation on home asset returns

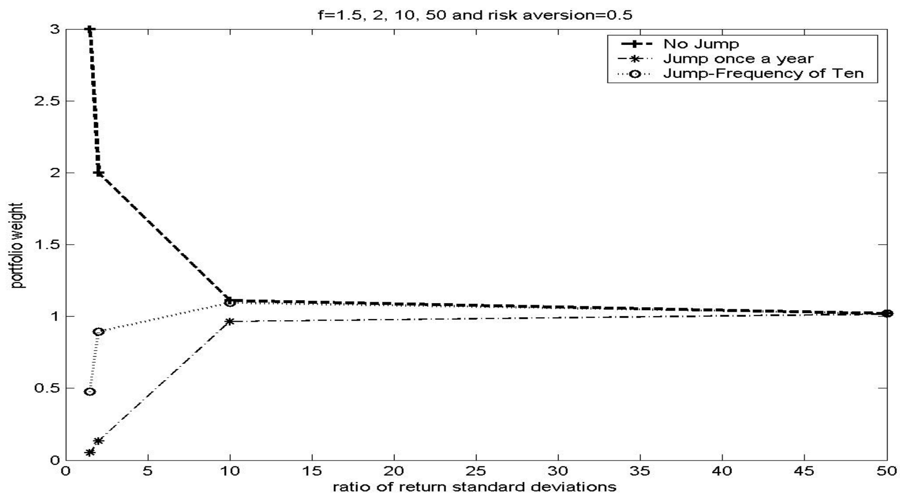


Figure 2. Domestic Portfolio Weights with Jump-Frequency 0, 1, 10

5. Conclusion

In this paper, we have found that the presence of event risk in home country changes the standard portfolio problem in five ways, Firstly, if the home event risk does not happen, then the jump intensity can be set equal to zero, thus, home bias holds. Secondly, if jump intensity is not equal to zero, and the information is transparent to foreign assets, then the ratio of standard deviation on both asset returns is closed to zero. It shows home event-jump matters by political or economic risks will incur foreign bias. Thirdly, if the information is sufficiently opaque to foreign assets then investor prefers the home assets. The result reveals that the weight on foreign asset is possible greater than home asset when home event-risk jump size is large enough. Fourthly, for the event jump related parameters, the basic concept has evidence on positive relationship with home events jump-size and home portfolio weights if jump-size is negative, and there is a negative relationship with home events jump-size and home portfolio weights if jump-size is greater than zero. Finally, we observed that

a portfolio selection decision is clearly affected by both ratio of return standard deviations and jump-frequency parameters, but risk aversion of investor is trivial.

References

Adler, M., Dumas, B., 1983. International portfolio choice and corporation finance: A synthesis. The Journal of Finance XXXVIII, 3, 925-984.

Ahearne, A.G.., Griever, W. L., Warnock, F.E., 2004. Information costs and home bias: an analysis of US holdings of foreign equities. Journal of International Economics 62, 313-336.

Coval, J., Moskowitz, T., 1999. Home bias at home: Local equity preference in domestic portfolios. The Journal of Finance 54, 6,1.

Hason, I., Simaan, Y., 2000. A rational explanation for home country bias. Journal of International Money and Finance 19, 331-361.

Jorion, C.R., 1985. International diversification with estimation risk. Journal of Business 58, 259-278.

Kang, J.K., Stulz, R.M., 1997. Why is there a home bias? An analysis of foreign portfolio equity ownership in Japan. Journal of Financial Economics 46, 3-28.

Keillor, B.D., Wilkinson, T.J., Owens, D., 2005. Threats to international operations: dealing with political risk at the firm level. Journal of Business Research 58, 629-635.

Kim, H.Y., Mei, J.P., 2001. What makes the stock market jump? An analysis of political risk on Hong Kong stock returns. Journal of International Money and Finance 20, 1003-1016.

Lensink, R., Hermes, N., Murinde, V., 2000. Capital flight and political risk. Journal of International Money and Finance 19, 73-92.

Levy, H., Sarnat, M., 1970. International diversification of investment portfolios. American Economic Review 17 (4), 668-675.

Liu , Jun, 1999. Portfolio selection in stochastic environments. Working paper, UCLA.

Liu, J., Longstaff F.A., Pan, J., 2003. Dynamic asset allocation with event risk. The Journal of Finance LVIII, No. 1, 231-259.

Merton, R.C., 1971. Optimum consumption and portfolio rules in a continuous-time model. Journal of Economic Theory 3, 373-413.

Merton, R.C., 1976. Option pricing when underlying stock returns are discontinuous. Journal of Financial

Economics 3,125-144.

Merton, R.C., 1987. Presidential address: A simple model of capital market equilibrium with incomplete information. The Journal of Finance 42, 483-510.

Merton, R.C., 1980. On estimating the expected return on the market: An exploratory investigation. Journal of Financial Economics 8, 232-361.

Pan, J., 2002. The jump-risk premia implicit in option prices: Evidence from an integrated time-series study, Journal of Financial Economics 63, 3-50.

Perotti, E.C., Oijen, P., 2001. Privatization, political risk and stock market development in emerging economies. Journal of International Money and Finance 20, 43-69.