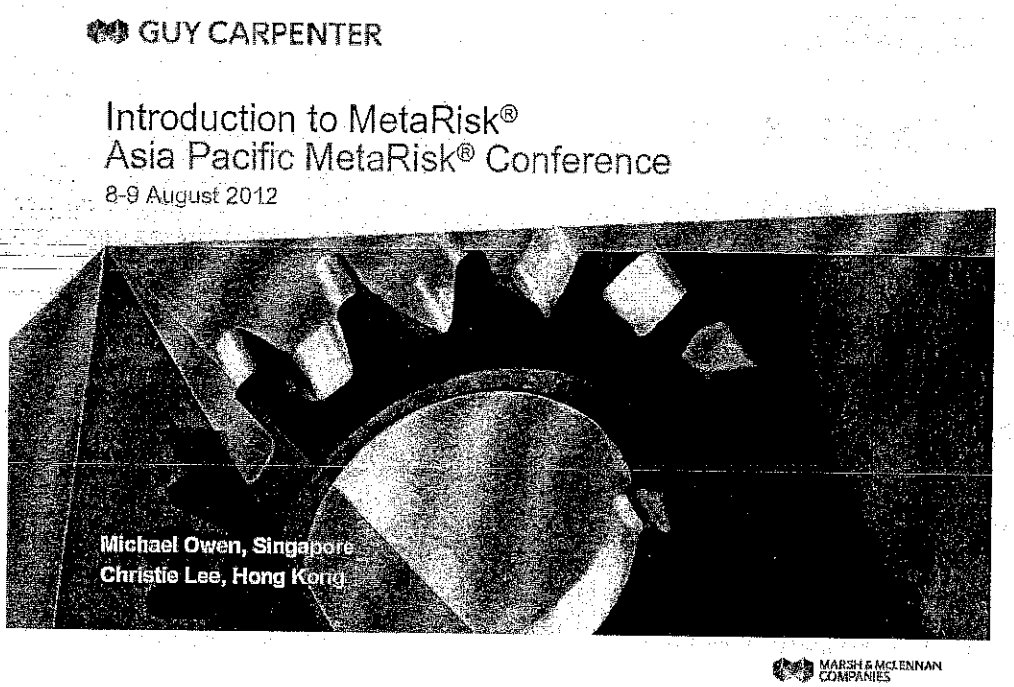
出國報告（出國類別：出席研討會）

Guy Carpenter

MetaRisk Conference



姓名職稱：張專員嘉娟

派赴國家：香港

出國期間：101 年 8 月 8 日至 101 年 8 月 9 日

報告日期：101 年 10 月 23 日

目　　錄

壹、前言

Guy Carpenter 是處於全球領導地位的再保險經紀公司，共有超過 50 個以上的子公司分佈在全世界，為各地客戶提供設計及執行再保險和資本市場策略方案，並提供諸多險種的全面專業技術服務。

Guy Carpenter 約每二年就會舉辦一次相關的研討會，過去多在歐美國家舉辦，而 101 年 8 月 8 日至 8 月 9 日 Guy Carpenter 舉辦之研討會是第一次在泛亞太地區舉辦的研討會，也說明對亞洲市場的日趨重視。本次研討會目的主要是加強與會者使用以及了解 Guy Carpenter 自行研發之動態財務分析軟體-Meta Risk 軟體(以下簡稱 Meta Risk)，說明如何運用在經濟資本模型、再保險訂價及分出再保險分析。研討會邀請具備精算、統計、風控背景人員與會，安排初級、中級、高級三種不同等級課程，希望藉由本次會議讓現行未使用 Meta Risk，或已在使用 Meta Risk 的與會者，同時體驗更強大的軟體，提供深入的理論與技術，以利有效的應用該軟體的各項功能，並展示操作 Meta Risk 各項創新的功能，而於會中也針對個別議題實例操作及討論。

本次參加成員共 52 人，其中分別來自大陸、香港、印度、印尼、日本、韓國、馬來西亞、新加坡、台灣等地，台灣同業部分有國泰、中再、富邦、新光、明台、台產、新安東京海上、保發中心等公司共 12 人，與會同仁背景包含精算、再保、風控等領域，在會議中各項議題經由不同專業領域背景成員互動討論，能獲得更加多元且充實的觀念及啟發。

貳、課程大綱

本次研討會的目的是讓與會者對於 Meta Risk 中有關經濟資本模型、再保定價以及分出再保分析能夠更深入的了解其理論根據及實務應用，課程大綱如下：

8月8日

Day 1 AM：理論模型介紹

一、經濟資本模型最佳配適（Best practices in Economic Capital Modeling）

二、時間序列：模擬理論與實務（Timeline Simulation - Theory and Practice）

三、實例學習：NKSJ 風險管理公司實務應用 Meta Risk 軟體

四、市場風險模型：ESG（Economic Scenario Generator）

Day 1 PM ：專題分組討論

◎MetaRisk introduce 介紹與應用

8月9日

Day 2 AM ：理論模型介紹

一、MetaRisk Practice Basic Capital Concepts

二、Capital Allocation

三、MetaRisk v7.0 版（最新功能說明）

Day 2 PM ：專題分組討論

◎MetaRisk－Fit （損失模型配適）

◎MetaRisk－Economic Capital Modeling （經濟資本模型應用）

參、Meta Risk introduce　介紹及應用

一、 何謂 Meta Risk

Meta Risk 是一個綜合性的經濟資本模型，特別設計用來分析保險公司所面對各項風險的 ERM 動態財務分析工具。

二、 Meta Risk 主要分析的風險如下：

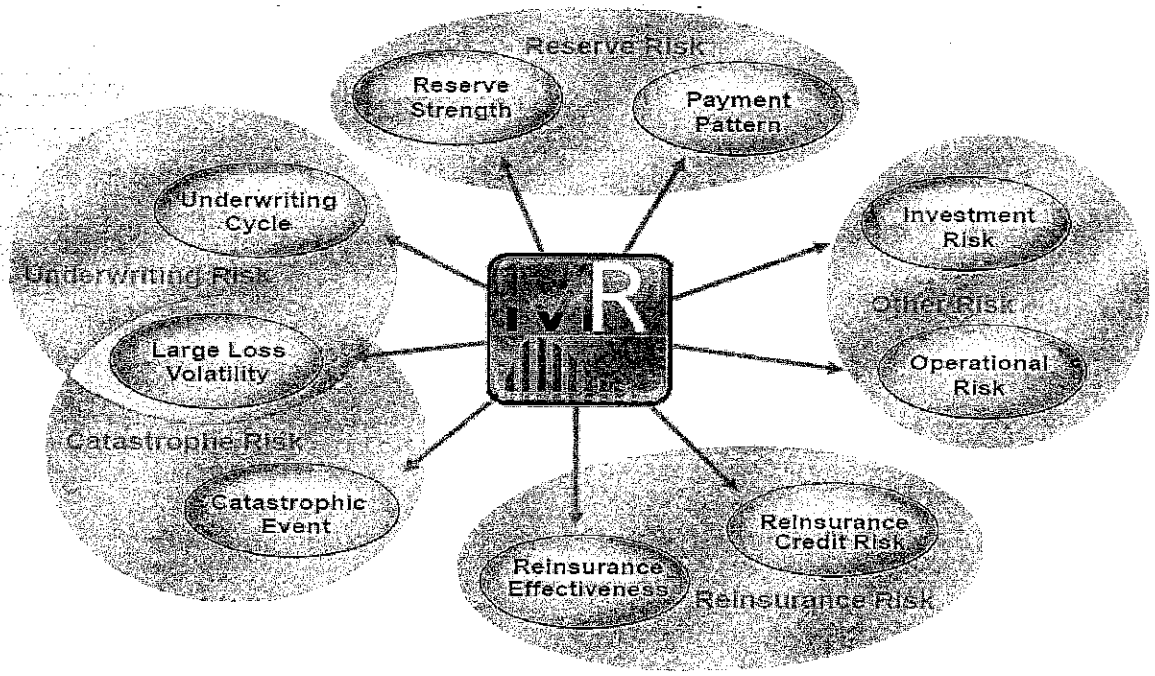
(一) 準備金風險

(二) 核保風險

(三) 巨災風險

(四) 再保風險

(五) 其他風險



三、 Meta Risk 主要功能如下：

(一)精算

・損失模型配適

・準備金風險

(二)再保

・巨災風險累積

・再保 benchmark 定價

・再保架構選擇比較

－各種再保結構

－相關原因對財務的影響，如：分保佣金等

－顯著風險移轉測試

－再保費分配

(三)風控

・長年期內部財務模型

・壓力測試

・Solvency II

(四)財務

・資本配置

四、 Meta Risk 主要優點如下：

(一) 軟體處理時間快速

(二) 不同時間之事件間，可以相互調整及反映

(三) 容易學習和操作

(四) 綜合整體經濟狀況

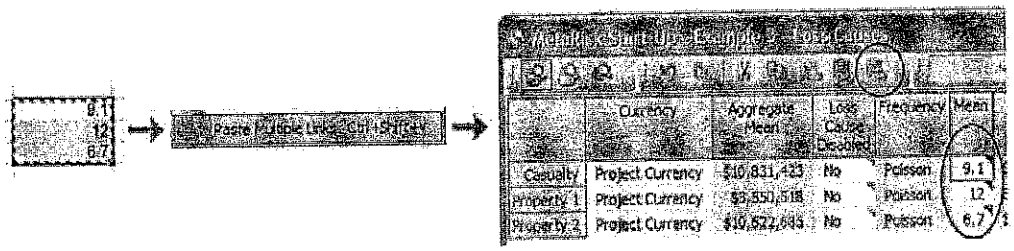
(五) 充份反應巨災模型結果

五、 Meta Risk Excel Integration

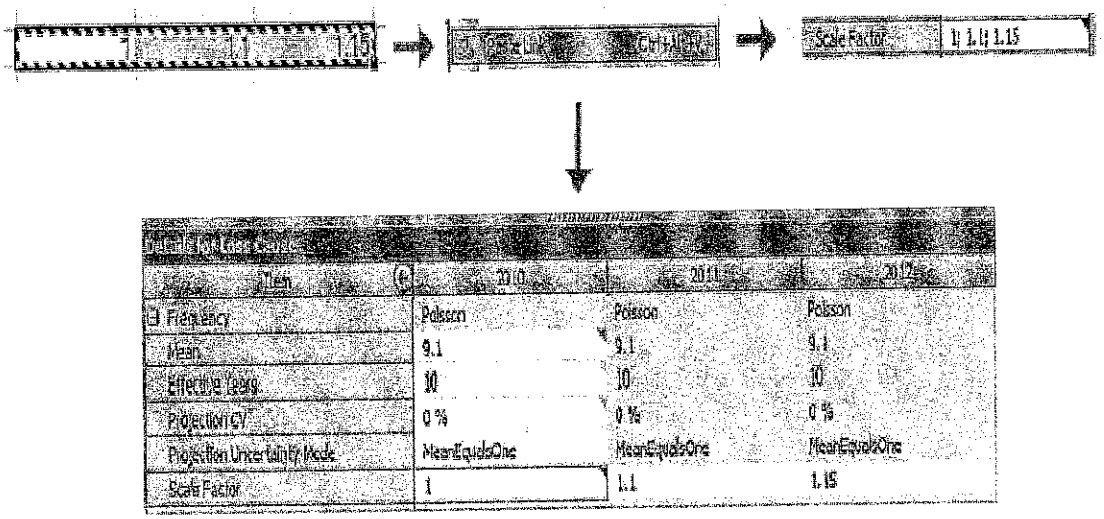
(一) 可直接連接 Excel 中單個或多個外部資料數值，毋需人工鍵入。

- Linking single value properties

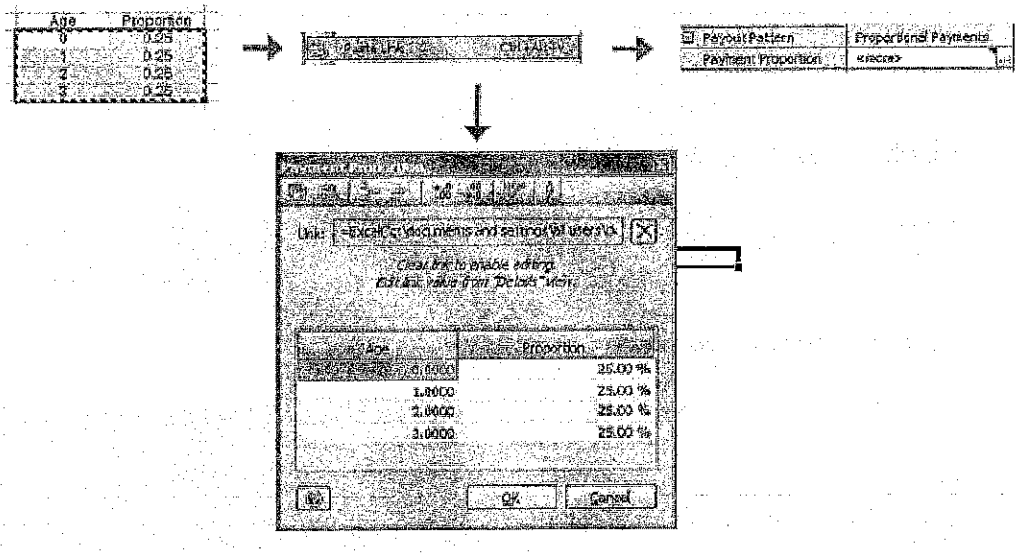
- Linking multiple values by property



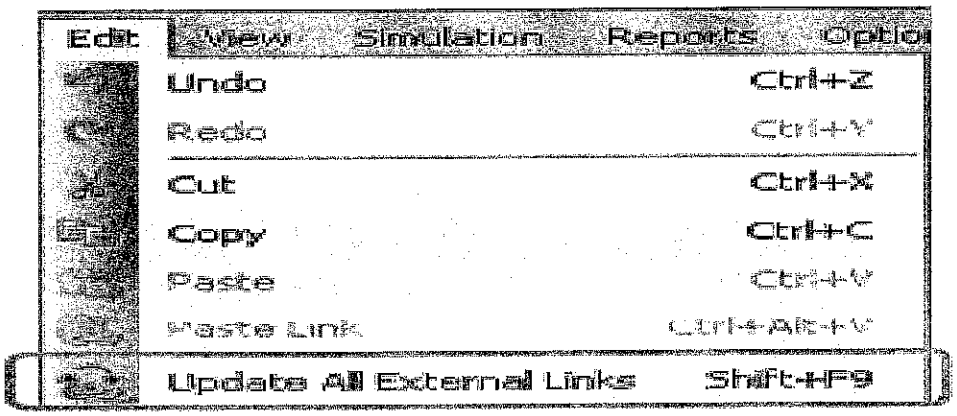
(二) 連接多個年度的外部資料



(三) 連接多個屬性的外部資料

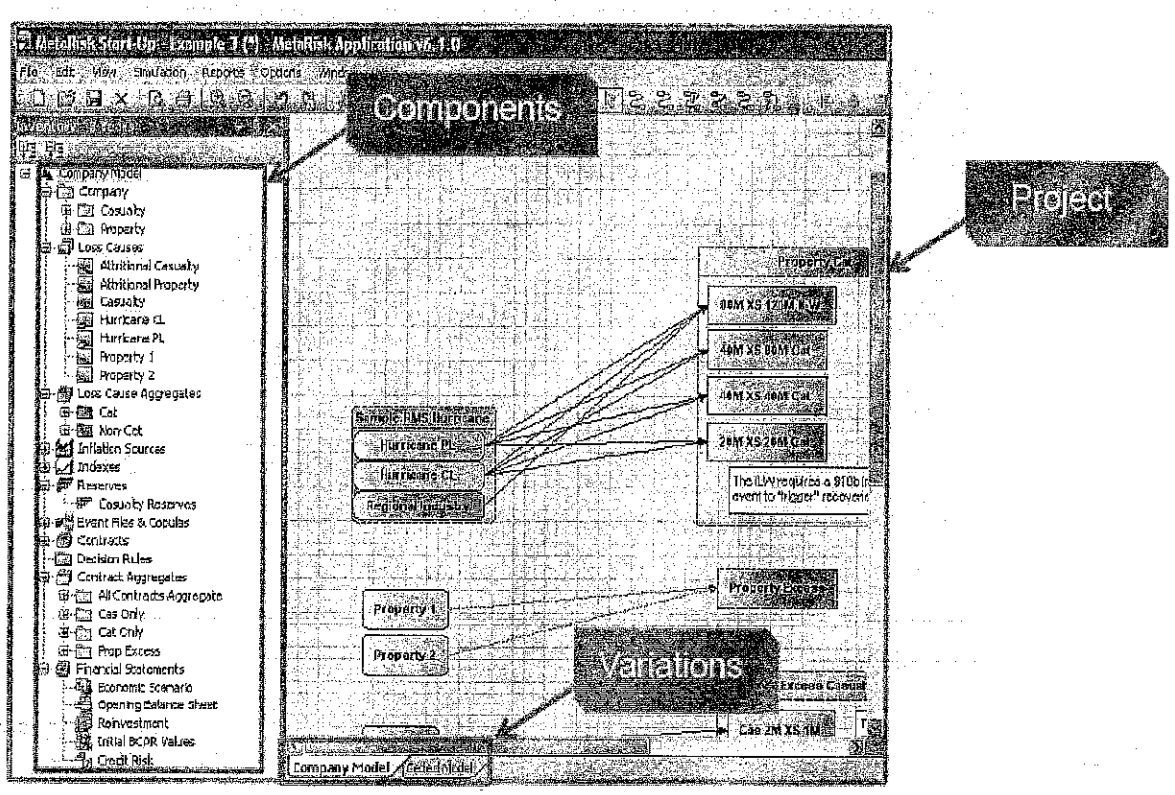


(四) 即時更新所有外部資料

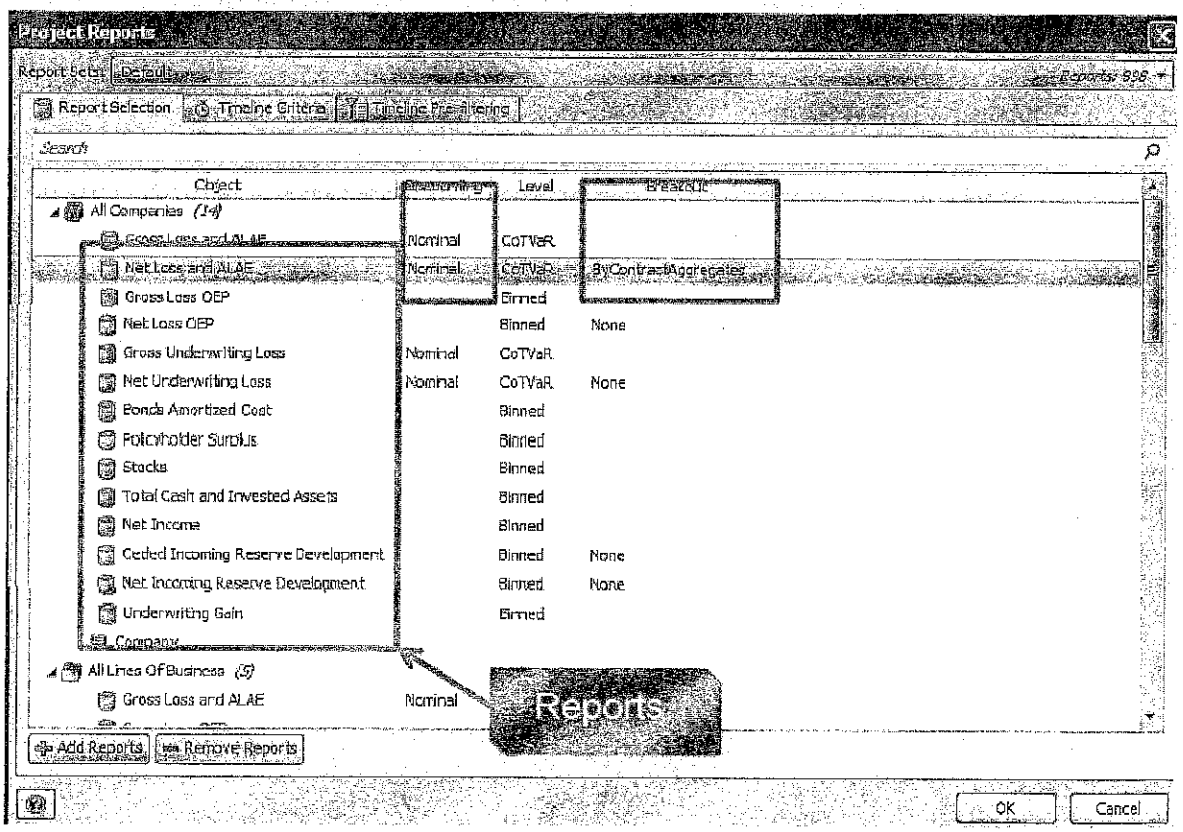


六、 Meta Risk Report

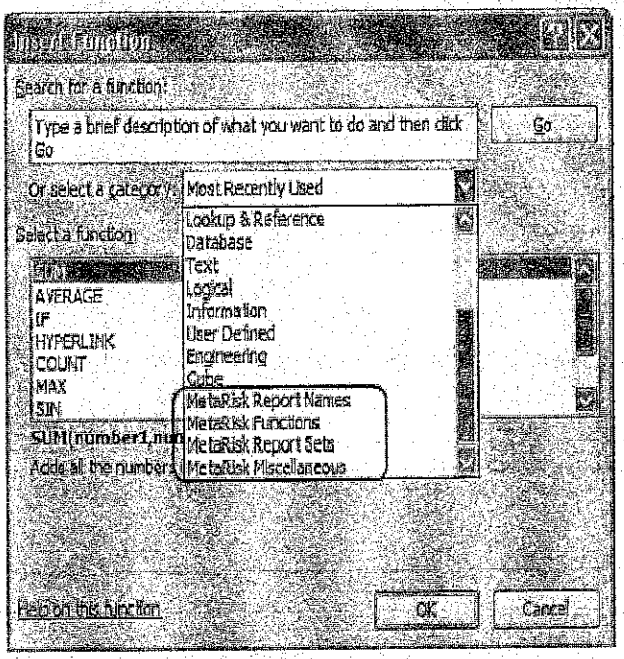
(一) Meta Risk 使用介面

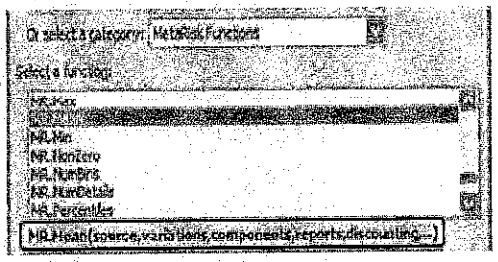


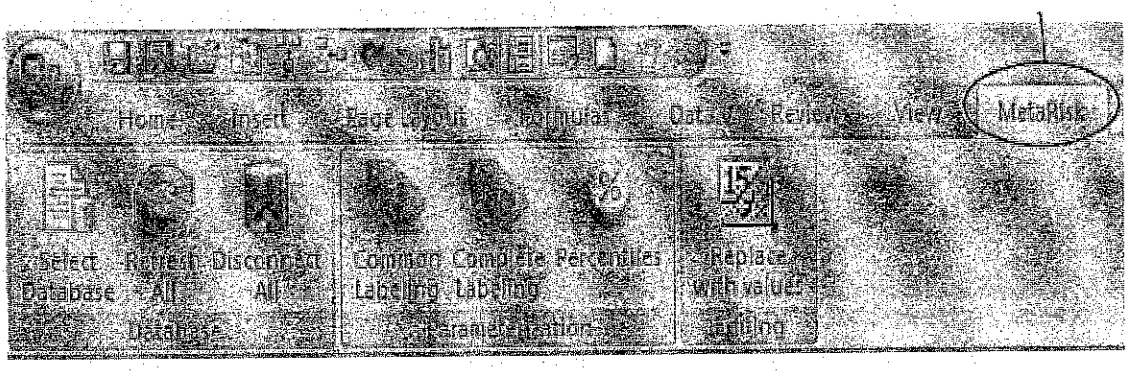
(二) Meta Risk 報告產出格式



(三) Meta Risk 中內建多種函數功能，可直接嵌入 Excel 的函數及功能列中應用



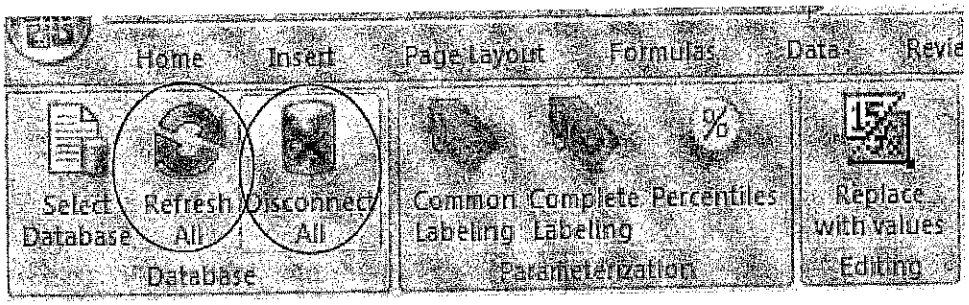




	A	B	C	D	E
1	MetaRisk Reports				
2	MetaRisk Start-Up - Example 3 MRR Template				
3					
4		File	Open Calls		
5		Source #08(1)			
6					
7		Database Path:	c:\00 - metarisk\examples\metarisk start-up - example 3.sdf		
8		Save Date/Time:	7/6/2011 7:50 PM		
9		Database Size:	103,596,032		
10		# of Reports:	898		
11		MRR Version:	6.0.1.1817		

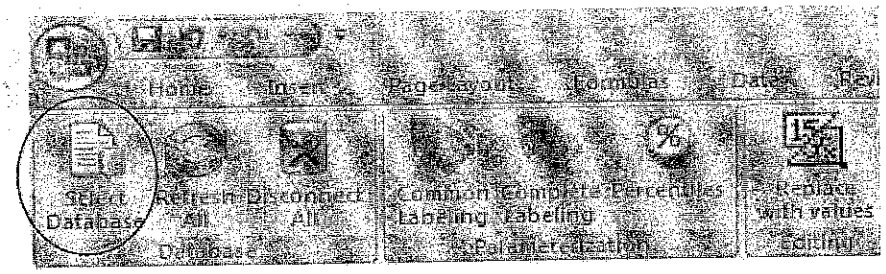
(四) Meta Risk Report Best Practice —1 即時更新及中斷連結

- Always press **Refresh All** when finalizing the report
- Always press **Disconnect All** before you close your MetaRisk® Report™



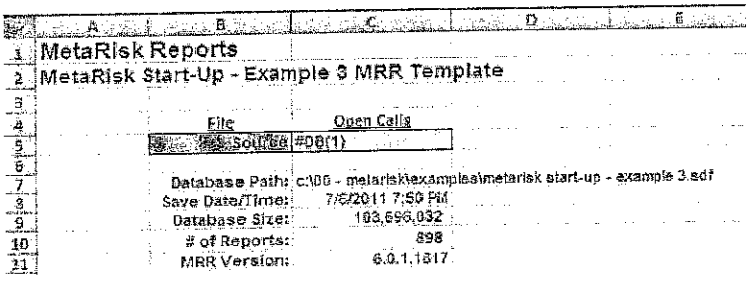
(五) Meta Risk Report Best Practice —2 選擇資料庫

- The very first step of creating a MetaRisk® Report™ is to Select Database
- MetaRisk® allows the user to use reports from multiple databases in one single excel report



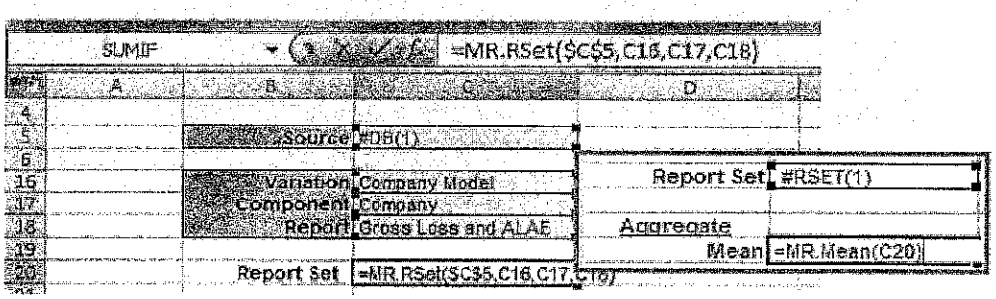
(六) Meta Risk Report Best Practice —3 資料庫函數

- In each MetaRisk® Report™, keep the database statistics
  - MR.DbGetPath()
  - MR.DbDateTime()
  - MR.DbSize()
  - MR.DbNumReports()
  - MR.Version()



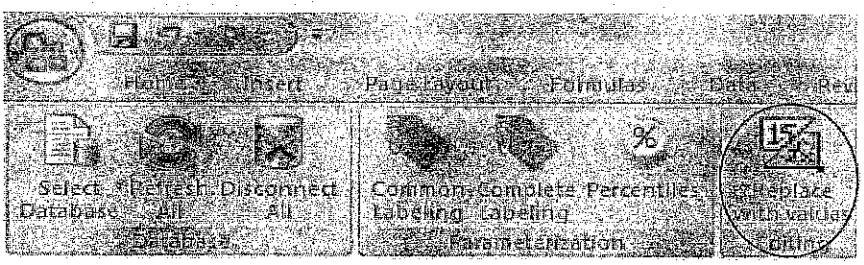
(七) Meta Risk Report Best Practice －4　設置排列

- **Report Set**: to define a common set of parameters to be used in multiple MetaRisk® Report™ functions
- MR.Rset(*Source, Variation, Component, Report, Discounting=0, Report_year=1, Breakout*)



(八) Meta Risk Report Best Practice －5　資料數值置換

- Other users who don't have MetaRisk® installed in their computers will not be able to see the results in your excel MetaRisk® Report™
- Remember to click "**Paste with Values**" command when you finalize your report.
- Only affect range value cells with "=MR.()" function calls and all other basic calculations will remain as formulas



七、 MetaRisk Excel integration & Report 總結

(一) 透過有效合理化的過程，可隨時從 Excel 更新相關模組。

(二) 提供輸入資料後續的追踪和審視。

(三) 快速且有效率的更新。

肆、NKSJ 公司實務應用 Meta Risk 軟體：Assumed Reinsurance Optimization

一、 內容說明

(一) 再保最佳化 (Reinsurance Optimization)：其概念為設計產生更多有益的再保安排組合，以及將再保業務安排策略模組轉為數字化管理。

(二) 最佳化過程：利用 MetaRisk 產生詳細的資料，並執行最佳化求解。

(三) 亞洲區國家相關數字分析

(四) 總結

二、 再保最佳化

(一) 如何才能找到最佳的再保安排組合，其目標為在目前業務佔率（Share）及容量(Capacity)的限制下，將利潤極大化。

(二) 方法：數學求解在業務限制下，巨災合約的最大利潤化。

How can this problem be represented mathematically?

$$\underset{\text{Shares}}{\text{Maximize:}}\ \text{RORAC(Return on Risk Adjusted Capital)}$$

$$\text{Subject to:}\begin{cases}\text{TotalCapital} < \text{MaximumCapital}\\ \text{ContractShares(Lowerand Upperlimit)}\end{cases}$$

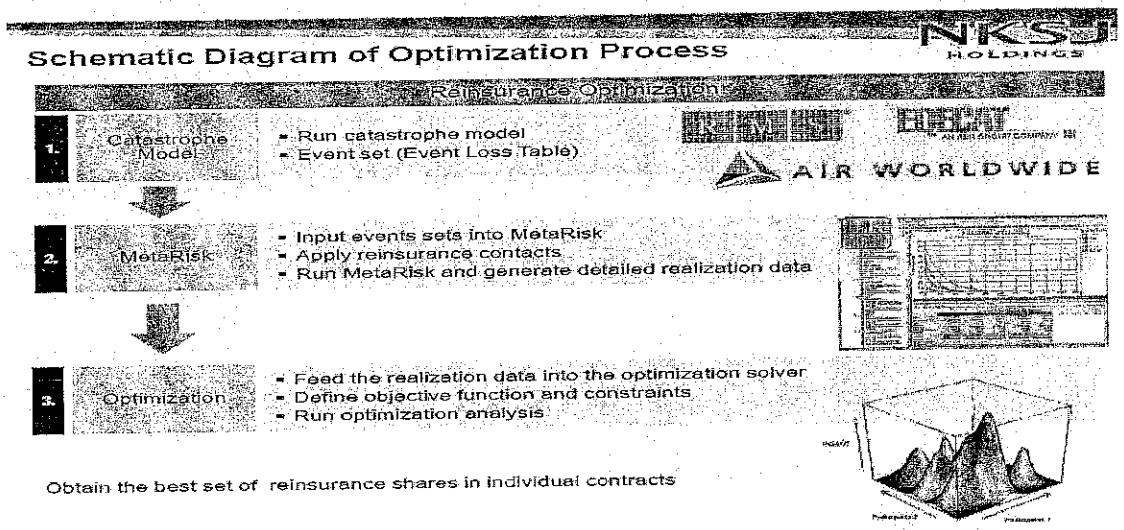
三、 最佳化過程

Step1：執行巨災模型，得到事件的模擬損失組合(Event Set)。

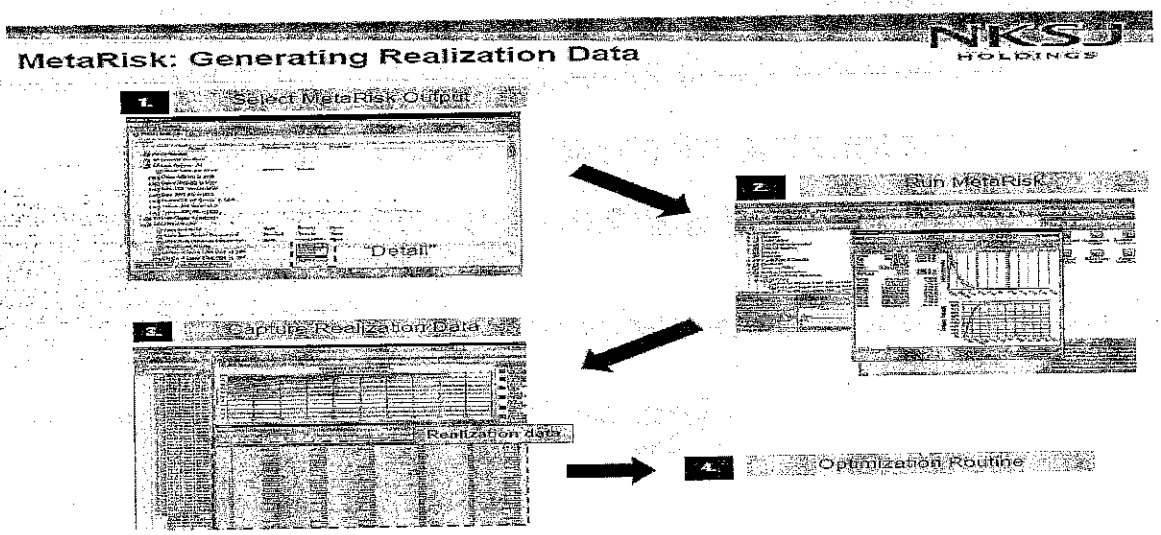
Step2：將損失資料輸入執行 MetaRisk 軟體，產生詳細資料 (Realization data)。

Step3：定義目標功能及限制，將資料導入執行最佳化分析求解。

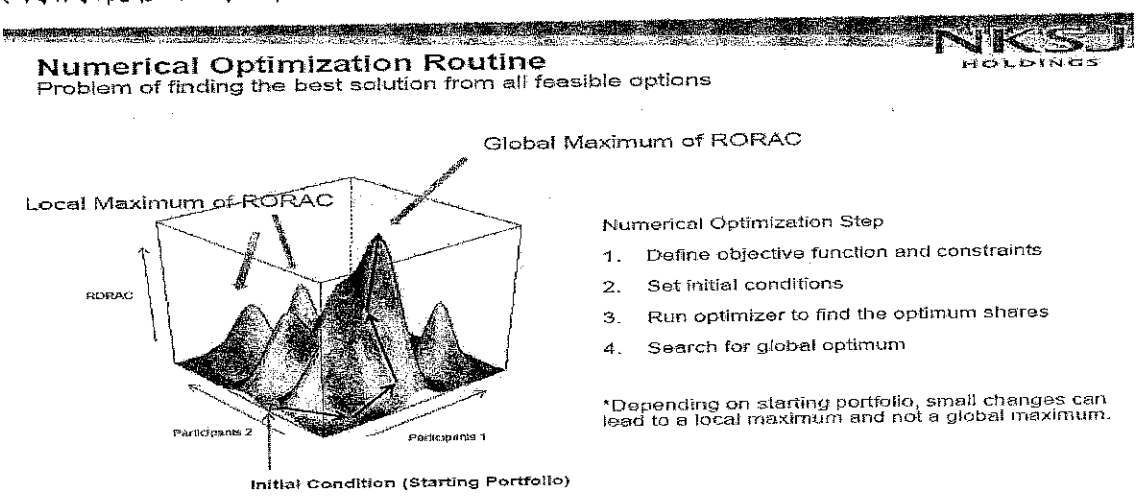
※最佳化過程圖解



※產生 Realization Data



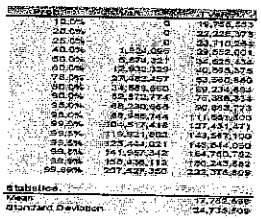
※利潤最佳化求解

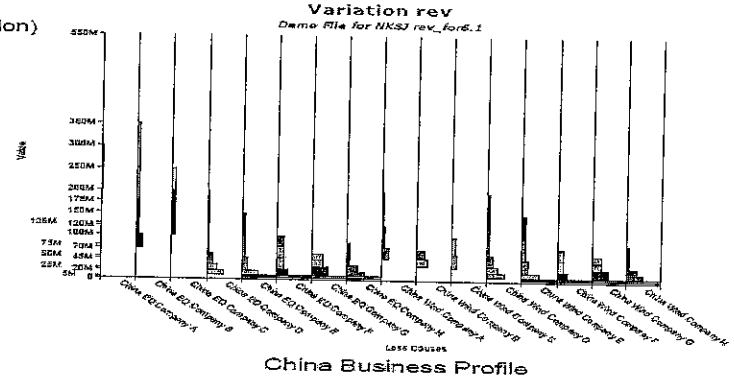


四、 亞洲區相關研究分析(中國、印度、韓國、台灣)

Sample Business Profile

- Cat XLs in 4 countries
  China, India, Korea and Taiwan
- 142 contracts in total
- $5m in each contract (Initial Condition)

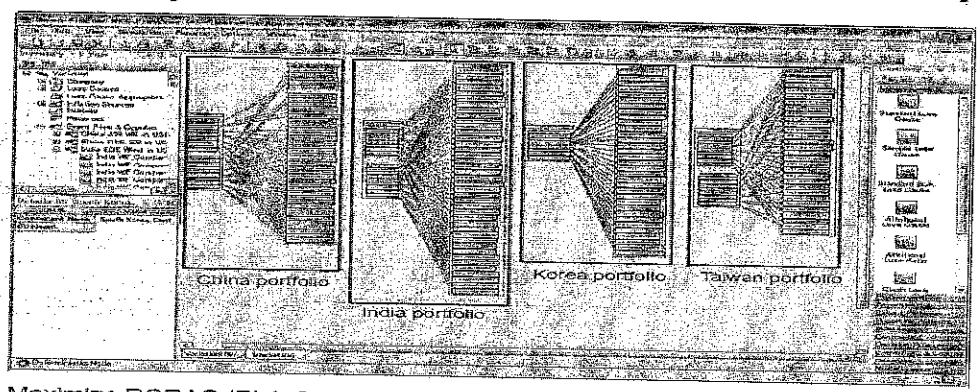




China Business Profile

(一) 最大化利潤模組執行

Case Study 1

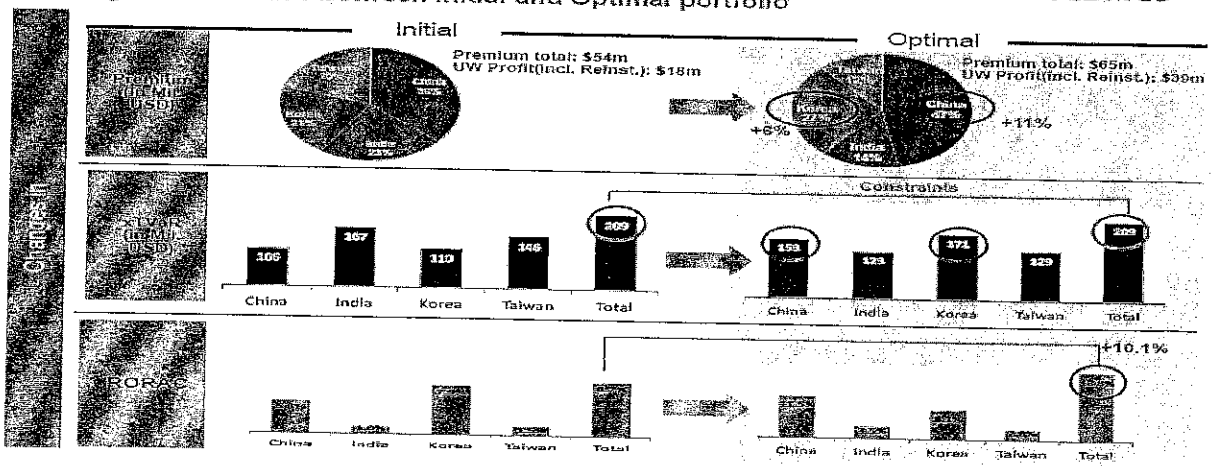


- Maximize RORAC (Risk Capital is measured by 100y xTVaR of assumed losses)
- Total capital limit: Equal to the initial condition
- Contract participation limit: $0 – 20m

* RORAC is defined as expected underwriting profit relative to risk adjusted capital

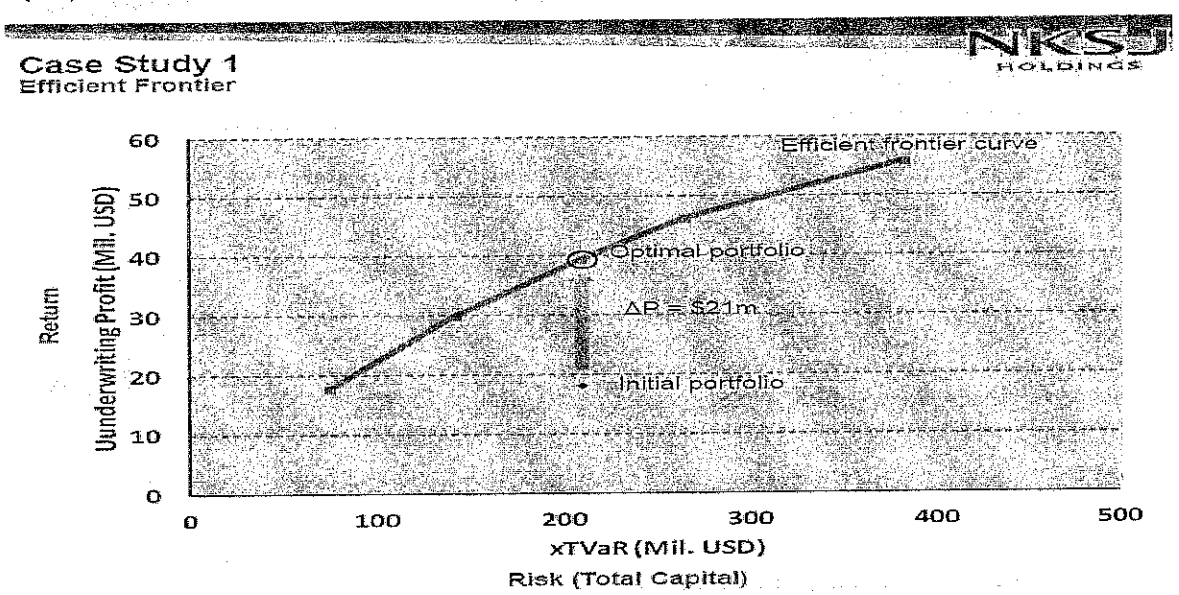
(二) 改變資本配置組合：資本集中在中國及韓國，可增加利潤。

Case Study 1
Changes in statistics between Initial and Optimal portfolio

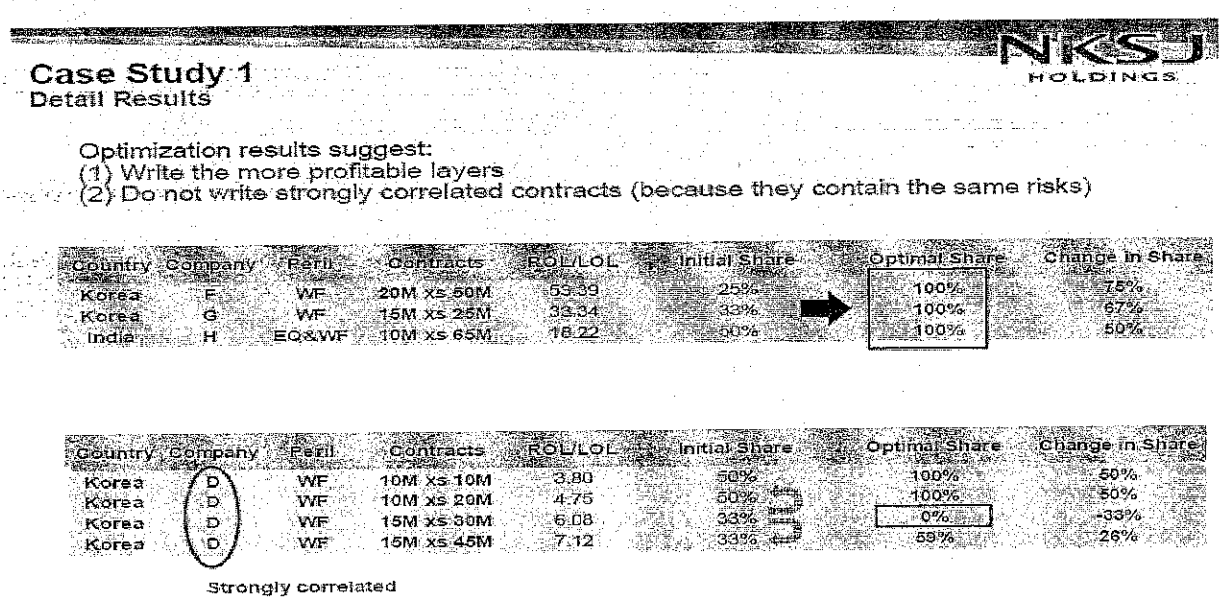


- Capacity is allocated to China and Korea, and it increased RORAC
- Plan a strategy of capital allocation by country

(三) 效益曲線



(4)最佳化分析結果



五、 總結

(一) 由上可知 MetaRisk 對於再保安排組合最佳化有極大的助益。

(二) 最佳化分析，可以依照國家及再保合約不同，提供最適資產配置策略。

(三) MetaRisk 可再對於利率影響或多年度組合模擬的結果，進行最佳化分析。

伍、MetaRisk Fit（損失模型配適）

一、MetaRisk Fit 是一種模型配適應用工具，目的為配適理賠資料中損失頻率及損失幅度的分配模型，並由最佳化測度比較選擇損失資料分配之最適當模型及參數後，再進行後續其他相關的模擬與分析。

二、配適準備

(一) 輸入理賠資料（損失幅度、損失頻率、其他統計資料）

(二) 檢視理賠資料及損失頻率（理賠件數、趨勢期間）

(三) 最適化控制配適

三、以最大概似法估計模型參數

Maximum Likelihood Estimation

- Estimate parameters using Extreme Optimization Numerical Library.
- Estimate parameter uncertainty and correlations for finite sample size.
- Objective Function
  - Individual claims: $MLE = \prod_J f(L_j)$
  - Grouped claims: $MLE = \prod_I [CDF(Upper_i) - CDF(Lower_i)]^{N_i}$
  - Combination of individual and grouped claims:

$$MLE = \prod_I [CDF(Upper_i) - CDF(Lower_i)]^{N_i} \times \prod_J f(L_j)$$

N_i claims in the range [$Lower_i$, $Upper_i$] $\forall$ i = 1...I

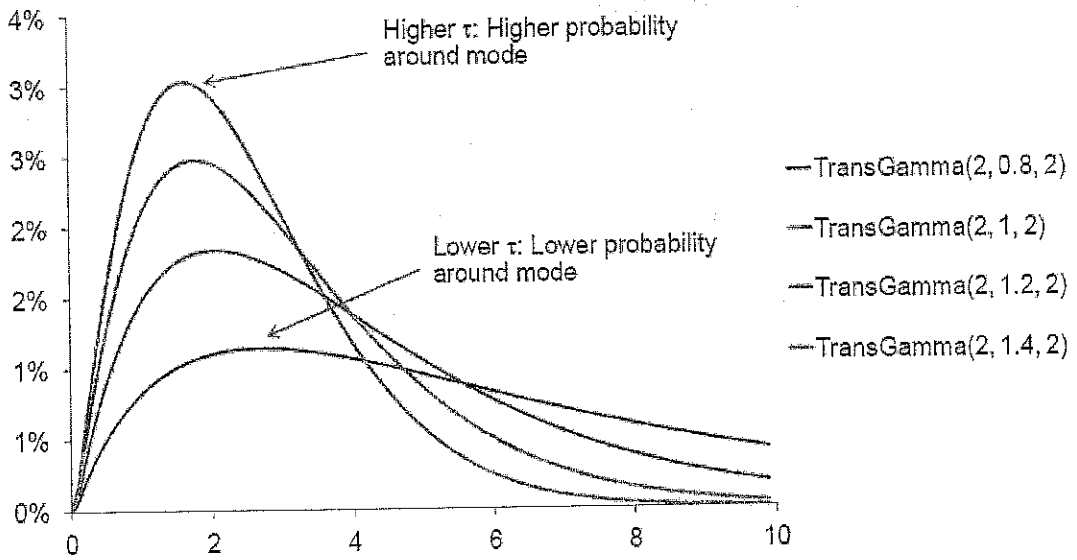
J individual claims

四、損失幅度配適

Severity Fitting
Introduction

- Provide 33 severity distributions + MBBEFD and Mixed Exponential in 7.0
- Property View:
  - Output Parameters
  - Parameter Correlations
  - Unconditional/Conditional Statistics
  - Goodness of Fit
- Severity Analysis Results View:
  - CDF and PDF
  - Hazard = PDF/(1-CDF)
  - Mean Excess= TVaR - VaR
  - PP and QQ

Severity Fitting
Effects of changes to the τ (tau) parameter on a Transformed Gamma(θ, τ, β) distribution



The τ affects the shape (spread) of the distribution around the mode. Loss cause with minimum >> mode receive little benefit from a τ parameter.

五、損失頻率配適

Frequency Fitting

- Frequency Analysis Results View
  - CDF and PDF
    - Trended version:
      - ➢Empirical curve might not match fitted curve due to the trend.
      - ➢Extrapolate the historical year data and project out to "Trend to Year", could be negative.
  - Means Comparison:
    - Non trended version: flat
    - Trended version: non zero slope

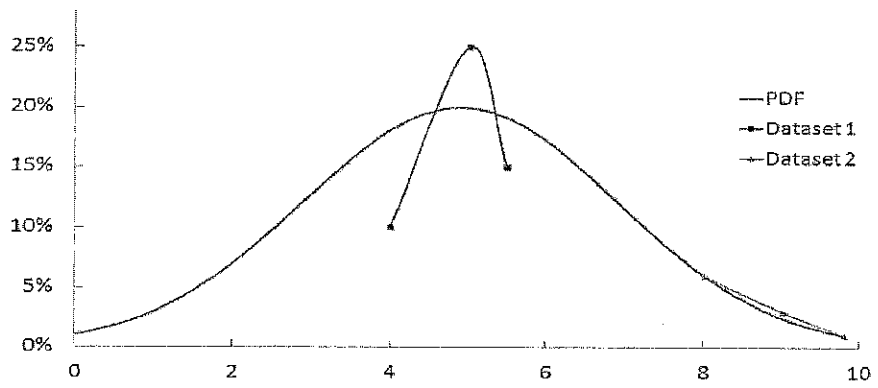
六、最佳化測度比較選擇模型參數

Goodness of Fit Measure

- Statistic: each is a function of NLL, number of parameters and data size.
  - –Akaike
  - –Hannan-Quinn Information
  - –Schwartz Information
  - –Negative Log Likelihood
- Score is a weighted average of all the above

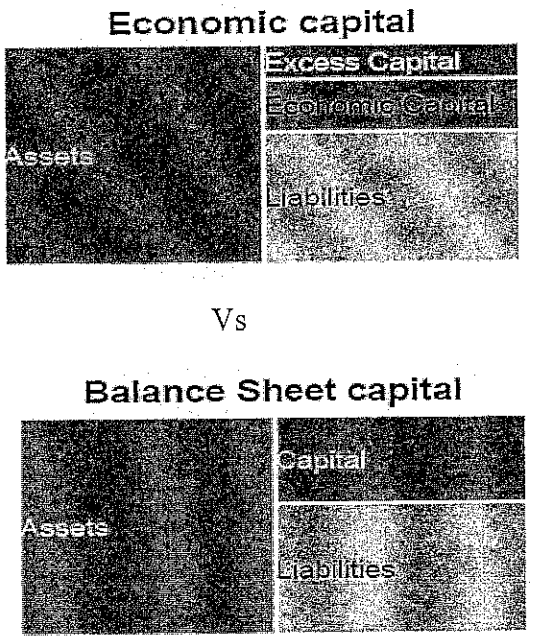
Goodness of Fit Comparison

- Can not compare across different data sets, the value of likelihood does not make sense when compared
- For example, when compared with the dataset 2, dataset 1 generates a higher likelihood with a poorer fitting.



陸、MetaRisk Economic Capital Modeling (ECM 經濟資本模型)

一、 何謂 Economic Capital 經濟資本



Economic Capital 為一估計資本值，主要為因應公司遭遇風險及業務成長時的準備，愈高的風險及愈多的不確定性，則需要愈多的 Economic Capital，其最主要的問題是，一間公司究竟需要多少 Economic Capital？

Economic capital is one of four key capital metrics monitored for risk and solvency purposes

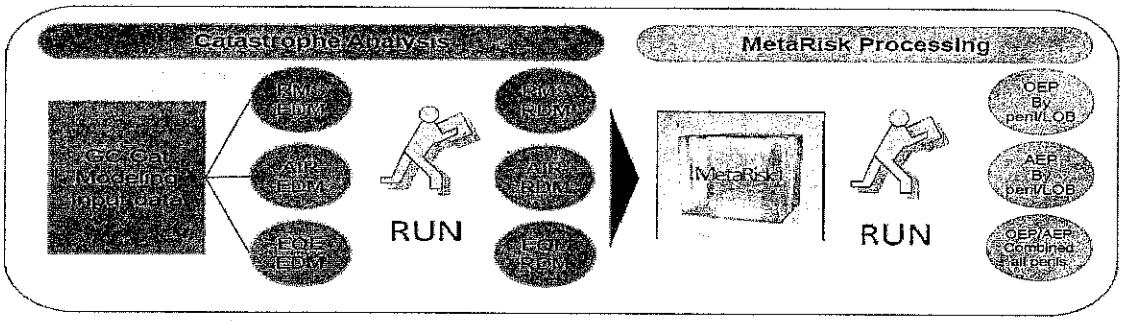
	Statutory capital	Rating agency capital	Economic capital	Actual capital
Definition	• Amount of capital required to protect against *statutory* insolvency over a one-year time-frame	• Amount of capital the rating agencies expect in order to feel comfortable giving their rating	• Amount of capital required to protect against *economic* insolvency over a one-year time-frame	• Amount of equity capital actually held to protect against *economic* and *statutory* insolvency
	▼ Bare minimum capital you must have	▼ Capital you are expected to have	▼ Capital you ought to have	▼ Capital you actually have

二、使用 MetaRisk 計算 Economic Capital

(一) Step1：彙整所有相關風險

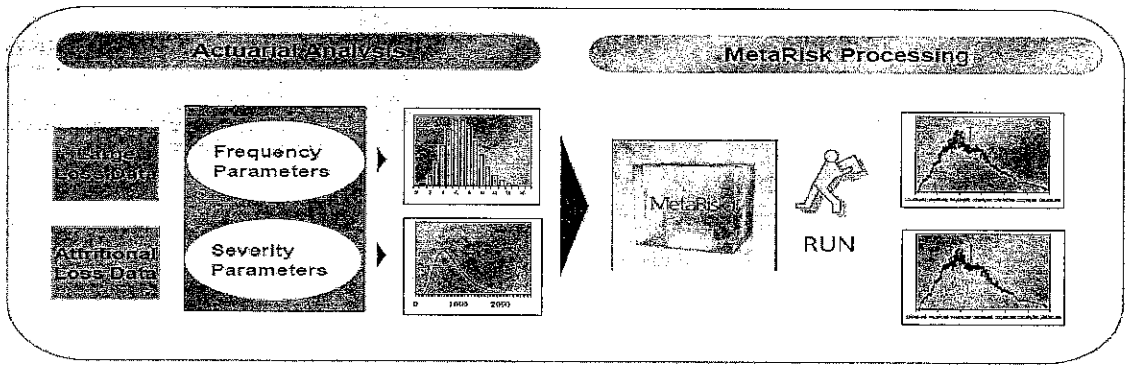
※巨災風險

Catastrophe Risk



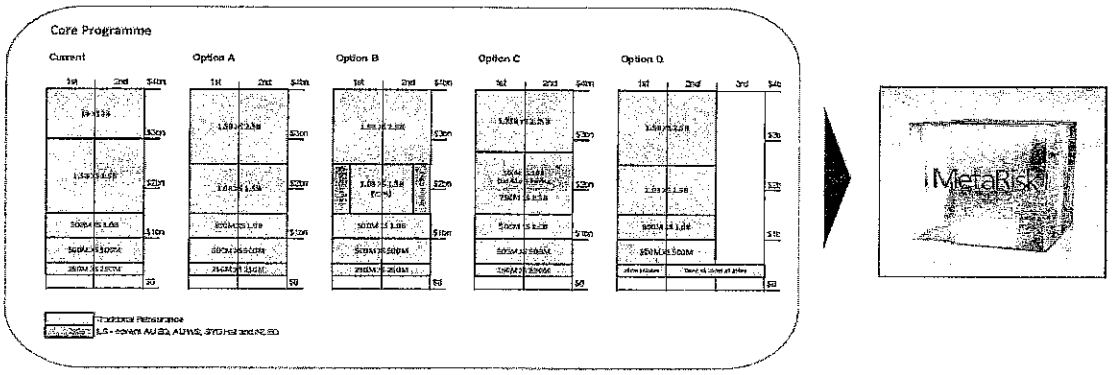
※核保風險

Underwriting Risk – Large and Attritional loss volatility



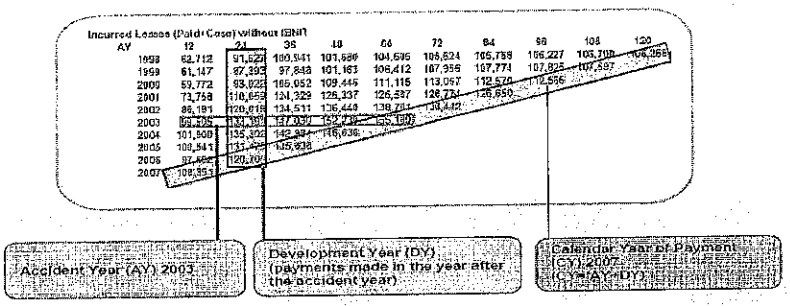
※再保風險

Best-in-Class Reinsurance Modeling



※準備金風險

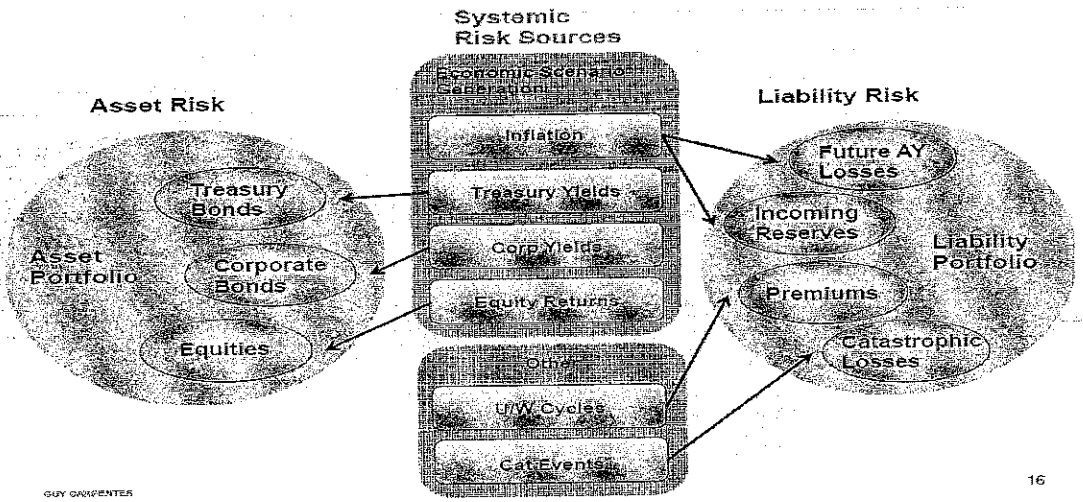
Reserve Risk



- GC DRM proprietary model
- Industry-leading methodology
- Systemic calendar year effects
- Can aggregate multiple segments

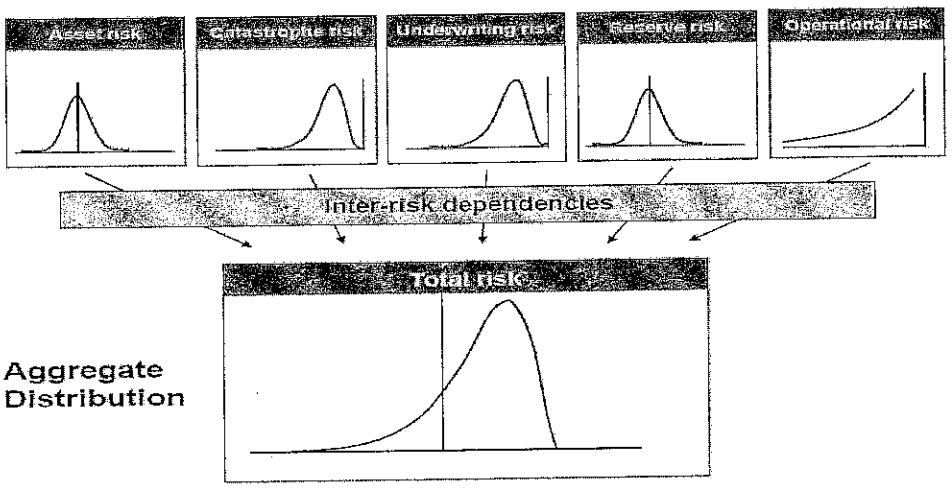
※投資風險

Investment Risk

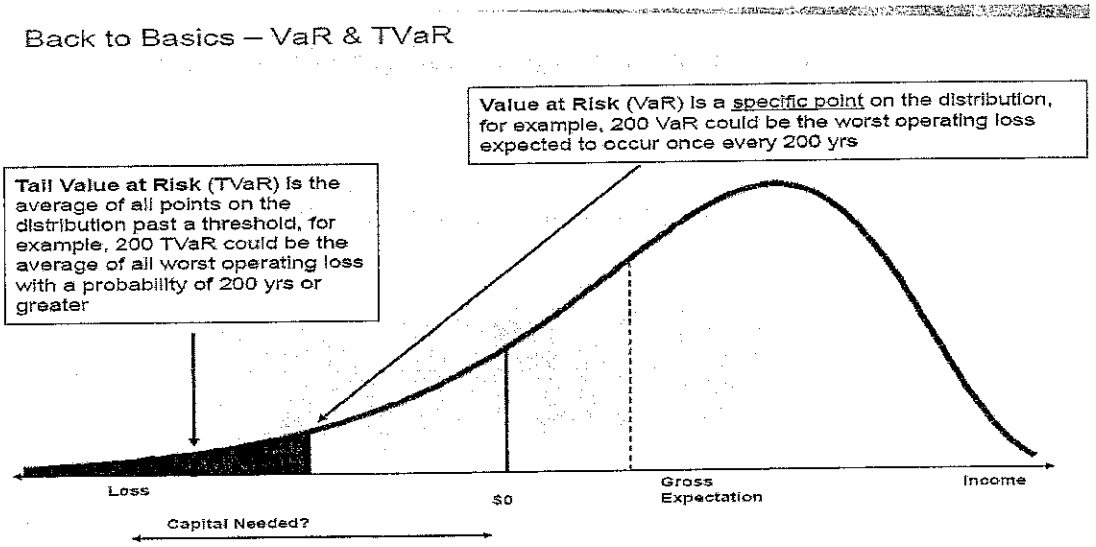


※彙整所有風險

Putting These All Together
Aggregation of Risks in MetaRisk

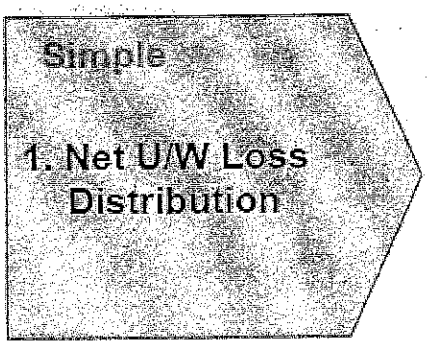


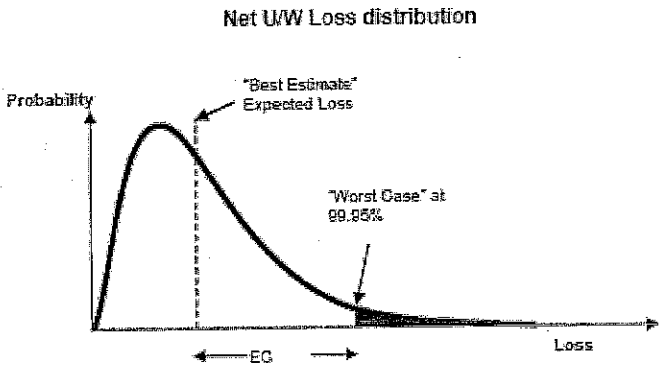
(二) Step2：利用風險衡量測度(VaR、TVaR)訂定損失金額的期望值



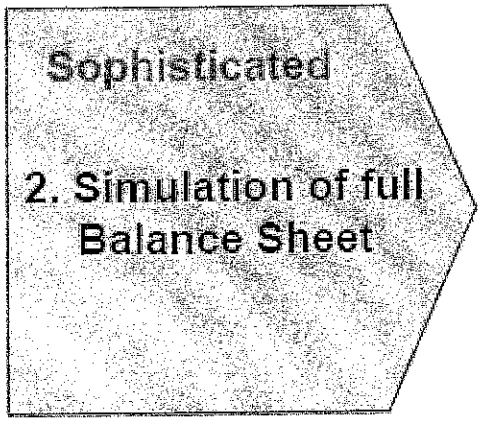
(三) Setp3：估計 Economic Capital

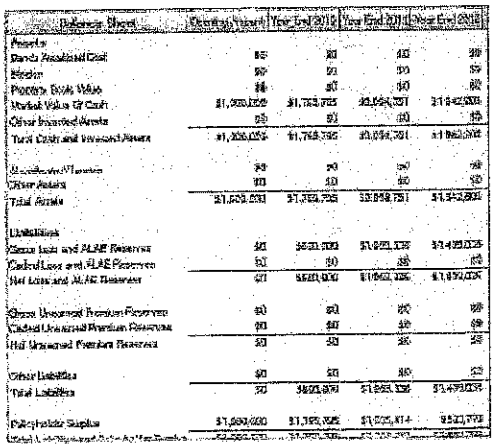
1. 較簡單方式：模擬核保損失分配（僅包含核保及巨災風險）





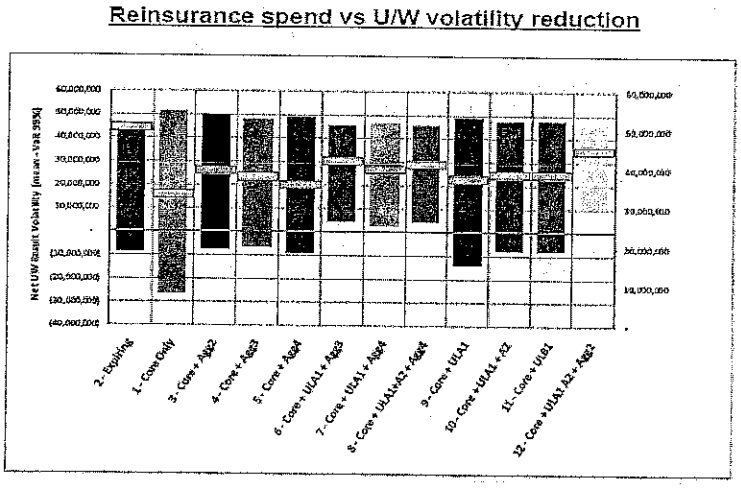
2. 較精確方式：模擬整體資產負債表



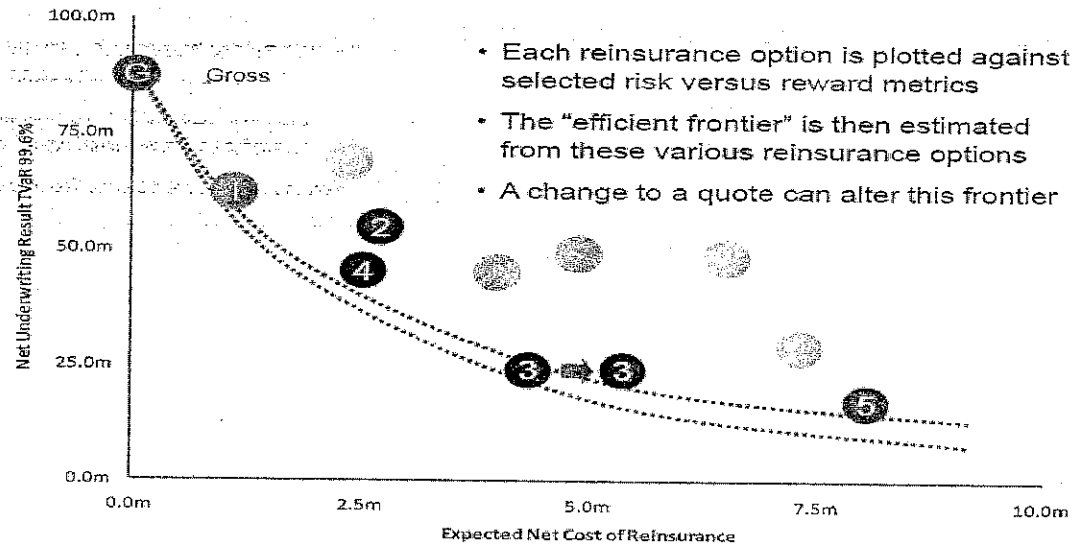


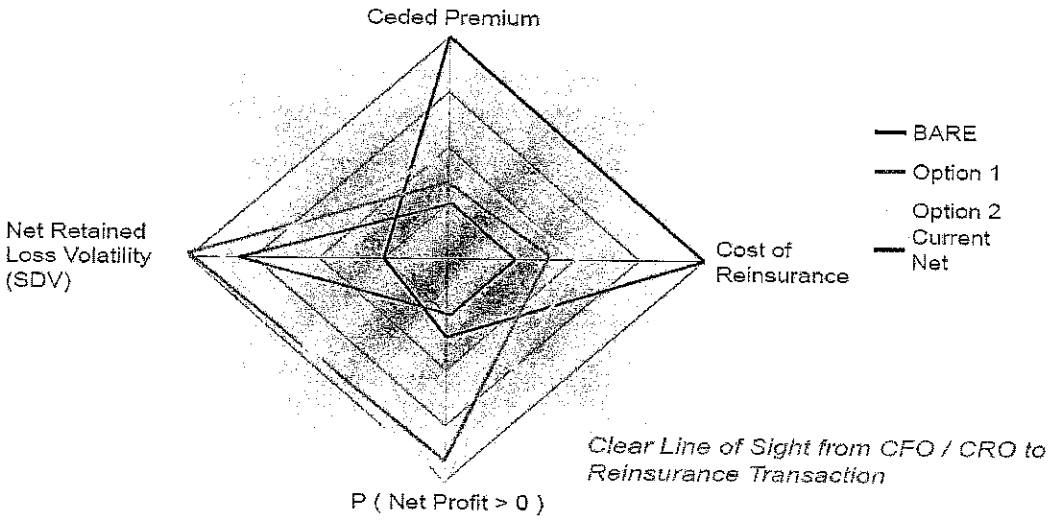
(四) Setp4： 應用 MetaRisk Economic Capital Models 產出結果

1. 使用 MetaRis Economic Capital Models 產出結果，選擇最佳再保安排策略。



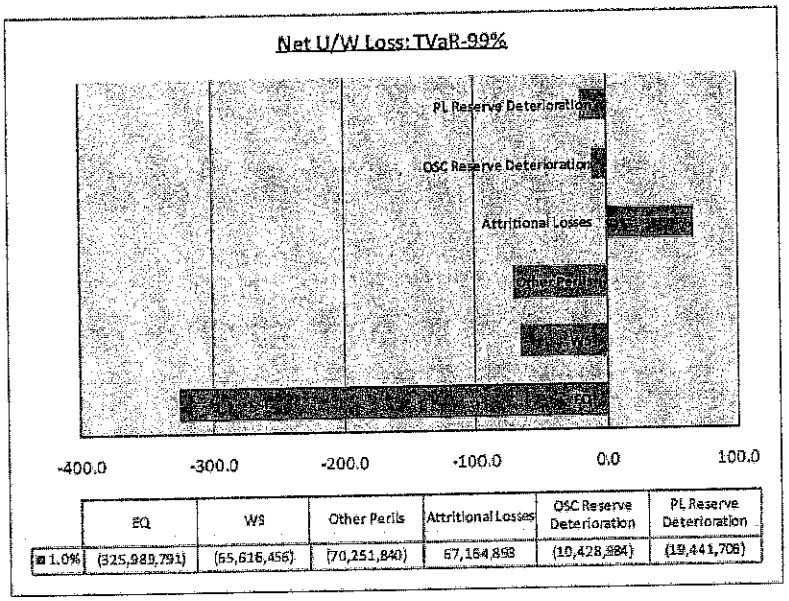
Company A decided not to purchase a catastrophe aggregate cover on the basis of model recommendations which indicated a less than perceived capital relief and inefficient reinsurance pricing (Option 10 was the recommended option).





2. 使用 MetaRisk Economic Capital Models 產出結果，了解資本配置假設之主要風險來源。

Capital Consumption – Average of tail scenarios

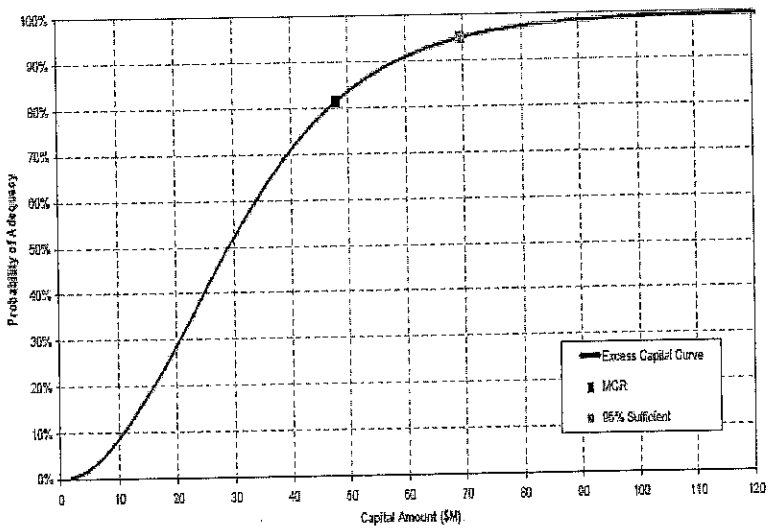


	EQ	WS	Other Perils	Attritional Losses	OSC Reserve Deterioration	PL Reserve Deterioration
1.0%	(325,989,791)	(65,616,456)	(70,251,840)	67,164,893	(10,428,984)	(19,441,706)

Company B used MetaRisk outputs to understand capital drivers. Earthquake risk was the major capital driver and the Board of Directors were convinced that reserve risk was immaterial for their company.

3. 使用 MetaRisk Economic Capital Models 產出結果，模擬決定最適當之經濟資本容量。

Company C: Economic Capital Distribution



Company C used MetaRisk outputs to decide on how much additional capital needed to be injected in order to maintain the probability of breaching regulatory minimum to 5%. This equated to an additional $5m injection from $64m to $69m as at Jun 2010.

柒、心得與建議

Guy Carpenter 為全世界最大之最保經紀人公司，致力於風險管理領域，本次 Meta Risk 研討會課程安排主要著重在公司整體資本配置模型及最佳化再保安排，與精算工作較有關連的則為損失模型配適之介紹，在實際操作方式及注意細節未特別討論及操作。

Guy Carpenter 介紹 MetaRisk-動態財務分析軟體有許多功能，在風險量化的各種工具中，除了傳統的動差表示外，衡量風險的工具可為 VaR【即(1-α)%信心水準那一點的損失金額】、TVaR【即超過(1-α)%信心水準後損失金額的期望值】、semi-standard deviation【僅考量一個方向的 deviation】或 transformed mean-mean，故經濟資本可以為 99%VaR、99.5%TVaR、2 倍或 4 倍的百年一次的損失金額，究竟多少才是最適，則必須考量如成長性、市場競爭、公司政策，及風險管理的程度等因素。

若有風險量化的工具後，可以利用統計資料，建置損失頻率及損失幅度的 Aggregate Loss Models，藉由提供的 MetaRisk fit 的 curve fitting 工具以選定適合的模型，並迅速的估計出模型參數，進一步即可藉由模擬來求出百年一次或千年一次的損失，但透過各種再保安排專案的試算亦可以由得百年一次或千年一次下的淨損失。當各險種的損失模型完成建立後，損失間的關聯性考量是個重要的課題，尤其是大型事件的發生會導致多個險別同時損失而具有相關性，如颱風事件會導致車險及火險的損失同時增加。

雖然 MetaRisk 具備多種分析功能，但仍需有具備足夠專業能力的使用者相輔相成，才能發揮 MetaRisk 的最大效能，決定最適的解決方案，建議業務相關同仁都可以參加類似研討會培養專業能力，以利在使用 MetaRisk 或類似軟體時，達到事半功倍效果，並能評估選擇最佳方案。

附錄 1：課程表-第一日

SCHEDULE

DAY 1 - August 8, 2012 (Wednesday)		
TIME	**TOPIC**	**SPEAKER**
09:00 - 09:15	Opening Remarks -- Seminar to be held in Salon Rooms 3/F Harbour Grand Hong Kong	Jame Nash
09:15 - 09:45	Seminar Overview	Paul Silberbush
09:45 - 10:30	Best Practices in Economic Capital Modelling	Don Mango
10:30 - 11:00	Morning Break	
11:00 - 12:00	Timeline Simulation Theory and Practice	Steve White
12:00 - 12:30	Case Study: MetaRisk® Application from NKSI Risk Management Unit	Hailine Sang
12:30 - 13:00	Introduction to Economic Scenario Generator	Eric Yau
13:00 - 14:30	Lunch at Harbour Grand Cafe, 3/F Harbour Grand Hong Kong	
14:30 - 15:00	Concurrent Session I Introduction to MetaRisk® (Beginner Level) Introducing MetaRisk® Economic Capital Modelling (Beginner to Intermediate Level) Advanced Correlation (Intermediate to Advance Level)	Michael Owen & Christie Lee Kyung Won Steve White
15:00 - 16:00	Afternoon Break	
16:00 - 17:00	Concurrent Session II MetaRisk® Plus (Beginner to Intermediate Level) Introducing MetaRisk® Economic Capital Modelling (Beginner to Intermediate Level) Advanced Reinsurance Contracts (Intermediate to Advance Level)	Hao Kyung Won Paul Silberbush
17:00	Meet at HM Lobby for Transfer to Dinner	

附錄 1：課程表-第二日

SCHEDULE (CONTINUED)

DAY 2 - August 9, 2012 (Thursday)		
TIME	TOPIC	SPEAKER
09:00 - 09:15	Wednesday Recap *Seminar to be held in Salon Rooms 5/6 Harbour Grand Hong Kong*	Derek Wong
09:15 - 10:00	How MetaRisk® is Being Used in Practice	Derek Wong
10:00 - 10:45	Capital Allocation	Michael Owen
10:45 - 11:15	Morning Break	
11:15 - 12:30	Preview of MetaRisk® Version 7.0	Steve White & Paul Siberdust
12:30 - 14:00	Lunch in Harbour Grand Cafe 3/F, Harbour Grand Hong Kong	
14:00 - 15:00	Concurrent Session III MetaRisk® 101 *(Beginner to Intermediate Level)* Financial Modelling in MetaRisk® With ESG Files *(Intermediate to Advanced Level)*	Derek Wong Paul Siberdust
15:00 - 15:15	Afternoon Break	
15:15 - 16:15	Concurrent Session IV Microsoft® Excel® Integration and Advanced Reporting *(Beginner Level)* Advanced Reinsurance Contracts *(Intermediate to Advanced Level)*	Christopher Paul Siberdust
16:15 - 16:30	Concluding Comments	Steve White

附錄 2：與會人員名單

METARISK® CONFERENCE HONG KONG 2012

LIST OF DELEGATES

Company	Surname	First Name	Region
Alltrust Insurance Company of China Limited	Chun	Sheng	China
China Continent Property & Casualty Insurance Company Ltd.	Yang	Liu	China
China Continent Property & Casualty Insurance Company Ltd.	Yang	Weiying	China
China Export & Credit Insurance Corporation	Sun	Zhaofeng	China
China Export & Credit Insurance Corporation	Zhang	Qinnan	China
China Reinsurance (Group) Corporation	Li	Hao	China
China Reinsurance (Group) Corporation	Wu	Xingzhi	China
China United Property Insurance Company Ltd.	Feng	Xiang	China
China United Property Insurance Company Ltd.	Wang	Jiali	China
Ping An Property & Casualty Insurance Company of China, Ltd.	Dong	Yi	China
Ping An Property & Casualty Insurance Company of China, Ltd.	Yan	Wei	China
Sunlight Agricultural Mutual Insurance Company	Han	Liang	China
Sunshine Property & Casualty Insurance Company Ltd.	Liu	Jia	China
Chartis Asia Pacific Pte Ltd.	Cannings	Trent	Hong Kong
Chartis Insurance Hong Kong Limited	Fang	Shuyuan	Hong Kong
Chartis Insurance Hong Kong Limited	Tse	Kai Lee	Hong Kong
Peak Reinsurance	Cook	Graham	Hong Kong
Peak Reinsurance	Roth	Eckart	Hong Kong
Taiping Reinsurance Co., Ltd.	Ng	Alan	Hong Kong
Taiping Reinsurance Co., Ltd.	Yuen	Ching Kong, Andrew	Hong Kong
The Toa Reinsurance Company, Limited HK Branch	Hau	Ka Ki Louis	Hong Kong
Tugu Insurance Company	Octora	Irzan	Hong Kong
Zurich Insurance Company Ltd.	Chan	Ricky	Hong Kong
Zurich Insurance Company Ltd.	Lu	Tony	Hong Kong
Zurich Insurance Company Ltd.	Yan	Grace	Hong Kong

附錄 2：與會人員名單【續 1】

METARISK® CONFERENCE HONG KONG 2012

Company	Surname	First Name	Region
ICICI Lombard General Insurance Company Ltd.	Chemburkar	Prachi	India
PT. Asuransi Ekspor Indonesia (Persero)	Bayuni	Sri	Indonesia
PT. Asuransi Maipark Indonesia	Sidharta	Laksmi Wijayanti	Indonesia
PT. Reasuransi Internasional Indonesia	Lumbantobing	Amir	Indonesia
Tugu Reasuransi Indonesia, PT	Assamady	Wildan	Indonesia
Mitsui Sumitomo Insurance Co., Ltd.	Kondo	Nobuyoshi	Japan
Mitsui Sumitomo Insurance Co., Ltd.	Shimada	Ryuji	Japan
Korean Reinsurance Company	Lee	Kyungphil	Korea
Meritz Insurance, Korea	Lee	Seung Ah	Korea
Malaysian Reinsurance Berhad	Chew	Chun Yong	Malaysia
Malaysian Reinsurance Berhad	Tan	Chee Yew	Malaysia
MNRB Holdings Berhad	Ahmad	Farah Emillia	Malaysia
Tokio Marine Global Re Ltd.	Mu	Lei	Malaysia
Tokio Marine Global Re Ltd.	Wai	Kok Fai	Malaysia
Chartis Asia Pacific Pte Ltd.	Todd	Alex	Singapore
Cathay Century Insurance	Yu	Hung Cheng	Taiwan
Central Reinsurance Corporation	Lin	Chin-mei	Taiwan
Chung Kuo Insurance Co., Ltd.	Hung	Chi-Feng	Taiwan
Fubon Insurance	Chen	Yen Chih	Taiwan
MSIG Mingtai Ins. Co., Ltd.	Chen	Emman	Taiwan
MSIG Mingtai Ins. Co., Ltd.	Tang	Chiao-Ling	Taiwan
Shinkong Insurance Co., Ltd.	Wang	Yu-Sheng	Taiwan
Shinkong Insurance Co., Ltd.	Wang	Chien-Chao	Taiwan
Shinkong Insurance Co., Ltd.	Yeh	Jin-Chin	Taiwan

METARISK® CONFERENCE HONG KONG 2012

Company	Surname	First Name	Region
Taiwan Fire & Marine Insurance Co., Ltd	Chang	Chia-Ming	Taiwan
Taiwan Insurance Institute	Jang	Jin-Jiuan	Taiwan
Tokio Marine Newa Insurance Co. Ltd.	Liu	Chia-Yun	Taiwan
Guy Carpenter	Bao	Kitty	/
Guy Carpenter	Cao	Li	/
Guy Carpenter	Hung	Shane	/
Guy Carpenter	Lee	Christie	/
Guy Carpenter	Li	Larry	/
Guy Carpenter	Lim	Grace	/
Guy Carpenter	Liu	Jun	/
Guy Carpenter	Lou	Jia	/
Guy Carpenter	Lu	Michael	/
Guy Carpenter	Mango	Don	/
Guy Carpenter	Nash	James	/
Guy Carpenter	Ng	Angeline	/
Guy Carpenter	Owen	Michael	/
Guy Carpenter	Pan	Charles	/
Guy Carpenter	Plessis	Brendan	/
Guy Carpenter	Pui	Susana	/
Guy Carpenter	Pumama	Linda	/
Guy Carpenter	Qin	Blanca	/
Guy Carpenter	Shen	Zilan	/
Guy Carpenter	Silberbush	Paul	/
Guy Carpenter	Tey	Peng Mok	/
Guy Carpenter	Tong	Matthew	/
Guy Carpenter	White	Steve	/

METARISK® CONFERENCE
HONG KONG 2012

Company	Surname	First Name	Region
Guy Carpenter	Won	Kyung	/
Guy Carpenter	Wong	Derek	/
Guy Carpenter	Yang	Ke	/
Guy Carpenter	Zhang	Michael	/
Guy Carpenter	Zong	Gilbert	/