行政院國家科學委員會專題研究計畫 成果報告

銀行競爭、效率及風險之全球銀行實證分析
研究成果報告(精簡版)

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計 畫 主 持 人：陳昇鴻

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報 告 附 件 ：出席國際會議研究心得報告及發表論文

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中 華 民 國 102 年 02 月 22 日

中 文 摘 要 ： 銀行競爭如何降低銀行風險呢？是否銀行競爭會透過效率管道進而改善銀行的風險？不同特性銀行面對競爭時是否具異質的反應呢？有別於過去銀行競爭的文獻，本計畫採用新產業組織觀點來回答這些研究問題。使用涵蓋 1992 至 2010 年的全球銀行年資料首先，並運用 Boone (2008)理論架構估計樣本國家其銀行市場競爭程度，以探討跨國銀行競爭程度差異對銀行風險的單向影響性，以及分析跨國銀行競爭程度差異對銀行效率的單向影響性。在考量銀行競爭僅對銀行個別風險與效率存在單向影響性下，採用「Granger 因果檢定法」(Granger Causality Approach)與「追蹤資料向量自我迴歸模型」(Vector Autoregression for Panel Data Model, Panel VAR)探討銀行風險與效率之跨期動態關係(Intertemporal Dynamic Relationships)，並拆解跨國銀行競爭程度變動對銀行風險及效率的衝擊。儲蓄銀行相較於商業銀行平均表現較低的風險分配分佈，且在 2003 年至 2007 年間有穩定上升的情形。不論成本或利潤效率皆表現穩定下降的趨勢，意謂過去 10 年間全球銀行的經營績效呈現下滑的情形；基本上，合作銀行表現較低的成本效率，而儲蓄銀行表現較低的利潤效率。成本效率結果指出 Z-Score 值與成本效率與自身落遲期數密切相關，當銀行前一年成本效率愈高，則顯著降低當期的銀行風險，但此相反的效果卻發生在前兩年的情況；再者，銀行前一年風險愈低則不利於當期成本效率，但是前兩年風險愈低，則顯著提高當期成本效率。前一年競爭程度愈高則顯著提高當期銀行風險，同時也會降低銀行當期的成本效率。

中文關鍵詞： 銀行競爭；效率；風險；追蹤資料向量自我迴歸模型(Panel VAR)

英 文 摘 要 ： How banking competition reduces bank risk? Whether banking competition improves bank risk through efficiency channel? Whether banks with different characteristics exhibit the heterogeneity in response to varied degree of banking competition? Different from previous studies, this proposal tends to use the insight from new industrial organization to explain those research questions. Using data on bank’s financial information including listed and unlisted banks in global banking sector, this proposal applies the theoretical framework by Boone (2008) to measure the degree of banking competition to investigate empirically this single effect on bank risk while

competition increases efficiency. Based on this single effect, Granger Causality approach and Panel VAR (Vector Autoregression for Panel Data Model) is utilized to identify the inter-temporal dynamic relationship between bank risk and efficiency estimated by SFA while disentangling the effects of change in bank competition on bank risk and efficiency. It is expected that small bank facing higher competition would like to take excess risk compared with larger bank while the effect of keen competition impede the incentive of taking risk for lower risk relative to higher risk ones. It is also expected that bank with lower efficiency with regard to costs and revenues would cause bank to take higher risk as well as that increases in bank capital precede cost efficiency improvements. It would be found that more efficient banks eventually become better capitalized and that higher capital levels tend to have a positive effect on efficiency levels. The expected results have potentially important policy implications for bank prudential supervision and address the importance of attaining long-term efficiency gains to fulfill financial stability objectives.

英文關鍵詞： Bank Competition； Efficiency； Risk； Panel VAR

行政院國家科學委員會補助專題研究計畫 ■成果報告 □期中進度報告

銀行競爭、效率及風險之全球銀行實證分析

計畫類別：■個別型計畫　□整合型計畫
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成果報告類型(依經費核定清單規定繳交)：■精簡報告　□完整報告

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□涉及專利或其他智慧財產權，□一年■二年後可公開查詢

中華民國 102 年 2 月 19 日

銀行競爭、效率及風險之全球銀行實證分析

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中文摘要

銀行競爭如何降低銀行風險呢？是否銀行競爭會透過效率管道進而改善銀行的風險？不同特性銀行面對競爭時是否具異質的反應呢？有別於過去銀行競爭的文獻，本計畫採用新產業組織觀點來回答這些研究問題。使用涵蓋 1992 至 2010 年的全球銀行年資料首先，並運用 Boone (2008)理論架構估計樣本國家其銀行市場競爭程度，以探討跨國銀行競爭程度差異對銀行風險的單向影響性，以及分析跨國銀行競爭程度差異對銀行效率的單向影響性。在考量銀行競爭僅對銀行個別風險與效率存在單向影響性下，採用「Granger 因果檢定法」(Granger Causality Approach)與「追蹤資料向量自我迴歸模型」(Vector Autoregression for Panel Data Model, Panel VAR)探討銀行風險與效率之跨期動態關係(Intertemporal Dynamic Relationships)，並拆解跨國銀行競爭程度變動對銀行風險及效率的衝擊。儲蓄銀行相較於商業銀行平均表現較低的風險分配分佈，且在 2003 年至 2007 年間有穩定上升的情形。不論成本或利潤效率皆表現穩定下降的趨勢，意謂過去 10 年間全球銀行的經營績效呈現下滑的情形；基本上，合作銀行表現較低的成本效率，而儲蓄銀行表現較低的利潤效率。成本效率結果指出 Z-Score 值與成本效率與自身落遲期數密切相關，當銀行前一年成本效率愈高，則顯著降低當期的銀行風險，但此相反的效果卻發生在前兩年的情況；再者，銀行前一年風險愈低則不利於當期成本效率，但是前兩年風險愈低，則顯著提高當期成本效率。前一年競爭程度愈高則顯著提高當期銀行風險，同時也會降低銀行當期的成本效率。

關鍵詞：銀行競爭；效率；風險；追蹤資料向量自我迴歸模型(Panel VAR)

Banking Competition, Efficiency, and Risk in Global Banking Industry

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How banking competition reduces bank risk? Whether banking competition improves bank risk through efficiency channel? Whether banks with different characteristics exhibit the heterogeneity in response to varied degree of banking competition? Different from previous studies, this proposal tends to use the insight from new industrial organization to explain those research questions. Using data on bank's financial information including listed and unlisted banks in global banking sector, this proposal applies the theoretical framework by Boone (2008) to measure the degree of banking competition to investigate empirically this single effect on bank risk while competition increases efficiency. Based on this single effect, Granger Causality approach and Panel VAR (Vector Autoregression for Panel Data Model) is utilized to identify the inter-temporal dynamic relationship between bank risk and efficiency estimated by SFA while disentangling the effects of change in bank competition on bank risk and efficiency. It is expected that small bank facing higher competition would like to take excess risk compared with larger bank while the effect of keen competition impede the incentive of taking risk for lower risk relative to higher risk ones. It is also expected that bank with lower efficiency with regard to costs and revenues would cause bank to take higher risk as well as that increases in bank capital precede cost efficiency improvements. It would be found that more efficient banks eventually become better capitalized and that higher capital levels tend to have a positive effect on efficiency levels. The expected results have potentially important policy implications for bank prudential supervision and address the importance of attaining long-term efficiency gains to fulfill financial stability objectives.

Keywords：Bank Competition; Efficiency; Risk; Panel VAR

一、緒論

(一)研究動機

近年來，研究銀行競爭對銀行穩健(Soundness)程度的影響，已有一些理論探討和實證分析，但是過去文獻的觀點多傾向認定銀行競爭和銀行穩健度存在負向的取捨關係。然而，最近新的理論分析和實證發現則不斷地挑戰此關係，並認定競爭和銀行穩健度存在正向的連結關係。儘管許多文獻在爭辯競爭究竟對銀行穩健度是好抑或壞時，另一個與銀行監管政策有關的議題，即為何銀行競爭會強化銀行穩健度效果卻較少被過去文獻所著墨，特別是分析銀行競爭如何影響風險的機制。尤其是從產業組織觀點來看，銀行競爭和穩健度之間是否有透過銀行效率作為連結的管道呢？不同特性的銀行是否對銀行競爭程度差異存在異質性地反應呢？換言之，小銀行與大銀行、或低風險和高風險銀行受到銀行競爭差異的影響上是否有所不同呢？這些研究課題為本計畫所欲探討的研究重點之一。

特別是有鑑於 2007 年下旬發生的重大信用危機，此衝擊加遽全球銀行市場整併，同時解除管制和技術變革也加速影響金融整併的過程，因而促進金融服務行業的跨國競爭程度(Carletti et al., 2007)。為因應此金融業的全球化趨勢，銀行產業開始積極重視提高自身經營與管理效率的重要性，即銀行關注於執行最佳企業策略，或以更高效生產方式進行生產與維持營運績效。然而，隨著短期間銀行競爭的增加，同時也會提高銀行過度風險承擔的誘因。這是因為增加競爭不僅會降低銀行的市場力(Market Power) (Allen et al., 2011)，而且也減少了銀行的「特許價值」(Charter Value) (Keeley, 1990)。銀行特許價值的減少加上存在銀行「有限負債」(Limited Liability)和存款保險的「固定費率」(Fixed Premiums)，兩者都直接誘發銀行增加風險承擔行為(Salas and Saurina, 2003; Goddard and Wilson, 2009)；但 Boyd and De Nicolò (2005)提出理論分析則認為銀行產業愈競爭使銀行更有誘因進行風險承擔的關係卻是相當脆弱的。此時，監管機構可藉由資本適足規範，來抑制銀行提高風險承擔的誘因。儘管過去已有許多研究探討銀行資本(Gropp and Heider, 2010)、經營效率(Casu and Girardone, 2009)和企業經營模式(Scott and Dunkelberg, 2010; Berger et al., 2010)對銀行風險的衝擊，但探討銀行風險、資本及效率間跨期動態關係的全球銀行實證研究至今卻相對不足。特別是當全球銀行業經歷近來嚴重的信用風暴打擊後，此研究議題更凸顯值得進一步瞭解銀行風險的決定因素，以及提高銀行效率和增加資本計提的重要性(Festić et al., 2011)。

然而，最近文獻研究也指出歐洲銀行產業中銀行效率和風險間存在顯著負向實證關係(Fiordelisi et al., 2010; Fiordelisi and Molyneux, 2010)，因此本計畫檢驗此實證關係是否也成立於全球銀行中。低效率可能會導致銀行放寬其營運標準來增加報酬，例如降低放款徵信的標準。銀行風險的改變也會影響銀行效率，因為風險增加可能會因處理不良貸款所產生的高成本而使成本效益暫時性的降低。最後，本研究探討銀行資本在風險和效率間的取捨關係，但此實證關係可能存在相當不確定。若高效率的銀行並無提高資本水準以緩衝貸款和投資高效率的誘因，則此類銀行可能會削減其資本；另外，低效率的

銀行也可能為平衡其營運成本而消減昂貴的資本，但這兩類的銀行最終可能會在當風險增加時同時增加資本計提。再者，高度資本化的銀行其效率可能較高，且當風險提高時並沒有額外誘因增加資本；或者因為成本昂貴促使銀行提高風險承擔，以達收入極大化。

最近，Fiordelisi et al. (2010)應用追蹤資料(Panel Data Model)之 Granger 因果檢定評估歐洲商業銀行其效率、資本、及風險的跨期動態關係，並發現低成本與收益效率的銀行有較高的風險且提高銀行資本會促使銀行成本效率的改善；再者較佳效率銀行最終成為較佳資本化的銀行，同時高資本水準傾向對效率水準具有正向的效果。此政策意涵凸顯「銀行審慎監理」(Bank Prudential Supervision)的必要性，以及強調維持銀行長期效率必定有助於支持金融穩定目標的重要性。

(二)研究目的與貢獻

1.研究目的

本研究以 BankScope 資料庫中包括上市與非上市銀行為研究樣本，研究期間涵蓋 1992 至 2010 年，特別觀察樣本銀行在金融風暴期間(2007 至 2009 年)其風險與效率的變化情形。基於上述研究動機，本研究設定以下四個研究目的：

(1)依據新產業組織的觀點並運用 Boone (2008)理論架構估計樣本國家其銀行市場競爭程度。
(2)探討跨國銀行競爭程度差異對銀行風險的單向影響性。
(3)分析跨國銀行競爭程度差異對銀行效率的單向影響性。
(4)在考量銀行競爭僅對銀行個別風險與效率存在單向影響性下，採用「Granger 因果檢定法」(Granger Causality Approach)與「追蹤資料向量自我迴歸模型」(Vector Autoregression for Panel Data Model, Panel VAR)探討銀行風險與效率之跨期動態關係(Intertemporal Dynamic Relationships)，並拆解跨國銀行競爭程度變動對銀行風險及效率的衝擊。

2.主要研究貢獻

不同於過去類似的研究文獻，本研究主要研究貢獻說明如下：

(1)為了探討銀行競爭是否提供銀行更佳穩健程度的機制，本研究採用新產業組織的觀點，即以 Boone (2008)提出的 Boone 指標來估計銀行動態競爭的程度。此指標著重於競爭影響高效率銀行的績效，並解釋為什麼競爭會提高穩健度。其中，因銀行競爭促使銀行專業化和差異化以維持高利潤，因而本研究認為效率可能是一個的重要的傳遞管道。首先，Zarutskie (2009)認為銀行競爭使得銀行透過專門從事某類型的貸款，或者是改善篩選特

定信貸市場部份借款人的能力，相對於其競爭對手來說提高其成本效益。其次，Dick and Lehnert (2010)提出競爭增加了銀行貸款的生產力，同時也降低放款的損失率。換言之，上述文獻都認可銀行因應競爭機構放款決策效率愈高，其獲利能力也愈高。特別是，運用 Boone 指標不僅可測量出利潤自效率差的銀行重分配至效率高的銀行的變化，同時也可補捉了大部分競爭特質的差異，因此非常適合本研究驗證是否此指標作為衡量銀行業競爭具有效性。

(2)本研究以效率前緣的方法為主，並著重在實證探討銀行競爭對效率之直接影響。此檢驗是相當重要的，因為傳導機制若是依附在競爭驅動效率的假設上，意謂在銀行競爭環境下是否提高的效率。此外，因為競爭對穩健度的正向影響是藉由利潤的重新分配，因此透過 Boone 指標分析效率管道競爭和穩健度之間的連結是合適的。

(3)本研究探討銀行回應競爭是否具異質性，以瞭解銀行特性不同是否因放款技術的差異性而導致穩健度改變的情形。小銀行貸款往往基於軟信息優勢更能適應競爭條件同時也增加其經營健全性。利用 Panel VAR 估計是否健全的銀行較薄弱者對競爭程度有不同的反應，同時脆弱的銀行較穩定的銀行面對競爭壓力時受益為少。本研究預期小銀行企圖憑藉軟性資訊來承作貸款，當面對競爭時則可提升穩健度，以及脆弱銀行相對於穩健銀行在面對競爭時則受益較少。

(4) 本研究在全球銀行業競爭、效率和風險間關係的文獻中有重要的研究貢獻。第一，研究樣本囊括了自 1992 年以來至 2010 間所有同期的銀行資料，也考量 2007 至 2010 年間全球金融風暴的影響。第二，先前的文獻不是著重在成本效率就是在利潤效率，本研究則估計成本和利潤效率兩者外，並針對利潤效率進行「穩健性分析」(Robust Analysis)，此作法是基於銀行成本和收入效率反映了管理能力的不同，即分別是收入極大化和成本極小化的能力。

(5)在銀行的風險衡量方面，本研究不僅採用來自銀行的財務報表中不良貸款與總貸款，也同時使用反應銀行市場風險的指標「信用評等」(Credit Rating)代表銀行違約的可能性及採用「風險值」(Value-at-Risk, VaR)；同時，也採用更廣泛的銀行資本，即總資本而非僅股權資本。最後，本研究在計量經濟模型的架構下考慮因果關係與「追蹤資料向量自我迴歸模型」(Panel VAR)，並採用 System GMM (System Generalized Method of Moments)之兩階段估計法進行實證分析，以避免過去文獻多採用最小平方法(OLS)估計，在預測值中可能會產生自變數落遲的問題，即誤差項具有高度的相關性。

二、相關文獻

以下從「銀行競爭、效率和銀行穩健度的關係」、「銀行競爭透過效率管道提升銀行穩健」、「銀行風險與效率之關係」等三方面，分別系統性地陳述過去相關文獻的主要

發現：

(一)銀行競爭、效率和銀行穩健度的關係

資訊不對稱不僅會影響銀行的競爭程度，也攸關銀行放款決策的有效性，此反映出銀行透過放款活動所伴隨產生的私有訊息，相對優於其他資訊不足的競爭對手(Dell'Ariccia and Marquez, 2008)。同時，一般產業組織的研究發現競爭會提升廠商效率(Tirole, 1989; Hay and Liu, 1997)，特別是銀行業的研究發現多支持效率高的銀行具較好的放款篩選機制和嚴格的徵信程序，此機制顯著地減少銀行遭受不良貸款損失的可能性(Wheelock and Wilson, 1995)。因此，探討銀行競爭實質效果可作為促進銀行穩健性的機制。基於上述所言，瞭解銀行競爭傳導至銀行穩健度的機制是重要的議題，換言之，透過效率管道銀行競爭是否會增強銀行的穩健度。本研究調整最近產業組織文獻中 Boone et al. (2005)與 Boone (2008)所發展出的新競爭指標。此指標早期是由 Demsetz (1973)提出，並以效率假說為理論基礎，將產業績效視為高效率企業成長的內生函數，即衡量效率(平均成本)和績效(獲利能力)間關係的強度。

金融機構破產所衍生的成本相當高，不僅對銀行股權和債務持有人有不利的影響，政府政策援助舉動也會犧牲廣大納稅人的福利。因而，早期銀行風險研究重點在於銀行風險的決定因素，特別是支持銀行應持有一定安全數量的資本，以維持銀行經營的穩定性。這些早期的研究主要關注的是分析金融監管的有效性，尤其是在考慮存款保險單一(固定)費率的機制是否增加銀行過度的風險承擔，例如 Peltzman (1970)的研究發現資本規範會激勵銀行承擔風險。總體而言，早期的研究結果都懷疑銀行資本監管是否會有效地影響銀行的穩健性(Marcus, 1983; Diamond and Rajan, 2000)。1988 年制定的巴塞爾協定(Basel I)中國際銀行核心資本標準，重新興起探討銀行資本規定有效性的研究。新一波研究大部分集中在美國銀行業，則企圖找出資本限制的規範受到銀行資本的支持。在巴賽爾協定及修正案後，資本適足影響銀行風險的議題仍在持續發展，例如 Ediz et al. (1998)提出英、美兩國的銀行資本要求對有效提高整體銀行的自有資本率，且對不動產銀行在其投資組合及表外資產風險上具有顯著的控制效果。再者，Salas and Saurina (2003)也發現低資本適足率的銀行往往傾向承擔較高的信用風險，此舉符合道德風險假說的意涵。

然而，理論文獻卻提出另一個衝突的觀點，即資本要求反而會激勵銀行承擔風險(Freixas and Rochet, 2008)。總體而言，多數研究都發現高的資本比率會降低銀行業的總風險承擔。在此爭議中，有重大突破的是 Hughes and Mester (1998)的研究，作者提出當探討資本與風險的關係時，應加入銀行效率作考量。根據這些學者觀點，無論資本或風險都可能是取決於銀行的效率高低。例如，金融主管機關允許高效率銀行(即管理品質較高者)能夠在其他條件不變之下，彈性調整其資本槓桿程度和整體風險承受度。另外，基於道德風險的誘因，較無效率的低資本銀行則可能會為彌補損失而冒險承作高風險的放款投資。Kwan and Eisenbeis (1997)也提出分析銀行風險時，應在實證模型中納入銀行效率的觀點。Berger and De Young (1997)應用因果檢定方法評估 1985 至 1994 年間美國

銀行問題貸款、成本效益及資本間的關係，結果發現當問題貸款增加時會導致銀行放款成本效益降，尤其是低資本的銀行更為明顯，且成本效益下降亦會伴隨新的問題貸款產生。Kwan and Eisenbeis (1997)採用聯立方程式來檢驗銀行風險、資本化及經營績效的假說。基本上，這兩篇研究都支持效率和資本是決定銀行風險的相關因子。Williams (2004)與 Altunbas et al. (2007)皆進行過歐洲銀行業的實證研究，其中 Williams (2004)採用因果關係技術來評估歐洲儲蓄銀行在 1990 至 1998 年期間的問題貸款，成本效率和金融資本間之關係，發現管理不善的銀行往往伴隨著較差的貸款品質。再者，Altunbas et al. (2007)使用靜態聯立方程式探討歐洲銀行在 1992 至 2000 年期間其資本、貸款準備和成本效率間的關係，相對於 Williams (2004)作者認定銀行無效率和銀行風險存在顯著正向關係，意謂效率差的歐洲銀行將增加持有資本並減少風險承擔。因此，在歐洲的研究整體來說，經營效率、資本和銀行風險間關係的結果發現並具不一致性，但全球銀行的研究更是不足。

(二)銀行競爭透過效率管道提升銀行穩健

基於銀行競爭會促使廠商利潤和市佔比以重新分配至高效率者(Olley and Pakes, 1996)，高效率廠商其利潤和規模超越其它效率較低的同業，這促使總產業的效率提升。在銀行業的研究方面，Stiroh (2000)指出資產動態重分配自績效差到表現出色的銀行以維持產業的利潤水準，Stiroh and Strahan (2003)發現當寬鬆政策提高競爭程度後，利潤由經營績效差的銀行重新分配至營運更好的銀行，但這種重分配效應可以透過不同的管道傳導。Zarutskie (2009)認為銀行以專業化來因應競爭，例如藉由調整自身放款稽核技術且專注在特定類型的放款，使其能夠降低承作及處理貸款的成本，或使他們能篩選出信用更好的特定借款人。最近，Dick and Lehnert (2010)也透過實證發現競爭會提高效率，同時也降低貸款銀行的信貸風險。此信貸風險降低可能是因為銀行善用投入篩選和徵信借款人的有效資源，以減少資訊不對稱所衍生的相關問題(Chen, 2007)。簡言之，競爭提高貸款決策的效率，且資訊處理能力也可以發揮一定的作用，特別是在高度銀行競爭環境中，可取得的資訊愈多將可以有效改善提高銀行篩選和徵信的能力(Hauswald and Marquez, 2003)。Dell'Ariccia et al. (1999)指出銀行可藉由先前貸款的經驗獲得借款人的資訊，從而提高自身貸款的決策效率，此意謂篩選成本下降或資訊知識增加，將使信用佳的貸款獲得更適當的風險訂價。考量這些因素後，得到兩個實證預測：競爭提高效率以及高效率銀行穩健度較高。這些預測也支持了兩類的實證文獻。Berger and Hannan (1998)指出銀行在沒有競爭力的市場之下其經營效率低落，而 Jayaratne and Strahan (1998)發現寬鬆政策使效率提高且 DeYoung et al. (1998)也指出當取消跨州經營限制時，將促使銀行的效率提高。同樣地，Evanoff and Örs (2008)也發現銀行以提高效率應對競爭的威脅。過去文獻也清楚說明效率和穩健性間的連結，例如 Berger and DeYoung (1997)與 Kwan and Eisenbeis (1997)證實效率和穩健性具正向的相關性，最近，Zhao et al. (2010)實證檢驗印度銀行業成本結構、所有權與銀行競爭的關連性。本研究在彙整這些不同論點的文獻後，提供更廣泛的觀點並預期競爭具提高銀行穩健性的機制。

(三)銀行風險與效率之關係

過去文獻主要以下有四個假說，以解釋銀行風險與效率的關係。首先，Berger and DeYoung (1997)與 Williams (2004)提出「管理不善」(Bad Management)假說，經營效率低的銀行其經營成本較高，主要是因不當徵信和營運費用控管不良所致，這幾乎立即會表現在成本效率低落上。由於信用、營運、市場和信譽的問題導致成本和收入效率的下降，會先暫時性的增加銀行風險。其次，Berger and De Young (1997) 提出「成本節省」(Cost Skimping)假說，在銀行存在道德危險的誘因下，銀行需在短期成本效率和未來風險承擔間作取捨。在這種情況下，銀行似乎更符合成本效率，因為他們投入較少的資源進行放款篩選和徵信程序。因此，在短期內不良債權仍然不會受到影響，但從中期以後銀行會達到更高的風險程度，因此他們為管理未來的高風險必須額外購買必要的投入。以收入效率來說，短期利潤高通常是由於寬鬆信用篩選的成本縮減所致，這也將導致更高的未來風險。換言之，銀行可能受到誘惑為了彌補損失，因而提高的風險承擔以增加收入。

再者，Berger and DeYoung (1997)也提出了「運氣不佳」(Bad Luck)假說，根據外在總體環境的改變而加速銀行問題貸款的劇增，此與銀行管理能力或風險偏好無關，但這些增加風險會產生額外的成本與額外管理支出的付出。因此，根據此假說，本研究預期銀行的風險增加之前會出現成本和收入效率的下降。最後，Jeitschko and Jeung (2005)提出「道德危險」(Moral Hazard)假說並，指出銀行經理有誘因承擔更多的風險的動機，特別是當銀行資本水準低或銀行效率偏低時。道德危險可能出現在資訊摩擦和銀行經理與業主之間的代理問題，例如經理人所承擔的風險，其實將完全由股東所負擔；相反地，資本充足的銀行受到道德風險的誘因較少，並更可能採取降低成本的做法，例如股東可能會更積極地控制銀行的成本或資本分配。此外，金融監理機構也可以強制銀行以相應承擔的風險，增加一定數額的資本(Gropp and Heider, 2010)。風險程度較高之銀行，其應持有高於最低金融監理機構所要求的額外資本緩衝(Capital Buffers)。為避免短時間內發行新股票所產生的相關成本，因而金融監理機構會迫使高風險銀行持有更多的資本，銀行也能以增加投資組合的風險來因應(Peura and Keppo, 2006)。

三、研究方法

本研究為達上述研究目的，分別從「衡量銀行競爭程度：Boone 指標」、「估計銀行成本與利潤效率值」、「衡量銀行競爭對銀行效率的單向影響」、「衡量銀行競爭對銀行風險的單向影響性」、「拆解銀行競爭下銀行效率及風險之跨期動態關連性」以及「估計銀行風險值(Value-at-Risk)」等六部分詳細說明所採用之相關研究方法：

(一)衡量銀行競爭程度：Boone 指標

為檢驗透過效率管理競爭影響銀行的穩健性，本研究將銀行競爭視為效率的函數。

因此，我們引用新產業組織的觀點後，並修改由 Boone et al. (2005)與 Boone (2008)所提出的 Boone 指標來衡量樣本銀行的競爭程度。Boone 指標是基於效率-結構假說，即連結績效與效率差異的關聯性。根據此假設，本研究預期將會有更多高效率的銀行，即邊際成本低的銀行，吸收效率較差銀行的利潤，成就績效表現卓越的銀行，此效果在進入障礙減少且競爭活躍時更是顯而易見。因此，Stiroh (2000)與 Stiroh and Strahan (2003)基於 Boone 指標理論上的研究結果發現，當市場競爭增加時會使得相當數額的資產由低利潤銀行轉移到高獲利的銀行中。Boone (2008)理論分析指出重分配效應是一般激烈競爭的特徵，因而該指標可完整地衡量競爭程度。

然而，Boone 指標還具有其它重要的特色，即克服了傳統上衡量競爭程度所廣泛被採用的代理變數(Proxy)的缺點，例如 Herfindahl-Hirschman index (HHI)及前三大銀行集中比率(CR3)以銀行業集中度來作為銀行競爭的代理變數(Degryse et al., 2009)。值得注意得是 Boone 指標能夠捕捉銀行之間互動的競爭行為，但集中比率只能看出競爭的結果。舉例來說，激烈的競爭導致銀行退出或被併，從而提高銀行體系的集中度。然而傳統集中度衡量法將產生推論上的偏誤，因為高度集中往往被認為是缺乏競爭。Claessens and Laeven (2004)則指出集中度不是一個好的競爭代理變數。此外，其他文獻中廣泛使用的競爭衡量法如 Panzar and Rosse (1987)的 H 統計量，則需要嚴格假設銀行業處於長期均衡的市場狀態(Carbo et al., 2009; Goddard and Wilson, 2009)，但若使用 Lerner index 時將會有無法補捉產品存在替代性的問題(Vives, 2008)。Boone 模型的假設既不需要長期均衡的假設，也考慮到產品替代性的問題，其重點是在觀察市場上效率高的銀行如何利用其成本優勢促使利潤重分配。

有許多不同因素導致競爭增加時，例如進入成本降低時，市場上的銀行家數增多，銀行間的互動關係更活躍因而產生競價行為，或者銀行相對無效率，只要重新分配條件成立，該指標仍然有效。隨著行業競爭日趨激烈，個別銀行都有個一定程度的效率值，相對於那些效率較低的銀行，效率高的銀行其利潤會增加。參照 Boone et al. (2005) and van Leuvensteijn et al. (2007)的理論設定，本研究設定銀行的需求函數如下，銀行 i 生產產品組合 q_i：

$$(1) \qquad p(q_i, q_{j\neq i}) = a - bq_i - d\sum_{j\neq i} q_i$$

其中，c_i 即代表每家銀行 i 的邊際成本、參數 a 捕捉市場規模、b 表示市場需求彈性。此外，使用參數 d 來描述消費者在銀行市場中看到不同的產品替代品的程度。若存在 $a > c_i$ 和 $0 < d \leq b$ 的條件下，為實現利潤極大化目標則銀行 i 決定最佳產出水準如下：

$$(2) \qquad \pi_i = (p_i - c_i)q_i$$

因此，一階段均衡條件式表示為：

(3) $a - 2bq_i - d\sum_{j \neq i} q_i - c_i = 0$

假定銀行產業中共有 N 家銀行進行生產，第(3)式可改寫為：

(4) $$q_i(c_i) = \frac{\left[\left(\frac{2b}{d-1}\right)a - \left(\frac{2b}{d+N-1}\right)c_i + \sum_j c_j\right]}{\left[2b + d(N-1)\left(\frac{2b}{d-1}\right)\right]}$$

上述(4)式說明產出和邊際成本之間的關係，可以從(2)式看出在二次方程式中利潤將可取決於邊際成本的水準。若 π_i 是指不包括進入成本 ε 的利潤變量，則銀行只在 $\pi_i \geq \varepsilon$ 時才會進入市場。基於上述特性，競爭增加的原因有二：第一，由不同的銀行提供產品使替代品更為接近且更積極促使銀行間的互動競爭，即 d 增加(假設 $d < b$)；第二，當進入成本 ε 下降時，高效率企業在以下情況下績效獲得改善：假設利潤 π_i 和邊際成本 c_i 之間的關係是其斜率為負，則高的邊際成本意指在給定的價格下其邊際單位產出較少。此外，如果高邊際成本導致更高的價格，產量和市場份額都會減少(Boone, 2008)。因此本文以 Boone 模型作為估計銀行競爭程度的依據，實證模型設定如下：$\pi_{it} = \alpha + \beta \ln(c_{it})$。$\pi_{it}$ 是 i 銀行在時間 t 的利潤，β 是為 Boone 指標，c_{it} 表示邊際成本。由於實際上無法直接觀察到邊際成本，因此本研究使用平均成本作為邊際成本的代理變數。以 ROA 對平均成本進行迴歸估計，即可得知績效成果耗費多少成本。雖然在所有市場中成本增加都會導致利潤減少，但同樣增加的程度在市場競爭上則會導致利潤減少的幅度更大，因為若銀行存在效率偏低時此影響更為深遠。再者，該指標利用這個屬性衡量效率差異反映在績效差異的程度上，亦即該指標表示利潤減少是來自成本的無效率上。該指標非常適合作為效率函數中的競爭變數，因為成本低效率往往是在反映不好的貸款決策。例如，不好的貸款決策將帶來額外成本，加強拖欠借款人的徵信以及扣押和處分擔保品 (Berger and DeYoung, 1997)。

在本研究的實證模型設定中特別考量銀行異質性，因此包括銀行特質的影響變數，也考量競爭程度會隨時間的特性，以下為修正後的實證估計模型：

(6) $$\pi_{it} = \alpha_i + \sum_{t=1,\ldots,T} \beta_t d_t \ln(c_{it}) + \sum_{t=1,\ldots,T} \gamma_t d_t + \zeta_{it}$$

其中，π_{it} 表示為在時間 t 時銀行 i 的利潤佔總資產的比例，c_{it} 是平均變動成本，平均成本包括利息和人事費用，行政及其他營運費用。收入包括佣金及交易收入，利息收入，手續費收入及其他營運收入；d_t 是時間的虛變數，ζ_{it} 是誤差項。若銀行的邊際成本較低($\beta < 0$)時，則其利潤將增加。因此，在銀行競爭中高效率銀行的利潤將增加；若效果越強即較大的 β 絕對值，則競爭越激烈。

(二)估計銀行成本與利潤效率值

首先本文著重在成本效率的分析，因為 Boone 指標最初是在分析銀行績效的成本彈性。成本效率衡量了銀行在同樣的產出條件下(Berger and Mester, 1997)，如何使其成本最接近最佳執行成本。本研究依據 Schaeck and Cihák (2010)的研究，將銀行的成本函數設定為：$\ln(C) = f(w, y, E) + \ln \mu_c + \ln \varepsilon_c$。其中，C 為成本變數，w 是指投入的價格向量，y 則是產出的數量向量，E 表示的任何固定的淨投入數量(投入或產出)，μ_c 指一個無效率使成本增加超過銀行的最佳經營水準，ε_c 為隨機干擾項。成本效率介於 0 和 1 之間，數值愈大則表示成本效率愈高。要估計成本效率，本研究利用「隨機邊界法」(Stochastic Frontier Approach，SFA)將誤差項分解成兩部分：一是捕捉隨機干服從一「對稱常態分配」(Symmetric Normal Distribution)；二是在捕捉無效率(Inefficiency)為一「正向半常態分配」(Positive Half-Normal Distribution)。依據中介法(Intermediation Approach)分別使用效率前緣函數對每個樣本國家進行個別估計，成本函數中使用兩個產出量並設定為 Translog 型態如下：

$$
\begin{aligned}
(7) \quad \ln TC = {} & \alpha_0 + \sum_{i=1}^{3} \alpha_i \ln Y_i + \sum_{k=1}^{3} \alpha_k \ln W_k + \sum_{h=1}^{3} \alpha_h \ln E_h + \frac{1}{2} \sum_{i=1}^{3} \sum_{j=1}^{3} \delta_{ij} \ln Y_i \ln Y_j \\
& + \frac{1}{2} \sum_{k=1}^{3} \sum_{m=1}^{3} \gamma_{km} \ln W_k \ln W_m + \sum_{i=1}^{3} \sum_{k=1}^{3} \theta_{ik} \ln Y_i \ln W_k + \sum_{i=1}^{3} \sum_{h=1}^{3} \pi_{ih} \ln Y_i \ln E_h \\
& + \sum_{k=1}^{3} \sum_{h=1}^{3} \eta_{kh} \ln W_h \ln E_h + \frac{1}{2} \sum_{h=1}^{3} \sum_{n=1}^{3} \varphi_{hn} \ln E_h \ln E_n + \ln \mu_c + \ln \varepsilon_c
\end{aligned}
$$

其中，TC 為總成本、Y 表示總產出量即包括總放款、總收益與其他資產收入；W 為投入向量包括勞動(W1)、資金(W2)和其他營運成本(W3)；E 向量代表淨投入，包括固定資產(Y1)、呆帳準備(Y2)及權益資本(Y3)。為滿足標準同質性的條件，本研究旎將所有成本和投入價格除上勞動成本再除上權益資本後，藉以降低異質性和潛在偏誤的問題。

在估計銀行的利潤效率值方面，本研究依據 Fiordelisi et al. (2010)的模型設定，相似於成本函數設定將銀行的利潤函數設定為：$\ln \Pi = f(w, y, E) + \ln \mu_c + \ln \varepsilon_c$。其中，Π 為銀行利潤(收益)變數，w 是指投入的價格向量，y 則是產出的數量向量，E 表示的任何固定的淨投入數量(投入或產出)，μ_c 指一個無效率使成本增加超過銀行的最佳經營水準，ε_c 為隨機干擾項。同理，利潤效率也應介於 0 和 1 之間，數值愈大則表示銀行的利潤效率愈高。

(三)衡量銀行競爭對銀行效率的單向影響

本研究先初步衡量銀行競爭對銀行效率的單向影響，在銀行競爭提高銀行效率的假設前提下，探討效率透過銀行競爭增強銀行穩健度的管道。本研究估計以下 Panel Data 模型：

(8) $Eff_{i,j,t} = \alpha + \beta B_{j,t} + \delta X_{i,j,t-1} + \delta C_{j,t} + \varepsilon_{i,t}$

其中，$Eff_{i,j,t}$ 指 j 國家的 i 銀行在時間 t 的成本與利潤效率，本研究使用「隨機邊界法」(SFA)估計個別銀行的成本效率值。$B_{j,t}$ 是指 j 國家在第 t 年的 Boone 指標，X 是銀行特性的變數向量(Vextor)，C 是國家特性的變數向量，所有解釋變量都落遲一年。若 Boone 指標估計值較低時，則意謂銀行業競爭愈激烈，因此 Boone 指標和銀行效率之間存在反向關係。此外，本研究選擇影響效率的控制變數也包括市場佔有率，因為市場中較大的銀行可以收取較高的價格。以取對數總資產控制資產成長變化，包括資產成長率和資產成長率平方項，因為不斷擴大的銀行可能無法維持既有效率水準，因此成長和效率之間存在反向關係。其中，非線性二次項則主要說明成長效果可能會對積極發展的銀行存在不同的效果。

在國家變數方面，使用 HHI 指數來控制市場結構的效果(Cohen and Mazzeo, 2007)。Claessens and Laeven (2004)、Schaeck et al. (2009)及(Schaeck and Cihák, 2011)皆指出集中度不能被單獨視為一個競爭變數的代理，但集中度指標反而是對銀行績效結果具有獨立的影響性。因此，本研究以 Boone 指標捕捉競爭效果，同時也以 HHI 指標控制市場結構。其中用 HHI 指數比較不同的市場差異，也包括銀行體系的總資產取對數後的數值作為跨國間銀行產業規模的差異性(Breshanan, 1989)。最後，模型中考慮一個時間趨勢變數以捕捉監理環境的漸進變動，時間趨勢的計算是將當年度減去樣本期間的起始日期。

(四)衡量銀行競爭對銀行風險的單向影響性

本研究使用 Boone 指標以建立競爭如何的影響穩健度的假說，並使用 System GMM 方法之兩階段估計以下 Panel Data 模型：$Z_{i,j,t} = \alpha + \beta B_{j,t} + \gamma X_{i,j,t-1} + \delta C_{j,t-1} + \varepsilon_{i,j,t}$。其中，$Z_{i,j,t}$ 是衡量 j 國中銀行 i 在第 t 年下的穩健度，$_{j,t}$ 則是 j 國在第 t 年的 Boone 指標，X 和 C 分別是銀行和國家特質的變數向量，所有的解釋變數皆為落後一年；然而，C 向量包括全球樣本國家虛變數。若 Boone 指標為負時，則可解釋利潤從低效率銀行重分配到高效率銀行，且此影響有助於提升銀行的穩健度。本研究使用 Z-Score 以衡量個別銀行的穩健程度，其計算式如下所示：$Z = \frac{(ROA + E/A)}{\sigma_{ROA}}$。其中，ROA 是資產報酬率，(E/A)表示總權益佔總資產比率，σ_{ROA} 為資產報酬率的標準差。在全球樣本中本研究使用一個三年移動時間窗口來估計 σ_{ROA}，以求出分母變異的 Z-Score。Z-Score 結合銀行面

臨風險(以報酬的標準差衡量)時的緩衝資金(資本和利潤)，同時 Z-Score 也衡量實現報酬標準差的下降以因應權益減損。因此，較高的 Z-Score 意謂較低的破產機率，此法提供較槓桿分析更直接且衡量穩健度的較佳方法。

此外，本研究使用總資產取對數後的數值來控制銀行規模的差異性，大銀行經常受到「太大不能倒」(To-Big-To-Fail)的政策所保護，尤其是歐、美等國中已有多家銀行獲此政策援助而倖存。然而，資產成長也會受到風險偏好的影響，因此，假設高度多角化的銀行則較無誘因願意承擔過量的風險，本研究採用 Laeven and Levine (2007)提出的計算銀行多角化指數來控制多角化，計算公式定義為：$1-\left|\frac{\text{淨利息收入}-\text{其它營業收入}}{\text{總營業收入}}\right|$。再者，本研究使用呆帳費用佔總資產的比例來衡量資產品質，HHI 指數反映包括集中度和競爭衡量銀行業不同的特質，以總銀行業資產對數來代表市場規模的影響，並加入總體經濟環境特性，包括每人 GDP 取對數和失業率來控制跨國間的差異性。

(五)拆解銀行競爭下銀行效率及風險之跨期動態關連性

本研究參酌 Fiordelisi et al. (2010)的實證模型設定，使用 Granger (1969)所提出 Granger 因果檢定方法(Granger Causality Approach)銀行競爭、風險、效率的關係，此法可允許檢驗研究變數在特定期數與指定影響關係。Granger 因果檢定方法已經相當廣泛被使用在經濟研究 Jaeger and Paserman, 2008; Assenmacher-Wesche and Gerlach, 2008)，特別是銀行的實證研究上(Berger and DeYoung, 1997; Williams, 2004; Casu and Girardone,2009; Fiordelisi and Molyneux, 2010)。因此，考量銀行競爭僅對銀行個別風險與效率存在單向影響性下，本研究採用「追蹤資料向量自我迴歸模型」(Panel VAR) 拆解風險與效率之跨期動態關係(Intertemporal Dynamic Relationships)，其實證模型設定如下：

$$\begin{cases} (9)\quad Risk_{i,j,t}=\alpha_{i,t}+\sum_{p=1}^{n}\alpha_p\times Risk_{i,j,t-p}+\sum_{q=0}^{n}\alpha_q\times Eff_{i,j,t-q}+\sum_{r=0}^{n}\alpha_r\times Boone_{j,t-r}+\sum_{s=0}^{n}\alpha_s\times Z_{i,j,t-s} \\ \qquad\qquad +\sum_{u=0}^{n}\alpha_u\times C_{j,t-u}+\Psi_{j,t} \\ (10)\quad Eff_{i,j,t}=\beta_{i,t}+\sum_{p=1}^{n}\beta_p\times Eff_{i,j,t-p}+\sum_{q=0}^{n}\beta_q\times Risk_{i,j,t-q}+\sum_{r=0}^{n}\beta_r\times Boone_{j,t-r}+\sum_{s=0}^{n}\beta_s\times Z_{i,j,t-s} \\ \qquad\qquad +\sum_{u=0}^{n}\beta_u\times C_{j,t-u}+\Psi_{j,t} \end{cases}$$

其中，$Risk_{i,j,t}$ 與 $Eff_{i,j,t}$ 分別表示為銀行 i 在國家 j 中第 t 年的風險與效率值，(9)與(10)式表示銀行風險與效率間呈現一跨期動態的互動關係，主要同時受到以下銀行競爭、銀行特性、國家差異變數之當期與落遲影響：銀行風險變數自我落遲 p 年($Risk_{i,j,t-p}$)、當

期銀行效率($Eff_{i,j,t}$)及銀行效率變數自我落遲 q 年($Eff_{i,j,t-p}$)、當期第 j 國家其銀行競爭 Boone 指標($Boone_{j,t}$)及其銀行競爭 Boone 指標變數自我落遲 r 年($Boone_{j,t-r}$)、當期銀行特性的控制變數($Z_{i,j,t}$)及其自我落遲 s 年變數($Z_{i,j,t-s}$)、當期第 j 國家之國家特性控制變數($C_{j,t}$)及其自我落遲 u 年變數($C_{j,t-u}$)，$\Psi_{j,t}$ 表示為國家差異下隨機誤差項(Random Error Term)。在(9)式中的風險變數不僅使用 Z-Score (Berger et al., 2009)、風險性資產佔總資產比率、總權益佔總資產比率、逾期放款比率(Berger et al., 2009)，也採用 Laeven and Levine (2009)所提出銀行風險承擔的代理變數：ROA 標準差(利用三年移動平均計算 ROA 標準差)、權益波動(利用三年移動平均計算權益淨值的標準差)、盈餘波動(利用三年移動平均計算稅前盈餘帳面價值的標準差)等。然而，個別銀行特性的控制變數(Z)包括：總資產取對數值、第一類核心資本比率、總資本比率、收益(資產)多角化比率(前一節已定義之)、淨利息收入佔總營運收益比率(Berger and Bonaccorsi di Patti, 2006)、銀行放款集中度 HHI 指數等。最後，本研究格外針對上市銀行樣本的市場風險進行評估，因此特別使用新巴賽爾資本協定(Basel II)對銀行市場風險(Market Risk)建議採用風險值(VaR)，此方法可以評估銀行的「下方風險」(Downside Risk)，即在既定信賴水準下銀行所面對的最大損失風險，詳細計算過程說明如下一節中。

依據過 Salas and Saurina (2003)、Yildirim and Philippatos (2007)及 Brissimis et al. (2008)所使用的國家總體變數，(9)與(10)式中個別國家特性變數(C)涵蓋：每年實質 GDP 成長率(控制景氣循環效果)、每人實質 GDP 取對數值(捕捉跨國間國民所得水準的差異性)、貨幣市場利率(控制貨幣市場政策改變的影響性)、以及人各國口密度等。最後，本研究也考慮使用由世界銀行所編制「國家自由度」(Country Freedom)(包括經濟、財政、貨幣、金融等面向)與「國家機構治理品質」(Country Goverances and Institutions)(包括政治穩定、監管品質、國家透明度、政府效能等面向)。同時，也使用 Barth et al. (2001, 2004)所編制跨國金融監理指標，包括存款保險、金融監理執行力、金融審計與內控規範、銀行倒閉清算制度、外國銀行進入障礙程度等)。

在估計方法方面，本研究在實證估計 Panel VAR 模型前，需使用 Panel Unit Root Test(單根檢定)以認定研究變數是否具定態(Stationarity)，未避免樣本存在 Survivorship 偏誤問題，本研究篩選研究樣本時皆包括存續與倒閉銀行家數，因此最終樣本資料結構預期呈現為 Unbalanced Panel 型態。估計此資料型態的特性，僅 Maddala and Wu (1999)所提出 Panel 單根檢定方法可用。接著，依據 AIC 與 BIC 準則決定的銀行風險與效率之個別最適落遲期數，針對銀行競爭及國家特性變數則依據 Fiordelisi et al. (2010)與 Casu and Girardone (2009)研究發現，採用落遲兩年(t-2)作為上述(9)與(10)式的外生變數(Exogenous Variables)。

其次，在 Granger 因果檢定法方面，延伸 Casu and Girardone (2009)的研究設定，本研究假定銀行效率與風險最適落遲期數皆為 P 期，則兩變數的自我相關落遲項為

AR(P)的過程，Granger 因果關係則聯合檢定(Joint Test)虛無假說中落遲 P 期的自我落遲項決定因素的統計量為具 P 自由度的卡方檢定量(Chi-square statistics)。若卡方檢定量的 P 值機率小於 10%，則拒絕虛無假設之銀行風險(效率)對銀行效率(風險)具 Granger 因果關係；同時本研究也評估銀行風險(效率)對銀行效率(風險)具 Granger 因果關係的長期效果(Long-Run Effect)，即檢定所有落遲項係數加總為零假設檢定。但是，使用自身落遲項(Lagged Dependent Variable)作為估計模型的被解釋變數，可能因此自身落遲項與隨機干擾項之間具高度相關性而引在估計偏誤的發潛問題。為了處理這個計量問題，本研究採用由 Arellano and Bover (1995)與 Blundell and Bond (1998)所提出 System GMM 兩階段法來估計此動態縱橫資料模型(Dynamic Panel Model)；同時，也採用 Windmeijer (2005)提出「漸進標準誤」(Asymptotic Standard Errors)來修正兩階段 GMM 法的估計式在小樣本推計下標準誤產生嚴重低估的問題。採用 Stata 統計軟體當中由 Roodman (2006)所提供的 xtabond2 指令，以 System GMM 方法進行估計，並進行 AR(2)檢定及 Hansen 檢定。

(六)估計銀行風險值(Value-at-Risk)

自 1996 年巴塞爾金融委員會的首次倡議後，風險值(Value-at-Risk, VaR)已經成為全球金融機構衡量其市場風險暴露與金融管理當局監督其金融體系風險上具相當標準化的風險管理構想。依據 Jorion (2006)的定義，風險值指在既定信賴水準之下，金融機構於特定持有期間內面臨最大可能的損失金額。然而，不同的估計模型可產生不同的風險值，因此估計模型的選擇對金融機構而言是相當重要的。

1.非參數估計法

(1)歷史模法(Historical Simulation)

歷史模法是一個相當基本且為一非參數法的估計方法，此法基本上使用過去銀行實際的交易收益(Trading Revenues)資料，藉以估計並預測未來潛在交易收益的變動(Christoffersen, 2004; Pritsker, 2006; Campbell, 2006; Jorion, 2006)。實證估計的作法則將過去實際交易收益假定一特定機率分配，例如在過去 500 個交易日中 1%信賴水準下的最小的交易收益，即第 5 筆交易值。

(2)蒙地卡羅模法(Monte-Carlo Simulation)

蒙地卡羅模法為假設銀行交易收益的變動服從某一種隨機過程的路(process)，藉由電腦的模數千或萬次，產生多種可能的價格路徑，並以此分配進而推估銀行的風險值。基本上，蒙地卡羅模法是基於「大數法則」的實證分析，當模的次數愈多，其平均值則愈趨近於理論值。因此本研究將銀行交易收益的變動假定為服從「幾何布朗運動」

(Geometric Brownian Motion)的隨機過程(Stochastic Process)，其連續時間型態如下：

(11) $dS_t = \mu S_t dt + \sigma S_t dw$

(12) $\frac{dS_t}{S_t} = \mu dt + \sigma dw$

其中，為第 t 期銀行交易收益的瞬間報酬率，t dS 為銀行交易收益報酬率在很短時間內的變化量，參數μ 為每單位銀行交易收益報酬率的平均數，參數σ 為每單位銀行交易收益報酬率的標準差，通常假定μ 與σ 為固定的常數，並不隨時間改變。dw 為符合幾何布朗運動的隨機變數，並服從常態分配的特性，dw ~ iidN(0,dt)。因此，dw = ε dt ，所以銀行交易收益的瞬間報酬率可以改寫為：

因此，預測第 t+1 期銀行交易收益可表示為： 1 ( ) t t t t t S S dS S S dt dt + = + = + μ +σε 。

2.參數估計法法

(1)指數加權移動平均法(RiskMetrics™: EWMA)

Riskmetrics™ (1996) 基於指數加權移動平均法(Exponentially Weighted Moving-Average method, EWMA)法且在 Engle (1982)的 ARCH (∞)條件下，發展出以條件變異數與共變異數來估計風險值。此法結合第 t-1 期條件變異數與第 t-1 期非條件股價報酬衝擊，來預測第 t 期條件變異數。EWMA 模型設定如下：

(14) $h_t = \delta h_{t-1} + (1-\delta) R_{t-1}^2$

其中，δ 為一衰退參數(decay parameter)。依據 Riskmetrics™ 的實務建議，本研究將δ 設定為 0.94。

(2)一般化自我迴歸條件異質變異數模型(GARCH)

實證基本模型以 Bollerslev (1986)設定為 GARCH (1,1)，並使用 GJR-GARCH (Glosten et al., 1992)、EGARCH (Nelson, 1991)以及 PGARCH (Ding et al., 1993)來估計並預測風險值，各模型的基本設定如下：

① GARCH

Bollerslev (1986)將 ARCH (p)一般化成如下 GARCH (p, q)的模式：

(15) $R_t = \omega + \varepsilon_t$,

(16) $h_t = c + \sum_{i=1}^{p} \alpha_i R_{t-i}^2 + \sum_{j=1}^{q} \beta_j h_{t-j}$

當 p=1 時，則充分條件為$c > 0$ 、$\alpha_i > 0$與$\beta_j \geq 0$，以確保條件變異數為正數($h_t > 0$)。其中 ARCH (α_1)效果捕捉短期持續衝擊，而 GARCH (β_1)指出長期衝擊持續性($\alpha_1 + \beta_1$)的分配。

② GJR-GARCH

Glosten et al. (1992)擴展 GARCH 模型，以捕捉可能存在於經由負債權益比率在相同條件變異下所產生正向衝擊與負向衝擊的「不對稱性」(Asymmetries)，模型設定如下：

(17) $R_t = \omega + \xi_t$

(18) $h_t = c + \sum_{i=1}^{p} \alpha_i R_{t-i}^2 + \lambda I(\eta_{t-1}) R_{t-1}^2 + \sum_{j=1}^{q} \beta_j h_{t-j}$

其中，$I(\eta_{t-1})$ 為指示變數(Indicator Variable)被定義為：當 $R_{t-1}^2 \leq 0$，則 $I(\eta_{t-1}) = 1$；反之，當 $R_{t-1}^2 > 0$，則 $I(\eta_{t-1}) = 0$。其充分條件存在於當 $p = 1$ 時，則 $c > 0$、$\alpha_1 > 0$、$\alpha_1 + \lambda_1 > 0$ 以及 $\beta_1 \geq 0$，以確保條件變異數為正數($h_t > 0$)。當 $\lambda_1 > 0$ 時，則存在不對稱效果，即發生短期衝擊 $\left(\alpha_1 + \frac{\lambda_1}{2}\right)$ 與長期衝擊 $\left(\alpha_1 + \beta_1 + \frac{\lambda_1}{2}\right)$ 的不對稱性。

③ Exponential GARCH (EGARCH)

Nelson (1991)首先提出指數 GARCH 模式(簡稱 EGARCH)，其結構式定義為：

(19) $R_t = \omega + \upsilon_t$,

(20) $$\log(h_t) = c + \sum_{i=1}^{p} \alpha_i \left| \frac{R_{t-i}}{h_{t-i}} \right| + \sum_{m=1}^{r} \delta_m \left(\frac{R_{t-m}}{h_{t-m}} \right) + \sum_{j=1}^{q} \beta_j \log(h_{t-j})$$

相較於其他 GARCH 模式，EGARCH 模式不需要參數的限制式以確保條件變異數為正數；再者，EGARCH 的設定可以捕捉多樣化條件限制，例如，負向衝擊大於正向的衝擊效果。

④ Power GARCH (PGARCH)

Ding et al. (1993)將 Taylor (1986)與 Schwert (1989)的模式一般化後，將模型設定如下：

(21) $$R_t = \omega + \varsigma_t ,$$

(21) $$\sigma_t^{\lambda} = c + \sum_{i=1}^{p} \alpha_i \left(\left| R_{t-i} \right| - \delta R_{t-i} \right)^{\lambda} + \sum_{j=1}^{q} \beta_j \sigma_{t-j}^{\lambda}$$

其中，λ 為指數參數且可以被模型所估計，δ 被加入到模型中以捕捉不對稱的衝擊效果。Ling and McAleer (2002)推導出 PGARCH 的必要與充分條件，並指出 PGARCH 使用非條件而非傳統 GARCH 條件標準化衝擊。

⑤ Copulas VaR

本研究使用「關聯結構方法」(Copulas approach)來評估考慮銀行交易收益來自外匯、利率、股票等計算上市銀行樣本的風險值。關聯結構方法(Copulas)可以聯合估計外匯、利率、股票等下所形成的投資組合，藉由蒙地卡羅模條件機率分配以估計銀行的風險值。

假定 n 維度的關聯結構函數具多變量機率密度(C)，均等機率值介於 0 與 1 之間(Nelsen,1999)，其中，C 滿足$[0,1]^n \rightarrow [0,1]$ 且第 i 個機率密度函數滿足 $C_i(u)=C(1, \ldots, 1, u, 1, \ldots, 1)= u$，滿足所有 u 介於[0,1]。依據 Skaler's Theorem 理論，關聯結構函數可由多組邊際機率反函數所構成，即 $C(u_1,\cdots,u_n) = F\left(F_1^{-1}(u_1),\cdots,F_n^{-1}(u_n)\right)$，其機率密度函數可以表示為：

(22) $$f(x_1,...,x_n) = c(F_1(x_1),...,F_n(x_n)) \cdot \prod_{i=1}^{n} f_i(x_i) \text{ ，其中 } c(u_1,...,u_n) = \frac{\partial^n C(u_1,...,u_n)}{\partial u_1 ... \partial u_n}$$

目前一般常用的關聯結構函數主要以 Gaussian 與 Student 分配的關聯結構函數兩種(Dowd, 2002)，其函數型態分別為：

Gaussian Copulas

$$(23)\quad C^{Gu}(u,v)=\int_{-\infty}^{\theta^{-1}(u)}\int_{-\infty}^{\theta^{-1}(v)}\frac{1}{2\Pi(1-\rho^2)^{0.5}}\exp\left\{-\frac{s^2-2\rho st+t^2}{2(1-\rho^2)}\right\}dsdt$$

Student-Copulas (degree of freedom= v)

$$(24)\quad C_v^t(u,v)=\int_{-\infty}^{t_v^{-1}(u)}\int_{-\infty}^{t_v^{-1}(v)}\frac{1}{2\Pi(1-\rho^2)^{0.5}}\exp\left\{1+\frac{s^2-2\rho st+t^2}{v(1-\rho^2)}\right\}^{\frac{-(v+2)}{2}}dsdt$$

本研究基本上運用 Gaussian 與 Student 分配的關聯結構函數，考慮全球上市銀行其外匯、利率、股票等下所形成的投資組合後，以進行風險值的估計。

(四)樣本資料

實證銀行樣本對象收集自 BankScope 資料庫中涵蓋所有存續與倒閉之上市與非上市銀行的財務資訊與信用評等資料，先剔除財務資訊缺漏的整體樣本家數；使用 Datastrem 資料庫收集上市銀行的每日收盤股價歷史資料，以計算樣本上市銀行的風險值。同時，國家總體特性變數則收集自世界銀行的 WDI (World Development Index)資料庫。

(五)實證結果

首先，就 Z-Score 值來看，圖 1 顯示儲蓄銀行相較於商業銀行平均表現較低的風險分配分佈，且在 2003 年至 2007 年間有穩定上升的情形。其次，從銀行效率的分配來看，圖 2 顯示商業銀行與儲蓄銀行的成本效率分配相近，但整體來看合作銀行的成本效率值低於商業與儲蓄銀行；再者，三者在利潤效率的分配圖上顯示相當集中的情形。從長期觀點視之，圖 3 指出不論成本或利潤效率皆表現穩定下降的趨勢，意謂過去 10 年間全球銀行的經營績效呈現下滑的情形；基本上，合作銀行表現較低的成本效率，而儲蓄銀行表現較低的利潤效率。最後，表 1 為樣本銀行國家層級的個別年度競爭程度 Boone 指數的估計結果，整體結果呈現高的統計顯著性，部分國家因樣本數不足無法估計。表 2 為 Z-Score 值、成本效率、利潤效率的個別年度平均值，結果顯示成本或利潤效率都出現穩定下降的情況。表 3 為上市銀行風險值(VaR)個別年度的平均值，結果指出參數法下的 GJR-GARCH 模型不論在 99%、95%、90%信賴水準下皆估計出較大最大損失值。

表 4 為 Z-Score 值、成本效率、利潤效率的最適落遲期數的選擇，從 AIC 與 BIC 估計值來看指出 Z-Score 值、成本效率、利潤效率的最適落遲期數為 2 年的結果。基於此結果，本研究進一步估計 Panel VAR 估計，檢驗銀行競爭對風險與效率關係的影響。表 5 估計中，成本效率結果指出 Z-Score 值與成本效率與自身落遲期數密切相關，當銀行前一年成本效率愈高，則顯著降低當期的銀行風險，但此相反的效果卻發生在前兩年的情況；再者，銀行前一年風險愈低則不利於當期成本效率，但是前兩年風險愈低，則顯著提高當期成本效率。前一年競爭程度愈高則顯著提高當期銀行風險，同時也會降低銀行當期的成本效率。

(六)結論

本計畫採用新產業組織觀點來回答這些研究問題。使用涵蓋 1992 至 2010 年的全球銀行年資料首先，並運用 Boone (2008)理論架構估計樣本國家其銀行市場競爭程度，以探討跨國銀行競爭程度差異對銀行風險的單向影響性，以及分析跨國銀行競爭程度差異對銀行效率的單向影響性。在考量銀行競爭僅對銀行個別風險與效率存在單向影響性下，採用「Granger 因果檢定法」(Granger Causality Approach)與「追蹤資料向量自我迴歸模型」(Vector Autoregression for Panel Data Model, Panel VAR)探討銀行風險與效率之跨期動態關係(Intertemporal Dynamic Relationships)，並拆解跨國銀行競爭程度變動對銀行風險及效率的衝擊。儲蓄銀行相較於商業銀行平均表現較低的風險分配分佈，且在 2003 年至 2007 年間有穩定上升的情形。不論成本或利潤效率皆表現穩定下降的趨勢，意謂過去 10 年間全球銀行的經營績效呈現下滑的情形；基本上，合作銀行表現較低的成本效率，而儲蓄銀行表現較低的利潤效率。成本效率結果指出 Z-Score 值與成本效率與自身落遲期數密切相關，當銀行前一年成本效率愈高，則顯著降低當期的銀行風險，但此相反的效果卻發生在前兩年的情況；再者，銀行前一年風險愈低則不利於當期成本效率，但是前兩年風險愈低，則顯著提高當期成本效率。前一年競爭程度愈高則顯著提高當期銀行風險，同時也會降低銀行當期的成本效率。

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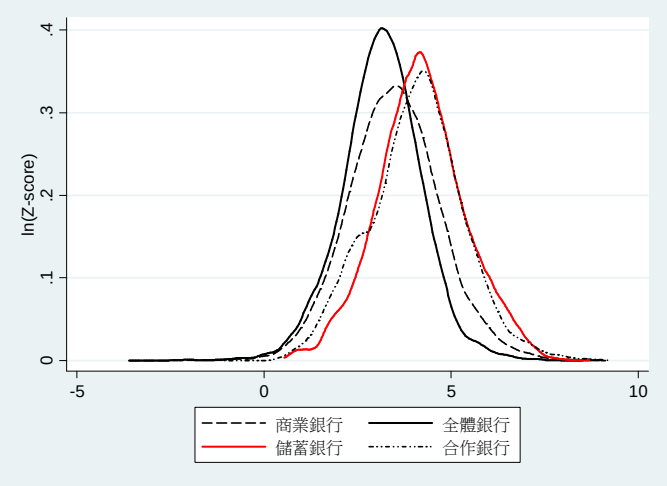
(1)分配



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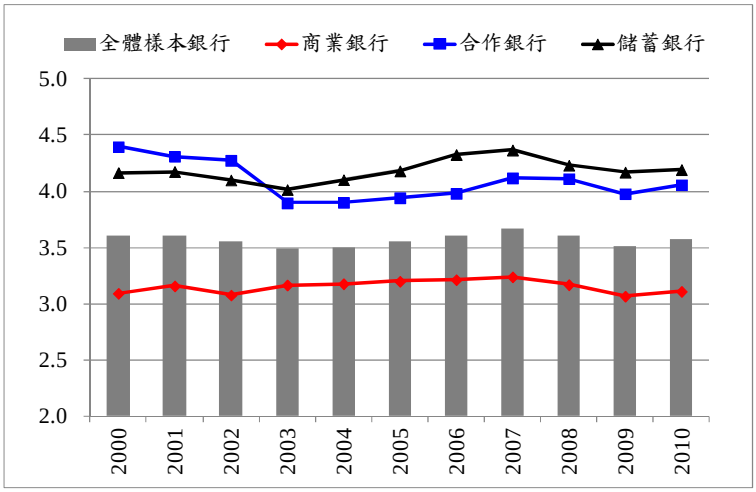
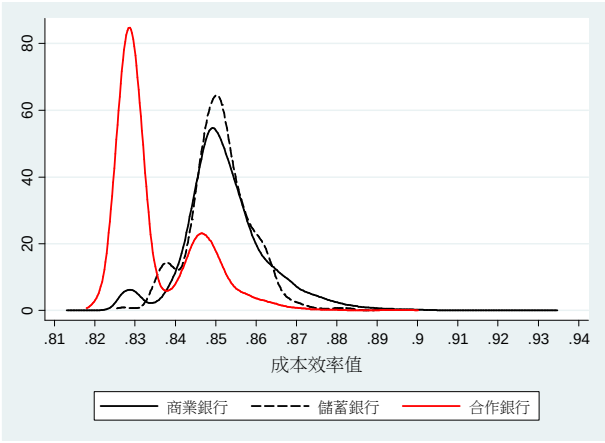


圖 1、不同類型銀行 Z-Score 值

(1)成本效率值



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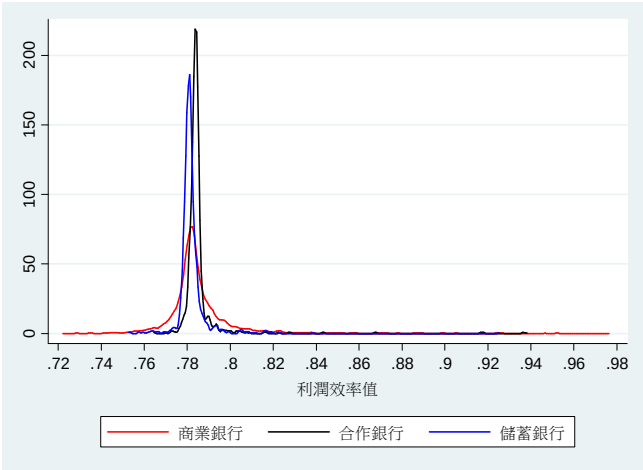
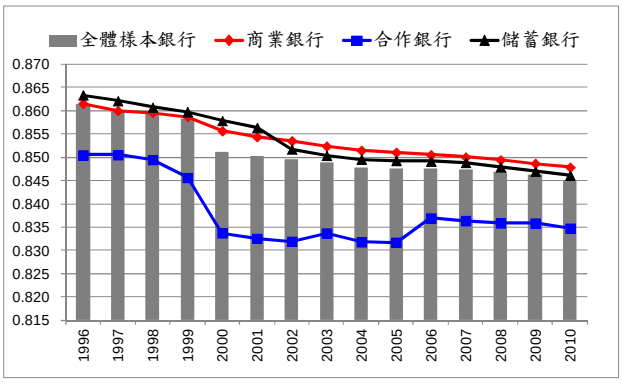


圖 2、不同類型銀行效率值之分配

(1)成本效率值



(2)利潤效率值

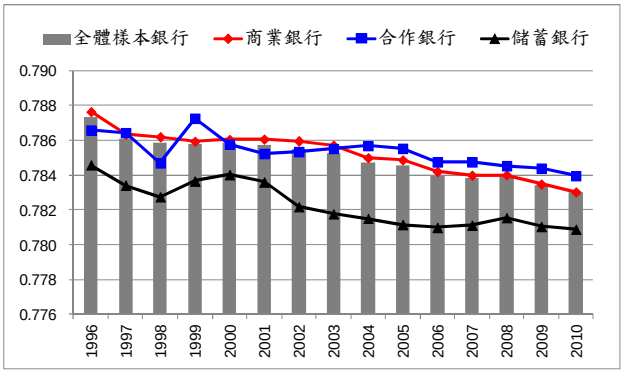


圖 3、不同類型銀行效率值之時間趨勢變化

表 1、銀行競爭 Boone 指數估計結果(1996 年至 2010 年)

國家	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	樣本數
ALBANIA			-0.006114***	-0.017190**	-0.021695***	0.008271*	-0.000741	-0.031087***	-0.013915***	-0.038710***	-0.027509***	-0.035850***	-0.023280***	-0.024435***	-0.026428***	86
ALGERIA	-0.003656	-0.005205**	-0.005911***	-0.009187***	-0.007758***	-0.007868**	-0.010748***	-0.002736	-0.013946*	-0.008141	0.010532*	-0.010120*	-0.004655	-0.006744	-0.117034*	110
ANGOLA		-0.051114***	-0.050326***	-0.033322***	-0.023822***	0.002903	-0.009510	-0.040433***	-0.056310**	-0.046719***	-0.046708***	-0.018045***	-0.014973	-0.036005**	-0.031072***	117
BARBUDA	-0.000176	0.003683	0.024313*	-0.022934***	-0.062125***	0.000377	0.088248***	-0.030856	-0.029996	-0.015435	-0.057113*	-0.008609	-0.040479			49
ARGENTINA	-0.206200***	-0.051033**	-0.060429**	-0.060313***	-0.058383**	-0.059247***	-0.054935***	-0.050449***	-0.032447***	-0.056482***	-0.041194***	-0.034598***	-0.027358***	-0.019030*	-0.014432***	1005
ARMENIA	-0.062683***	-0.031350	-0.031526***	-0.034726***	-0.018802***	-0.012550	-0.026897	-0.047264***	-0.046787**	0.200016***	-0.070484**	-0.042129**	-0.032721***	-0.035697**	-0.022710***	153
AUSTRALIA	-0.004341	-0.066356***	-0.047509***	-0.018918**	-0.063274***	-0.087723***	-0.061430***	-0.072964***	-0.011836***	-0.006372**	-0.008973***	-0.008975***	-0.003831***	-0.006863*	-0.003092***	325
AUSTRIA	-0.012375**	-0.014922**	-0.005288**	-0.007469**	-0.004798**	-0.002379**	-0.005625	-0.009934*	-0.012608	-0.010234*	-0.011608**	-0.005132***	-0.005976***	-0.005133**	-0.002857***	1909
AZERBAIJAN	-0.040032	-0.053128***	0.052593*	-0.035936	-0.174808**	-0.056699***	-0.001039	-0.033280**	-0.040538**	-0.045895**	-0.047366**	-0.060455*	-0.015799***	-0.014488	-0.034206***	173
BAHAMAS	-0.003787***	-0.046496**	-0.035582**	-0.046094***	-0.057387**	-0.057603**	-0.010330	-0.024543***	-0.018000*	-0.022808**	-0.019390***	-0.040540***	-0.002997*	-0.045431**	-0.004910	274
BAHRAIN	-0.028121***	-0.026280***	-0.028174**	-0.039693***	-0.047319***	-0.061601***	-0.074486***	-0.024085***	-0.072140***	-0.078383***	-0.051672***	-0.046904***	-0.058885***	-0.056257***	-0.063770***	329
BANGLADESH	-0.010072***	-0.014820***	-0.012374***	-0.008253***	-0.010827***	-0.010073***	-0.010608***	-0.010014***	-0.027229	-0.005330	-0.012274***	-0.008353***	-0.012574***	-0.008146***	-0.004718	301
BARBADOS	-0.011782***	-0.010108**	0.046220	0.027425	0.005104	0.122439	0.130501	0.111666***	-0.017919**	-0.010120***	-0.034145	-0.010203	0.002989	-0.069449***	-5.081105***	51
BELARUS	0.000390***	0.006647***	0.005103***	-0.013964***	-0.202862***	-0.093447	-0.045482	-0.066529*	-0.010349	-0.064432	-0.037401	-0.054175***	-0.046334*	-0.025460	0.068575	81
BELGIUM	-0.058485**	-0.008555***	-0.022753***	-0.007220***	-0.054100	-0.028723*	-0.005896	-0.007841*	-0.014828***	-0.011753***	-0.020078**	-0.009059***	-0.013916	-0.014510***	-0.012897*	657
BELIZE	0.112099	0.348516	0.711832	-0.070672*	-0.027779***	-0.026485*	-0.090945***	-0.078772**	-0.062938**	-0.016961*	-0.012797	0.032199***	-0.055840**	-0.137475***		52
BENIN	-0.003663	-0.054884**	0.007920***	0.112818	-0.056134***	-0.178946**	-0.009657	-0.053283	-0.046955***	-0.021298***	-0.058988***	-0.014447	0.001988	-0.041079***	-0.013826***	62
BERMUDA	-0.004167**	-0.032762**	0.006469**	-0.020717***	-0.088767***	-0.125049***	-0.089510*	-0.102015**	-0.061030***	-0.062078***	-0.082555***	-0.041095***	-0.026753**	-0.023541	-0.078822	135
BOLIVIA	-0.003613	-0.008234	-0.054671	-0.068585	0.166176*	-0.011141	0.003184	-0.006434	-0.027867	-0.033039*	-0.021528***	-0.012621	-0.025212*	-0.000588	-0.002937	164
BOSNIA	0.016850***	0.013966***	0.000523	-0.161650*	-0.042454***	-0.017145**	-0.018897***	-0.013970***	-0.017771**	-0.017660*	-0.100029	-0.009828	0.012087	-0.016405	-0.045761*	204
BOTSWANA	-0.020179	-0.029536***	-0.048237	-0.011964	-0.031128	0.013086	-0.016495	0.016715	-0.008305	-0.072500	-0.093298**	0.002572	-0.107555***	-0.050124***	-0.043902***	81
BRAZIL	-0.042753**	-0.032959**	-0.029725***	-0.041814***	-0.019787***	-0.011280***	-0.038394***	-0.022338***	-0.019518***	-0.030047***	-0.026167***	-0.019517***	-0.009912***	-0.015916***	-0.012878***	1820
BRUNEI		-0.019478***		-0.007748***	-0.014128***	-0.010512***	-0.006835***	-0.004019	-0.005661	-0.003824	-0.007095	-0.001902				32
BULGARIA	-0.010887	-0.049975	-0.058809***	-0.021602**	-0.037044***	-0.030246***	-0.031274***	-0.023188***	-0.008169	-0.024072*	-0.062543***	-0.037409***	-0.015373**	-0.015506***	-0.167363***	188
BURKINA FASO	-0.056397***	-0.063855***	-0.046123***	-0.035205***	-0.025750	-0.042194***	-0.045966	-0.057460***	-0.122385***	-0.049159***	-0.076471***	-0.056843***	-0.031566	-0.062831***	-0.125272***	86
BURUNDI	-0.053397***	0.006590***	0.057181***	0.006416***	-0.015030***		-0.019060*	0.011268	-0.027250***	-0.026877**	0.016614***	-0.095472***	-0.040302**	-0.069558***	-0.056325***	43
CAMBODIA					-0.019873*	0.216180***	-0.001790***	-0.004616	-0.014061***	-0.034403***	-0.065747**	-0.007736	-0.037913**	0.014109	-0.032850***	71
CAMEROON	-4.715451***	-0.455565***	-0.056886**	-0.009406	-0.318867	-0.027688	-0.021245	-0.092259	-0.027262	0.004493	-0.013259	-0.007944**	-0.022044***	-0.005715*	-56.964682***	83
CANADA	-0.006353	-0.017622***	-0.009872***	-0.007311**	-0.007485**	-0.007402	-0.010425***	-0.020904***	-0.016938	-0.024690***	-0.023302***	-0.019103***	-0.015384**	-0.023322*	-0.014976**	738
CAYMAN	-0.011665	-0.023309*	-0.006963**	-0.004883***	-0.007642***	-0.013038**	-0.009785	-0.004904*	-0.000277	-0.004231**	-0.010422	-0.005477***	-0.002835**	-0.004377**	-0.002687	243
CHAD		4.917812***	0.018726***	0.007559***	-0.001985***	0.010062			-0.075264***	0.007223	-0.041216	-0.023767	0.061683**	0.012835		35
CHILE	-0.030527**	-0.018356	-0.023665*	-0.019530**	-0.020877***	-0.024419**	-0.004127	-0.003313	-0.058790	-0.038844	-0.043692	-0.080447***	-0.060576	-0.070554***	-0.039475***	150
CHINA	-0.010477***	-0.005679**	-0.003113	0.002793	0.007913	-0.003925***	-0.001390**	-0.011577**	-0.014397***	-0.016382**	-0.003968***	-0.008218**	-0.026127*	-0.019568*	-0.007629***	738
COLOMBIA	-0.017186***	-0.013407***	-0.034082***	-0.026017**	-0.046802***	-0.037674***	-0.041123**	-0.044396**	-0.055583***	-0.039118	-0.052943***	-0.026130***	-0.026242***	-0.074680***	-0.047117***	401
CONGO					0.124247	-0.016699	0.001988***	-0.024542	0.000164	-0.074773	-0.029171	-0.035463***	0.002007	-0.090115	-0.016653***	51
COSTA RICA	0.020482**	0.063053*	0.015708	-0.001900	-0.023798***	-0.031121***	-0.056709**	-0.051568***	-0.029783***	-0.047830***	-0.066259***	-0.046889***	-0.028021***	-0.019665***	-0.024874**	379
CROATIA	-0.013758	-0.038444**	-0.028410**	-0.037394***	-0.020247***	-0.026878***	-0.031613***	-0.011286**	-0.029028**	-0.023039***	-0.015931**	-0.024951***	-0.024950***	-0.027530***	-0.001369	327
CUBA		-0.030559***	-0.015317*	-0.024052***	-0.005289	-0.004459	-0.006849	-0.005693	0.000008	-0.007417	-0.008783	-0.004702	-0.009656**	0.003992	-0.003633***	54
CYPRUS	-0.002492***	-0.003033**	-0.002700***	-0.008906***	-0.029885***	-0.010523	-0.055001	-0.011215	-0.012050*	-0.005895*	-0.009031	-0.001202	-0.001955	-0.097324***	-0.021519***	198
CZECH REPUBLIC	-0.015007*	-0.063159	-0.009432*	0.014505	-0.001142	-0.002773	-0.031617	-0.013480**	-0.003827	-0.013409	-0.046031***	-0.063222	0.023013	-0.020558	-0.022242**	227
DENMARK	-0.011209**	-0.009815**	-0.004430***	-0.004328***	-0.005570***	-0.008970	-0.010165*	-0.011607***	-0.005833***	-0.011402***	-0.019099**	-0.008624***	-0.010519**	-0.010283**	-0.003109	1014
DOMINICAN	-0.021011*	-0.043470***	-0.008245	-0.024913**	-0.043566*	-0.012381	-0.053905***	-0.016770**	-0.021025	-0.025195*	-0.085954*	-0.056445***	-0.057980***	-0.019375**	-0.044913***	349
ECUADOR	-0.005640	-0.005972	-0.013855***	-0.003219	-0.134707	-0.061202	-0.091972***	-0.246090	-0.032896	-0.022769	-0.034382	-0.114186***	-0.025163***	0.001947	-0.012370	282
EGYPT	-0.020621***	-0.026066***	-0.026504***	-0.029751***	-0.017877***	-0.005513	-0.015226***	-0.012476***	-0.010988***	-0.028633*	-0.038502***	-0.031502**	-0.034567***	-0.022129***	-0.034160***	414
EL SALVADOR	-0.000210	0.009385	-0.102939***	-0.052837**	-0.024583	-0.007026	-0.006860	0.002261	0.006757	-0.000617	-0.003549***	-0.004753**	-0.007649***	0.000106	0.004943	149
ESTONIA	-0.066719***	-0.043439***	0.001985	0.046313	-0.035320*	-0.005477	-0.040329	0.014082	-0.118391	-0.046366***	-0.039762***	-0.069560***	-0.034402***	-0.201743	-0.066364	96
ETHIOPIA	-0.010482***	-0.014758***	-0.016797***	-0.008760**	-0.032552*	-0.121451*	-0.062590**	-0.033871	-0.034527***	-0.034797***	-0.044866***	-0.069945**	-0.025645**	-0.016762***	-0.000002	123
FINLAND	-0.010519	-0.012508	-0.013587***	-0.006559*	-0.014746*	-0.321774***	0.050431***	-0.121543***	-0.032915***	-0.057854***	-0.025965**	-0.010645***	-0.004659**	-0.020622*	-0.015558***	118
FRANCE	-0.002997	-0.001750	-0.005360**	-0.004600***	-0.013862*	-0.010683*	-0.003858***	-0.008008**	-0.007294***	-0.006907***	-0.010442***	-0.011692***	-0.017379***	-0.013330***	-0.034847	2849
GAMBIA		-0.186458***		-0.132700***	-0.109940***	-1.365594***	-0.230303***	-0.138776***	-0.118022**	-0.013850	-0.130320***	-0.049908**	0.026813	0.001126		41
GEORGIA	-0.027417*	-0.035632***	-0.136714***	-0.031650***	-0.013092*	-0.010380	-0.043460***	-0.065177***	-0.043133***	-0.046760	-0.031607	-0.043752***	-0.098233***	-0.041911***	-0.109758**	118
GERMANY	-0.004132**	-0.006623***	-0.006814***	-0.003549***	-0.004395***	-0.001628	-0.005842**	-0.003349**	-0.004049***	-0.009786***	-0.012619***	-0.011770***	-0.014747***	-0.012156***	-0.009254***	18794
GHANA	-0.043708***	-0.034042**	0.147412***	-0.045886***	-0.014187***	-0.003246	-0.004772	-0.093519**	-0.023429**	-0.045982***	-0.034045***	-0.156202**	-0.075489**	-0.063120*	-0.017749*	136
GREECE	-0.056264***	-0.123243*	-0.049333***	-0.034317	-0.013952	-0.075731***	-0.069875***	-0.106211***	-0.030158***	-0.015574**	-0.054575**	-0.060922***	-0.029437***	-0.016993***	-0.084740***	119
GUATEMALA	-0.007109**	-0.002307	-0.035091***	-0.025448***	-0.023426***	-0.011134***	-0.036470***	-0.020325***	-0.010986*	-0.016063***	-0.033372*	-0.048693*	-0.041192	-0.025654	-0.073036	372
GUYANA	0.016522***	-0.015223***	-0.027049***	-0.029122***	-0.025884*	-0.025043***	-0.030959	-0.015295***	-0.017370***	-0.030531***	-0.025513***	-0.009672	0.002300	-0.014008***	0.019476***	47
HAITI	-0.014579	-0.052605***	-0.012768***	-0.004832	-0.011432***	-0.017581***	-0.013623***	-0.054119	-0.001397	-0.027983***	0.084781	-0.019973***	-0.114022***	0.009258	0.074819	52
HONDURAS	-0.026864***	-0.021832***	-0.006249	-0.017912***	-0.013842**	-0.015351**	-0.014608	-0.008182	-0.018927*	-0.018522	-0.068447**	-0.047826	-0.026735	-0.019743	-0.026404	210
HONG KONG	-0.021280***	-0.020330***	-0.014916**	-0.024480***	-0.131246**	-0.034454***	-0.089675	-0.139821	-0.032891**	-0.029426***	-0.032318***	-0.031241***	-0.031182***	-0.115499***	-0.064150*	729
HUNGARY	-0.004781	-0.013239	-0.012758*	-0.017186**	-0.013355***	-0.011139**	-0.012023**	-0.012727**	-0.016335**	-0.012718***	-0.011727***	-0.010285	-0.017083**	-0.002656	-0.008146	322
ICELAND	1.270601	0.023430***	0.000399	-0.104859**	-0.029345***	0.311901***	-0.070971***	-0.003196	-0.038247	-0.098743***	-0.037463*	-0.009181**	-0.008321**	0.057234	0.005053	130
INDIA	-0.015387**	-0.024887***	-0.016366**	-0.020749**	-0.018269**	-0.021276	-0.016884*	-0.004874	-0.017193**	-0.022854***	-0.025674**	-0.016494**	-0.057826	-0.000254	-0.020739***	681

註:*、**、***分別表示在信心水準 10%、5%、1%下具統計上的顯著性。

續表 1

國家	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	樣本數
INDONESIA	-0.002672	-0.006367**	-0.057185***	-0.011839***	-0.033747***	-0.022696***	-0.015597***	-0.033891***	-0.039733***	-0.021452***	-0.022352***	-0.031032***	-0.122792***	-0.023065	-0.042564**	653
IRAN	1.894192***	-0.001486***	-0.012969***	-0.008968***	-0.009465***	-0.029857***	-0.017869***	-0.017388*	-0.027912	-0.016781*	-0.011798***	-0.007028	-0.002648	-0.003923***	-0.003634	112
IRAQ	0.000000	-0.009353	-0.009453	-0.007827	0.006786***	-0.093075***	-0.000436	-0.008387***	0.009399	0.008126	-0.035581*	-0.023504**	-0.014001*	0.000864	0.008658***	53
IRELAND	-0.005196**	-0.002296	-0.004571***	-0.007620	-0.004467***	-0.002287***	-0.005855	-0.006635***	-0.004926***	-0.010484*	-0.022239	-0.012112	-0.013978	-0.001802	0.000181	358
ISRAEL	-0.002740***	-0.002084	-0.007201	0.003222	-0.000473	-0.003172	-0.012862**	-0.000857*	-0.005157	0.000981	-0.002942***	-0.011083	-0.001510***	-0.004019	0.000361	202
ITALY	-0.009559***	-0.025178*	-0.030207**	-0.017834***	-0.015802***	-0.017760***	-0.043673***	-0.019244***	-0.063040**	-0.030111***	-0.032689***	-0.027768***	-0.026484**	-0.024843	-0.008696*	2146
IVORY COAST	-0.022087	-0.029654**	-0.042258	-0.029417***	-0.016825	-0.027064***	-0.036487**	-0.056684***	-0.100192	0.034565	-0.092603***	0.026982	-0.040899**	-0.046410**	-0.038706***	135
JAMAICA	0.025284	-0.047712***	-0.046734***	-0.051258***	0.000000	0.270321***	-0.023661	-0.005511**	-0.024112	-0.011646***	-0.022740***	-0.029817*	-0.034132**	-0.035211*	-0.053703**	124
JAPAN	-0.000741	-0.000565	0.001196	-0.007174***	-0.018733***	-0.008995	-0.019854***	-0.015517***	-0.006347***	-0.008214***	-0.009351***	0.004423	-0.004371***	-0.013158*	-0.002536*	7166
JORDAN	-0.016444	-0.005580	-0.004472**	-0.018587*	-0.008827	-0.005766	-0.005899*	-0.009007***	-0.016285***	-0.011545**	-0.014580	-0.015877*	-0.016419***	-0.011382***	-0.014761***	241
KAZAKHSTAN	-0.008496***	-0.025848***	-0.042172**	-0.076958*	-0.034776	0.001523	-0.016012***	-0.042941***	-0.039489***	-0.007480***	-0.056734**	-0.246683**	-0.018939***	-0.060705*	-0.037972***	245
KENYA	-0.012725***	-0.021388***	-0.122137***	-0.051518*	-0.085494*	-0.017015	-0.020049**	-0.041041***	-0.020453**	-0.013513**	-0.006049	-0.024538***	-0.019593***	-0.057164***	-0.046238***	461
KOREA REP. OF	0.008001	0.004212*	-0.001791	-0.003612	-0.020011***	-0.016729	-0.020782***	-0.018011*	-0.003856	-0.013272***	-0.039383***	-0.028882***	-0.019518***	-0.021292***	-0.011317*	419
KUWAIT	-0.021959**	-0.052411***	-0.015206***	-0.019858***	-0.015060***	-0.025912***	-0.035342***	-0.089518***	-0.092979***	-0.125159***	-0.023774	-0.040751*	-0.031778***	-0.050577***	-0.014460*	253
LATVIA	-0.020550*	-0.013070**	-0.023252	-0.003976	-0.023693***	-0.025316***	-0.029328***	-0.075955***	-0.077471***	-0.049262***	-0.024836***	-0.028951**	-0.033285***	-0.054393***	-0.031549**	182
LEBANON	-0.019912***	-0.034988***	-0.008444	-0.015223***	-0.008611**	-0.003077**	-0.025862**	-0.010157**	-0.042116**	-0.025228*	-0.015442**	-0.007940***	-0.009241***	-0.004088**	-0.007396***	481
LESOTHO	-0.015586***	-0.024015***	0.005945	0.022493***	-0.016392***	-0.017869***	0.000970	0.004774	0.001341	-0.044366***	-0.078500***	-0.026888***	-0.038077***	0.097690***	-0.030066***	40
LIBYAN		0.002280***	0.006533***	0.002500***	0.003279	0.005615***	-0.088899***	-0.062573***	-0.009874	-0.005557**	0.002203	-0.007797	-0.000240	-0.000387		57
LIECHTENSTEIN	-0.003710	-0.000976	-0.000138	-0.022742	-0.015377***	-0.049785***	-0.013884***	-0.007192	-0.007981***	-0.014155***	-0.014693**	-0.015152***	-0.015439*	-0.001437	0.000632	102
LITHUANIA	-0.048508**	-0.027967	-0.012173***	-0.005154	-0.021912*	-0.021566***	-0.019093**	-0.007163	-0.004822	-0.071166	-0.021414	-0.028138	-0.019187	-0.019430	0.048154	102
LUXEMBOURG		-0.146065***	-0.050101***	-0.016773***	-0.008247***	-0.005452***		-0.028999***	-0.015162*	-0.022742**	-0.007027***	-0.004226	-0.007346**	-0.019934*	-0.003796***	211
MACAU				0.000805	-0.009303	0.004426	-0.000101	0.003256	-0.009678***	-0.001471	0.005313	-0.001307	-0.007515	0.000500	0.007103***	74
MACEDONIA	-0.021684	-0.064853***	-0.084467	-0.020292**	-0.012560**	-0.015561	-0.017350*	0.017558	-0.036226***	-0.066686***	-0.126351	-0.024251***	-0.059922**	-0.057368*	-0.014429	144
MADAGASCAR		-0.030614***	-0.034116***	-0.017982**	-0.030291	-0.020927	-0.015887	-0.027803***	-0.012623***	-0.013980**	-0.014517***	-0.028340***	-0.017126***	-0.006758	0.082658***	62
MALAWI	-0.001268	-0.047107	-0.056144***	-0.066024***	-0.068903***	-0.091833**	-0.267441***	-0.054649	-0.027659	-0.082200***	-0.072652**	-0.088728***	-0.074176***	-0.046382**	0.024053	123
MALAYSIA	-0.031679***	-0.017985*	-0.035894***	-0.021579***	-0.034693***	-0.002149	-0.001045	-0.048216	-0.020837	-0.006920	-0.016604	-0.006231	-0.002479	-0.001995	0.000921	693
MALI	-0.010467	-0.016867	-0.017129	-0.070295***	0.015205	-0.031540	-0.037771*	-0.037721	-0.080719***	-0.048133***	-0.041744***	-0.043654**	0.233435**	-0.019784		79
MALTA	0.010753	0.024251	-0.067860*	-0.058692***	-0.020876	-0.126731**	0.019320***	0.007459	-0.002840	-0.002802	-0.005312***	-0.070332	-0.035235	-0.012203	-0.006565	81
MAURITANIA	-0.013079***	0.065386	-0.047652***	-0.000681	0.006769	-0.005765***	-0.019580	-0.017440	-0.023349***	-0.011777***	-0.014821	0.009481	-0.051985**	-0.046941**	0.022353***	61
MAURITIUS		-0.012660	-0.029712***	-0.037205***	-0.033934***	-0.017102***	-0.012613	-0.125928	-0.018863**	-0.014842*	-0.029331***	-0.028029***	-0.008933	-0.009106	-0.053932***	145
MEXICO	-0.022748	-0.004258	-0.040476*	-0.018273**	-0.013287	-0.015944	0.001489	-0.018694	-0.029974***	-0.024893**	-0.026732**	-0.036884***	-0.029215	-0.018383	-0.043911***	655
MOLDOVA	-0.038327***	-0.079662***	-0.012126	-0.037457**	-0.019543**	-0.038064***	-0.009400***	-0.039378	-0.014230*	-0.010743	-0.019616	-0.005548	-0.037918**	-0.045471	-0.025116*	92
MONACO	-0.015506***	-0.005232*	-0.006874*	-0.006231*	-0.007425***	-0.003639**	-0.010159**	-0.013403**	-0.010213*	-0.011574***	-0.017553	-0.011804	-0.010528*	-0.011180*	-0.025327***	147
MONGOLIA							0.038294*	-0.035855*	-0.024890	-0.017516	-0.008447	-0.004423	-0.013205*	-0.016709	0.026130*	46
MONTENEGRO							0.012038***	0.016887	-0.056431**	-0.022732***	-0.021274	-0.039841***	-0.057634**	-0.088004***	-0.027503**	57
MOROCCO	-0.002657**	-0.002911	-0.006431	-0.010723**	-0.010063***	-0.034503	-0.026349***	-0.053600***	-0.016463***	-0.014181	-0.011079	-0.009594	-0.004844*	-0.003215	-0.018126***	144
MOZAMBIQUE	-0.004303	0.001398	-0.011150***	-0.091842	-0.373431***	-0.018010	-0.179663***	-0.160335***	-0.235776***	-0.197484***	-0.118677***	-0.052554*	-0.046300	-0.134670**	-0.057160***	83
NAMIBIA	0.050010***	0.073232***	-0.043077***	2.561865***	0.234086***	0.055065***	-0.405404***	0.297168***	-0.032924***	-0.029040	-0.041688***	-0.040365***	-0.056243	-0.009936***	-0.040670***	63
NEPAL					-0.019668***	-0.024233***	-0.024982***	0.007013	-0.024317***	-0.003524	-0.001490	0.019326	0.026839	-0.035576***	-0.059994*	124
NETHERLANDS		-0.003604							-0.002207**	-0.002507***	-0.000922	0.001748	-0.000638	0.005327	-0.012571	178
NETHERLANDS ANTILLES	-0.051695***	-0.036768***	-0.022598***	-0.017302***	-0.028216***	-0.020549***	-0.003302	-0.011169	-0.007280*	-0.006300**	-0.004237***	-0.003348	-0.003397**	-0.014907**	-0.027381***	107
NEW ZEALAND	-0.007243**	-0.010233***	-0.024740***	-0.014658	-0.026386***	-0.019257	0.004652	-0.014962	-0.003062	-0.004544***	-0.003986***	-0.003872***	-0.003237***	-0.003134***	-0.002347**	145
NICARAGUA	-0.034889**	-0.114560	-0.047852**	0.000535	-0.022810***	-0.019347	-0.024091***	-0.087241**	-0.011566	-0.010144	-0.000820	-0.006287***	-0.011067	-0.007063	-0.005978***	171
NIGER	-0.038647***	-0.043335***		-0.027022***	-0.002508***	-0.016689***	-0.091293***	-0.002162	-0.115529**	-0.001893	-0.056408**	-0.042875	-0.020780	-0.035218	0.002046***	43
NIGERIA	-0.054890**	-0.090735*	-0.056001***	-0.045331***	-0.045285*	0.001900	-0.042771**	-0.062560**	-0.004288	-0.158083***	-0.074518***	-0.060773**	-0.037197	-0.076677**	0.036273**	552
NORWAY	-0.016755	-0.003337***	-0.003382***	-0.013683*	-0.013798*	-0.008654**	-0.010834	-0.004828***	-0.009369**	-0.007853***	-0.007992***	-0.006173***	-0.002866**	-0.004768***	-0.004013***	750
OMAN	-0.020111	-0.016564**	-0.009894***	-0.009685***	-0.012301***	-0.035676**	0.011098	-0.036521	-0.005402	-0.074145**	0.011529***	-0.088056***	-0.030188**	0.012480	0.001682	168
PAKISTAN		-0.008471	-0.001893	-0.005940	-0.011392*	-0.014750*	-0.011152	0.021576	-0.012140	-0.032452**	-0.007818	-0.024799***	-0.024463**	-0.057056**	-0.033090***	301
PALESTINIAN	0.074503*	0.016690	0.022215*	-0.033460***	-0.007744***	0.099730**	-0.176922	-0.019006***	-0.022229	-0.071717***	-0.024232***	-0.034487***	-0.022196***	-0.049609***	-0.030441***	33
PANAMA	-0.016475	-0.004379*	-0.002786	-0.010443	-0.005038	-0.003004	-0.012161***	-0.013728***	-0.016655***	-0.030014**	-0.093090	-0.033002***	-0.012526***	-0.011240***	-0.010012***	676
PAPUA NEW GUINEA	0.025522	-0.051991***	-0.075859***	-0.012938	-0.036464	-0.218135***	-0.399342***	-0.007917*	-0.039450***	-0.126787***	-0.038207*	-0.026208***	-0.084538***	-0.065512***	-0.014013***	45
PARAGUAY	-0.007206**	-0.015716	0.005345	0.011040**	-0.005403	0.005503	0.000128	-0.002560	-0.000924	-0.006545	-0.001676	-0.008546*	0.003612	-0.010337**	-0.010399	236
PERU	-0.012049	0.001475	-0.000401	-0.029922	-0.017886	-0.016624	-0.009694	-0.011280	-0.007790***	-0.010683***	-0.028368***	-0.033278**	-0.027449***	-0.028002***	-0.034032***	277
PHILIPPINES			-0.023667**	-0.020702***	0.006712		-0.050097***	-0.006727	-0.010895	0.073375	-0.025564***	-0.033486***	-0.012507	-0.009915*	-0.010056***	189
POLAND	-0.077741***	-0.038166*	-0.000199	-0.011106	-0.029013**	-0.015866**	-0.001962	-0.011227**	-0.011855***	-0.009728***	-0.009313***	-0.012100***	-0.006853***	-0.013909***	-0.019821	347
PORTUGAL									-0.000291	-0.002827	-0.015448	-0.010031*	-0.014993**	-0.009350*	-0.020093***	156
QATAR	-0.000861	0.004437	0.004805	0.004482	-0.022963	-0.018034***	-0.061474	-0.054192	-0.020298*	-0.048994**	-0.063961***	-0.002428	-0.018461***	-0.006935	0.007228**	112
ROMANIA		-0.075213***	-0.005099	-0.006079	-0.086901*	-0.026791*	-0.012581**	-0.008887	-0.040528*	-0.021160	-0.021085	-0.116814***	-0.098868**	-0.014593	-0.009751	206
RUSSIA	-0.016681	-0.037362***	-0.005825	-0.005921	-0.027235	-0.009860*	-0.020468**	-0.031897	-0.026837***	-0.032232***	-0.027175***	-0.042924***	-0.038967***	-0.038388***	-0.038055***	4042
RWANDA	-0.120659***	-0.080043***	-0.136733***	-0.104946***	0.095961***	-0.002316**	0.016255	-0.035999*	-0.046746*	0.019440	-0.005258	-0.067613	-0.010522***	-0.108238***	-0.096752***	56
SAUDI ARABIA	-0.019094***	-0.017282***	-0.019971***	-0.017550	-0.008771	-0.009837	-0.057830***	-0.095446**	-0.150551	-0.129546	-0.080792*	-0.093385*	-0.067628	-0.100839	-0.018903**	174
SENEGAL	-0.109531	-0.235155	0.484155	-0.003088	0.089279	-0.064144***	-0.033578***	-0.009586	-0.007728	-0.023018**	-0.043490***	-0.099895***	-0.076241*	-0.039863	0.024629***	95
SERBIA	-0.023485***			-0.015573***	-0.045565*	-0.037324*	-0.003956	0.000781	-0.090329	-0.055297**	-0.054056***	-0.024579***	-0.038294***	-0.004485	-0.042418**	231

註:*、**、**分別表示在信心水準 10%、5%、1%下具統計上的顯著性。

續表 1

國家	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	樣本數
SEYCHELLES	28.263554***	-2.221624***	-0.003030	-0.037826*	0.018009***	-0.038239***	-0.005588***	0.058933***	0.016798	0.010087	-0.011741	-0.076141	-0.215263***	0.808102***		37
SIERRA LEONE	-0.097933***	0.040263***	0.063185***	-0.170196***	-0.050257***	-0.070253***	-0.085374***	-0.103755***	0.083158	-0.132038	-0.057303*	-0.117053**	-0.309572***	-0.078965	-0.600451***	62
SINGAPORE		-0.007372***	-0.048253*	-0.016558***	-0.013553***	-0.010148*	-0.007010	-0.012242**	-0.007037*	-0.010303**	-0.030099*	-0.032335***	-0.040305***	-0.014067*	-0.014264	289
SLOVAKIA	-0.017340*	-0.013779**	0.000724	-0.011886	-0.054448**	-0.011527	0.004672	-0.016226	-0.014886	-0.009755***	-0.005203**	-0.027332	-0.011225**	-0.021624***	-0.005631	201
SLOVENIA	-0.053396	-0.009607**	0.039401***	0.000132	-0.010639	-0.011317	-0.009014**	-0.016730	-0.016860	-0.008226***	-0.048077***	-0.023201**	-0.005610***	-0.009532***	-0.007896***	235
SOUTH AFRICA	-0.016125	-0.009093*	-0.007259	-0.026867***	-0.041489***	-0.031705***	-0.024770***	-0.017919*	-0.071470***	-0.028738**	-0.048555***	-0.029178**	-0.023198***	-0.011398***	-0.010588***	438
SPAIN	0.002758	-0.002152*	-0.011381*	-0.015124*	-0.010134***	-0.026597	-0.054756***	-0.031570*	-0.017903**	-0.004493**	-0.007803	-0.004913***	-0.009667***	-0.020588*	-0.027745	398
SRI LANKA				-0.017203***	-0.025464***	-0.002882***	-0.057453***	-0.041882***	-0.050084*	-0.012060***	-0.023976***	-0.048527***	-0.026251***	-0.021977***	-0.012833	136
ST. KITTS AND NEVIS	-0.024631***	0.018769***	0.020040***	0.207412***	-0.186498***	0.037553***	0.011511	0.016296***	-0.004302	-0.006660	-0.011603	-0.003494***	-0.038799	-0.023553	-0.000303	38
SUDAN	-0.051272***	-0.177249***	-0.082889***	-0.033922	-0.023345***	-0.022057	-0.006965*	-0.020371*	-0.008964	-0.018550	-0.030604***	-0.013929***	-0.029877***	-0.017608	-0.028117	138
SWAZILAND	0.163302	0.081398***	0.026367***	0.002772	0.088515***	0.030259***	-0.093519***	-0.094693***	-0.028238	0.044943*	-0.327283***	-0.058674***	-0.023476***	-0.012875	-0.013779	59
SWEDEN	0.000136	-0.003350	-0.003811**	-0.003486**	0.015471	-0.002741**	-0.002121*	-0.008382*	-0.005007***	-0.012493***	-0.007288***	-0.008019***	-0.003486**	-0.005726***	-0.001750*	772
SWITZERLAND	-0.015737***	-0.022257***	-0.028723***	-0.028524***	-0.030012***	-0.024220***	-0.045648**	-0.022562***	-0.021734***	-0.025924***	-0.033335***	-0.029135***	-0.024849***	-0.024310***	-0.013500***	4490
TAIWAN		-0.030630***	-0.023011***	0.018952	-0.022508***	-0.022272***	-0.001014	-0.014097	-0.029592***	-0.015916***	-0.008586	-0.014933	-0.011875**	-0.015211***	-0.013125***	426
TANZANIA	-0.161852***	-0.016869	-0.016894	-0.017340	-0.117920***	-0.011649	-0.044069***	-0.106737**	-0.069709***	-0.028227***	-0.050876***	-0.042644***	-0.038771***	-0.059151**	-0.131362***	147
THAILAND		-0.015908***	-0.039879**	-0.028152***	-0.059985***	-0.005257	-0.048183	-0.067867***	-0.063132***	-0.025981***	-0.054045**	-0.029450***	-0.044528***	-0.034562***	-0.046612**	276
TOGO	-0.013725***	0.002693	0.011577	0.009202	-0.011464***	-0.003860***	-0.009776***	-0.021079***	-0.007710*	-0.014833***	-0.041874***	-0.001915	0.125860**	-0.019205	-0.019680***	59
TRINIDAD AND TOBAGO	-0.026086	0.000455	0.000515	0.000300	-0.001657	-0.002881	-0.024410***	-0.014373***	-0.015632**	0.000587	-0.006881	-0.012038***	-0.006348**	0.003015	-0.012088	149
TUNISIA	-0.004900	0.001198	0.003026	-0.005866	-0.007127	-0.005122***	0.018552	-0.004685**	-0.009810	-0.007377**	-0.009116	-0.008375	-0.010043***	-0.005389	0.003213	297
TURKEY	-0.013557*	-0.029019*	-0.042082***	-0.025213*	-0.004658	-0.028940	0.018223	-0.045266***	-0.066953*	-0.061014**	-0.059430***	-0.026769***	-0.038637***	-0.029235***	-0.016656***	429
UGANDA	-0.052686	-0.021070*	-0.063589*	-0.059606***	-0.033858***	-0.033954***	-0.018803**	-0.020956***	-0.017870**	-0.025530***	-0.131496***	-0.044981***	-0.030818**	-0.075536***	-0.094143	211
UKRAINE	0.008128	-0.010981	-0.007641	-0.060210**	-0.057536***	-0.023036	-0.005109	-0.031425**	-0.005685	-0.067455***	-0.052512***	-0.031998*	-0.040106***	-0.064837**	-0.091358***	358
UNITED ARAB EMIRATES	-0.014896***	-0.024024**	-0.028895*	-0.023986**	-0.021795***	-0.015321**	-0.014342***	-0.012008***	-0.022804***	-0.047199***	-0.077501***	-0.023057***	-0.035970***	-0.033429**	-0.029760**	374
UNITED KINGDOM	-0.031562***	-0.028788***	-0.032513***	-0.041775***	-0.041708***	-0.026962**	-0.005223	-0.051792***	-0.070274**	-0.033822***	-0.036238***	-0.028090***	-0.033930***	-0.044156***	-0.043677***	2501
URUGUAY	-0.003516	-0.009966**	-0.006932	-0.019809*	-0.017103***	-0.013931***	-0.029194***	-0.013905	-0.008362	-0.009242	-0.035888**	-0.021723	-0.002941*	-0.011195	-0.008735	366
USA	-0.017816***	-0.020848***	-0.023171***	-0.030050***	-0.022053***	-0.015899***	-0.021542***	-0.017395***	-0.017057***	-0.014019***	-0.016268***	-0.014404***	-0.022104***	-0.024047***	-0.023530***	9392
UZBEKISTAN							-0.053174***	-0.043590***	-0.188067***	-0.029225	-0.012502	0.010526	-0.025516	-0.009939	-0.050513**	64
VENEZUELA	-0.112788**	-0.043556***	-0.044244***	-0.055502***	-0.048979***	-0.029106**	-0.100006***	-0.052339***	-0.059150***	-0.057167***	-0.025208***	-0.033067***	-0.024398***	-0.027837***	-0.069634	561
VIETNAM						0.003858	-0.017061***	-0.011829***	-0.009959**	-0.000345	-0.003655	-0.004842**	-0.015944*	-0.014020***	-0.009799***	167
VIRGIN ISLANDS,	-0.009980***		-0.117965***	0.000072***	-0.037728***	-0.128127***	-0.109464***	-0.117401***	-0.128982	-0.301651*	-0.200329***	-0.492487***		-0.014265***	0.008219***	39
YEMEN	-0.010242***	-0.003670**	-0.007520	-0.017549	-0.022389***	-0.009338	-0.004212	0.004585	0.012346***	-0.002023	-0.005045	0.002666	-0.022935***	-0.004234	-0.007426***	96
ZAMBIA	-0.068568	-0.091509*	-0.082068***	-0.090127***	-0.060540**	-0.051728***	-0.057118***	-0.076392***	-0.052054	-0.084356***	-0.052762***	-0.052438***	-0.008944	-0.218567**	-0.126400	158
ZIMBABWE	-0.012470**	0.002787	-0.032219	-0.087705***	-0.001514	-0.062207***	-0.060535***	-0.075141**	-0.428136**	-0.516736	-0.325244	-0.135959***	-0.228675*	-0.068900**	-0.055834	135

註:*、**、**分別表示在信心水準 10%、5%、1%下具統計上的顯著性。

表 2、銀行 Z-Score、成本效率、利潤效率之年平均值(1996 年至 2010 年)

年	Z-Score 值			
	商業銀行	合作銀行	儲蓄銀行	全體樣本銀行
2000	3.0923	4.3968	4.1655	3.6078
2001	3.1584	4.3113	4.1764	3.6080
2002	3.0774	4.2755	4.1009	3.5493
2003	3.1667	3.8970	4.0157	3.4946
2004	3.1778	3.9015	4.1036	3.5047
2005	3.2000	3.9424	4.1813	3.5501
2006	3.2134	3.9813	4.3267	3.6007
2007	3.2390	4.1189	4.3674	3.6694
2008	3.1693	4.1125	4.2318	3.6038
2009	3.0671	3.9787	4.1706	3.5131
2010	3.1099	4.0581	4.1937	3.5720
合計	3.1525	4.0582	4.1960	3.5684
年	成本效率值			
	商業銀行	合作銀行	儲蓄銀行	全體樣本銀行
1996	0.8616	0.8505	0.8634	0.8613
1997	0.8600	0.8505	0.8621	0.8599
1998	0.8596	0.8495	0.8608	0.8593
1999	0.8587	0.8457	0.8598	0.8582
2000	0.8557	0.8337	0.8579	0.8512
2001	0.8544	0.8326	0.8564	0.8503
2002	0.8536	0.8320	0.8518	0.8496
2003	0.8524	0.8337	0.8504	0.8490
2004	0.8515	0.8318	0.8496	0.8478
2005	0.8511	0.8317	0.8493	0.8477
2006	0.8505	0.8370	0.8492	0.8476
2007	0.8501	0.8364	0.8489	0.8473
2008	0.8495	0.8359	0.8480	0.8469
2009	0.8487	0.8358	0.8470	0.8463
2010	0.8479	0.8347	0.8462	0.8452
合計	0.8525	0.8350	0.8511	0.8495
年	利潤效率值			
	商業銀行	合作銀行	儲蓄銀行	全體樣本銀行
1996	0.7876	0.7866	0.7846	0.7873
1997	0.7863	0.7864	0.7834	0.7861
1998	0.7862	0.7847	0.7827	0.7858
1999	0.7859	0.7873	0.7837	0.7858
2000	0.7860	0.7858	0.7840	0.7858
2001	0.7861	0.7852	0.7836	0.7857
2002	0.7860	0.7853	0.7822	0.7855
2003	0.7857	0.7855	0.7818	0.7852
2004	0.7850	0.7857	0.7815	0.7847
2005	0.7849	0.7855	0.7812	0.7845
2006	0.7842	0.7848	0.7810	0.7840
2007	0.7840	0.7848	0.7811	0.7838
2008	0.7840	0.7845	0.7815	0.7839
2009	0.7835	0.7844	0.7810	0.7834
2010	0.7830	0.7840	0.7809	0.7830
合計	0.7849	0.7850	0.7818	0.7846

表 3、銀行風險值平均值(1996 年至 2010 年)

風險值估計方法	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	總平均
A.99%信賴區間																
HS	-2.459	-2.470	-2.588	-2.631	-2.229	-2.359	-3.190	-3.314	-3.299	-3.076	-2.820	-2.601	-2.354	-1.935	-1.947	-2.617
MC	-0.923	-1.407	-1.396	-1.526	-1.637	-1.807	-2.379	-2.802	-3.042	-3.384	-3.095	-2.868	-2.674	-2.347	-2.061	-2.223
EWMA	-2.089	-2.166	-2.221	-2.144	-1.976	-2.114	-2.670	-2.792	-2.792	-2.593	-2.333	-2.190	-2.009	-1.735	-1.721	-2.235
GARCH_Normal	-2.231	-2.229	-2.237	-2.087	-2.014	-2.370	-2.765	-2.697	-2.797	-2.481	-2.531	-2.323	-2.180	-2.021	-2.001	-2.342
Garch_t	-10.206	-10.007	-11.149	-10.256	-11.092	-12.772	-14.675	-14.463	-14.763	-13.552	-12.320	-11.601	-11.005	-10.582	-10.543	-12.068
GARCH_Ged	-2.101	-2.101	-2.120	-1.990	-1.954	-2.291	-2.646	-2.588	-2.685	-2.385	-2.438	-2.227	-2.077	-2.022	-2.028	-2.260
GJR-GARCH_Normal	-2.251	-2.238	-2.261	-2.233	-2.040	-2.403	-2.793	-2.705	-2.745	-2.520	-2.533	-2.348	-2.216	-2.078	-2.072	-2.372
GJR-GARCH_t	-11.890	-12.298	-14.849	-13.672	-13.494	-16.810	-21.716	-20.863	-21.282	-19.000	-19.796	-17.640	-17.114	-16.960	-16.945	-17.457
GJR-GARCH_Ged	-2.072	-2.069	-2.090	-1.955	-1.930	-2.265	-2.630	-2.516	-2.568	-2.331	-2.312	-2.160	-2.031	-1.978	-1.987	-2.205
EGARCH_Normal	-2.124	-2.160	-2.219	-2.023	-2.012	-2.339	-2.674	-2.639	-2.689	-2.447	-2.430	-2.267	-2.139	-2.053	-2.060	-2.299
EGARCH_t	-7.764	-8.230	-6.776	-7.034	-6.689	-8.563	-9.624	-10.135	-10.457	-9.936	-8.273	-8.235	-7.895	-7.697	-7.577	-8.422
EGARCH_Ged	-2.435	-2.025	-2.157	-1.993	-2.080	-2.323	-2.589	-2.459	-2.571	-2.329	-2.196	-2.219	-1.961	-2.119	-1.949	-2.226
PGARCH_Normal	-2.228	-2.222	-2.259	-2.115	-2.022	-2.543	-2.763	-2.681	-2.711	-2.513	-2.573	-2.342	-2.202	-2.054	-2.048	-2.363
PGARCH_t	-15.651	-16.508	-17.205	-17.444	-18.127	-17.909	-18.383	-18.286	-19.477	-17.353	-16.484	-15.168	-14.770	-15.326	-16.665	-16.929
PGARCH_Ged	-2.762	-2.142	-2.224	-2.061	-2.024	-2.464	-2.911	-2.868	-2.835	-2.606	-2.800	-2.397	-2.258	-2.172	-2.366	-2.475
B.95%信賴區間																
HS	-1.303	-1.362	-1.249	-1.156	-1.218	-1.643	-1.782	-1.711	-1.545	-1.420	-1.367	-1.150	-1.041	-1.075	-1.106	-1.335
MC	-0.653	-0.989	-0.975	-1.071	-1.153	-1.250	-1.681	-1.986	-2.158	-2.222	-2.193	-1.828	-1.590	-1.463	-1.470	-1.512
EWMA	-1.475	-1.529	-1.568	-1.514	-1.395	-1.492	-1.885	-1.971	-1.971	-1.830	-1.647	-1.546	-1.419	-1.225	-1.201	-1.576
GARCH_Normal	-1.598	-1.595	-1.604	-1.497	-1.450	-1.703	-1.986	-1.933	-1.997	-1.783	-1.806	-1.669	-1.562	-1.450	-1.428	-1.678
Garch_t	-5.763	-6.198	-6.641	-6.270	-6.967	-8.133	-9.052	-9.342	-9.723	-8.510	-8.120	-7.528	-7.232	-7.115	-6.894	-7.712
GARCH_Ged	-1.508	-1.506	-1.527	-1.427	-1.405	-1.644	-1.904	-1.857	-1.905	-1.711	-1.755	-1.606	-1.505	-1.448	-1.439	-1.621
GJR-GARCH_Normal	-1.617	-1.605	-1.625	-1.607	-1.469	-1.727	-2.008	-1.934	-1.970	-1.810	-1.813	-1.694	-1.590	-1.490	-1.474	-1.702
GJR-GARCH_t	-6.634	-7.121	-7.552	-7.491	-7.406	-7.697	-9.264	-9.220	-9.330	-9.008	-8.357	-8.424	-8.527	-8.693	-5.710	-8.044
GJR-GARCH_Ged	-1.517	-1.509	-1.523	-1.427	-1.410	-1.647	-1.914	-1.824	-1.863	-1.691	-1.679	-1.566	-1.472	-1.437	-1.430	-1.602
EGARCH_Normal	-1.544	-1.554	-1.601	-1.453	-1.447	-1.679	-1.924	-1.882	-1.921	-1.747	-1.733	-1.615	-1.528	-1.464	-1.455	-1.645
EGARCH_t	-5.443	-4.919	-4.605	-5.141	-4.751	-5.806	-6.614	-6.853	-7.046	-6.281	-5.818	-4.982	-4.715	-4.903	-4.899	-5.553
EGARCH_Ged	-1.600	-1.451	-1.524	-1.432	-1.490	-1.675	-1.837	-1.820	-1.863	-1.629	-1.592	-1.593	-1.412	-1.518	-1.384	-1.592
PGARCH_Normal	-1.595	-1.590	-1.620	-1.516	-1.467	-1.718	-1.996	-1.928	-1.951	-1.815	-1.838	-1.691	-1.584	-1.485	-1.462	-1.693
PGARCH_t	-5.909	-6.847	-6.846	-6.790	-6.578	-6.987	-7.723	-8.362	-7.824	-7.390	-7.206	-6.833	-7.059	-7.480	-6.825	-7.180
PGARCH_Ged	-1.541	-1.535	-1.598	-1.478	-1.454	-1.768	-2.094	-2.043	-2.066	-1.868	-1.713	-1.692	-1.602	-1.560	-1.662	-1.730
C.90%信賴區間																
HS	-0.874	-0.933	-0.864	-0.769	-0.815	-1.112	-1.210	-1.187	-1.031	-0.925	-0.874	-0.770	-0.704	-0.737	-0.752	-0.898
MC	-0.510	-0.765	-0.750	-0.829	-0.895	-0.953	-1.312	-1.550	-1.688	-1.745	-1.715	-1.415	-1.222	-1.129	-1.136	-1.174
EWMA	-1.148	-1.190	-1.220	-1.178	-1.085	-1.161	-1.467	-1.534	-1.534	-1.424	-1.282	-1.203	-1.104	-0.953	-0.935	-1.226
GARCH_Normal	-1.252	-1.251	-1.258	-1.170	-1.132	-1.338	-1.562	-1.519	-1.563	-1.386	-1.416	-1.298	-1.213	-1.123	-1.106	-1.311
Garch_t	-4.545	-4.881	-4.876	-4.958	-5.340	-6.232	-7.184	-6.933	-7.301	-6.522	-6.408	-5.907	-5.550	-5.556	-5.401	-5.953
GARCH_Ged	-1.164	-1.166	-1.181	-1.105	-1.083	-1.279	-1.484	-1.447	-1.500	-1.330	-1.372	-1.241	-1.167	-1.122	-1.115	-1.260
GJR-GARCH_Normal	-1.267	-1.258	-1.274	-1.260	-1.146	-1.355	-1.580	-1.517	-1.534	-1.408	-1.415	-1.312	-1.235	-1.154	-1.141	-1.328
GJR-GARCH_t	-4.502	-5.663	-5.454	-5.620	-5.553	-5.867	-6.551	-6.798	-6.947	-6.646	-6.600	-6.278	-6.512	-6.546	-4.489	-6.036
GJR-GARCH_Ged	-1.168	-1.163	-1.174	-1.101	-1.086	-1.279	-1.489	-1.421	-1.455	-1.313	-1.308	-1.216	-1.143	-1.113	-1.110	-1.243
EGARCH_Normal	-1.209	-1.218	-1.253	-1.136	-1.132	-1.317	-1.606	-1.490	-1.516	-1.379	-1.368	-1.277	-1.204	-1.150	-1.147	-1.301
EGARCH_t	-3.448	-3.761	-3.499	-3.864	-3.376	-4.310	-5.178	-5.091	-5.299	-4.975	-4.342	-4.107	-3.692	-3.755	-3.778	-4.222
EGARCH_Ged	-1.261	-1.145	-1.212	-1.126	-1.100	-1.428	-1.444	-1.453	-1.465	-1.322	-1.244	-1.245	-1.111	-1.120	-1.092	-1.253
PGARCH_Normal	-1.229	-1.228	-1.254	-1.174	-1.129	-1.332	-1.554	-1.507	-1.519	-1.408	-1.439	-1.313	-1.229	-1.146	-1.128	-1.313
PGARCH_t	-4.402	-4.939	-4.376	-4.378	-4.642	-5.234	-5.719	-6.191	-5.921	-5.239	-5.224	-5.197	-5.220	-5.177	-5.062	-5.202
PGARCH_Ged	-1.193	-1.194	-1.241	-1.150	-1.130	-1.381	-1.635	-1.602	-1.606	-1.441	-1.326	-1.298	-1.243	-1.202	-1.293	-1.343

表 4、銀行風險與效率最適落遲期數選擇

落遲期數	Z-Score 值		
	AIC	BIC	最適落遲期數
1	70,377.81	70,412.16	
2	40,750.11	40,780.86	V
3	75,646.46	75,679.95	
4	53,029.68	53,061.44	
5	65,609.09	65,641.74	
落遲期數	成本效率值		
	AIC	BIC	最適落遲期數
1	58,010.95	58,044.14	
2	24,164.86	24,198.85	V
3	62,025.01	62,057.38	
4	59,364.15	59,395.66	
5	51,630.63	51,661.25	
落遲期數	利潤效率值		
	AIC	BIC	最適落遲期數
1	5,274,527	5,274,535	
2	2,740,669	2,740,677	V
3	3,411,205	3,411,213	
4	4,296,999	2,970,074	

表 5、銀行競爭對風險與效率影響的 Panel VAR 估計結果

變數	成本效率					
	全體樣本銀行		銀行體系		市場體系	
	Z-Score	效率	Z-Score	效率	Z-Score	效率
$Z\text{-}Score_{t-1}$	0.793***	-0.023***	0.741***	0.014	0.808***	-0.038***
	(50.054)	(-3.550)	(27.625)	(1.031)	(30.614)	(-3.190)
$Z\text{-}Score_{t-2}$	-0.085***	0.099***	-0.050***	0.016**	-0.129***	0.142**
	(-11.706)	(2.639)	(-5.000)	(2.026)	(-10.479)	(2.317)
成本效率 $_{t-1}$	2.341**	2.481***	3.584**	2.647***	4.589**	2.454***
	(2.038)	(315.997)	(2.334)	(215.470)	(1.881)	(148.540)
成本效率 $_{t-2}$	-1.604*	-1.401***	-2.724**	-1.539***	-2.968	-1.380***
	(-1.736)	(-221.079)	(-2.224)	(-156.911)	(-1.501)	(-103.106)
銀行競爭 $_{t-1}$	-0.573*	-0.012***	-1.543***	-0.035***	1.228	0.019***
	(-1.647)	(-7.084)	(-3.182)	(-10.983)	(1.529)	(4.334)
銀行競爭 $_{t-2}$	-0.312	-0.006***	-1.001***	-0.020***	-2.131***	0.016***
	(-1.249)	(-4.405)	(-3.244)	(-8.398)	(-2.811)	(3.873)
變數	利潤效率					
	全體樣本銀行		銀行體系		市場體系	
	Z-Score	效率	Z-Score	效率	Z-Score	效率
$Z\text{-}Score_{t-1}$	0.802***	0.010*	0.730***	0.016	0.821***	-0.084
	(52.035)	(1.751)	(27.674)	(0.150)	(32.089)	(-1.076
$Z\text{-}Score_{t-2}$	-0.082***	-0.095***	-0.048***	-0.427***	-0.130***	0.081
	(-11.680)	(-3.165)	(-4.816)	(-6.989)	(-10.938)	(0.202)
成本效率 $_{t-1}$	1.875*	2.344***	-1.021	2.388***	4.748**	2.402***
	(1.881)	(346.668)	(-0.670)	(271.426)	(2.398)	(159.970)
成本效率 $_{t-2}$	-1.213	-1.292***	0.936	-1.334***	-3.217**	-1.338***
	(-1.514)	(-236.094)	(0.770)	(-187.405)	(-2.002)	(-109.298)
銀行競爭 $_{t-1}$	-0.505	-0.086***	-1.222***	-0.027***	1.149	0.033***
	(-1.446)	(-6.352)	(-2.583)	(-11.981)	(1.475)	(8.715)
銀行競爭 $_{t-2}$	-0.205	-0.045***	-0.782***	-0.017***	-2.211***	0.070**
	(-0.841)	(-4.369)	(-2.678)	(-10.856)	(-3.008)	(2.336)

註:*、**、***表示在統計水準 10%、5%、1%下具統計顯著性。

行政院國家科學委員會補助國內專家學者出席國際學術會議報告

日期：2012 年 10 月 30 日

報告人姓名	陳昇鴻 Sheng-Hung Chen	服務機構及職稱	南華大學財務金融學系 副教授
會議時間 會議地點	2012 年 6 月 24 日～2012 年 6 月 27 日 波蘭 Krakow 市(Novotel Kraków Bronowice)	本會核定補助文號	NSC-100-2410-H-343-005
會議名稱	(中文) 2012 年國際財務管理學會(MFS)學術論文研討會 (英文) The 19th Annual Conference of the Multinational Finance Society (MFS)		
發表論文題目	(中文) 主併銀行之公司治理、高階管理者薪酬及跨國購併綜效 (英文) Corporate Governance, CEO Compensations, and Cross-Border M&A Synergies for Acquiring Bank		

報告內容應包括下列各項：

一、參加會議經過

本人經由香港轉機首先到達德國法蘭克福，然後再轉機到波蘭 Krakow 市，參加由國際財務管理學會(MFS)在波蘭 Krakow 市所舉辦 2012 年的學術年會。2012 年國際財務管理學會由波蘭 *AGH University of Science and Technology* 大學主辦這場相當具學術水準盛會。此次研討會的會期是從 2012 年 6 月 24 日至 27 日共計 4 天，共有 64 個共同場次將近 255 篇論文進行口頭發表，與會學者多來自歐洲、美洲、亞洲及大洋洲等區域，而今年台灣共有 3 篇論文被接受進行口頭發表。在各財務與金融場次安排上，金融機構有 5 場次，投資組合管理 4 場次，行為財務有 3 場次，新興市場有 3 場次，資本市場有 3 場次。由大會安排場次的多寡可見，金融機構、投資組合管理及行為財務似乎是國際財務管理學會的相對較為重要的研究領域。大會將本人安排於 2012 年 6 月 26 日下午 13:45~15:30 間，在以 **Payout Policy II** 為主題的**場次 50** 進行論文口頭發表，報告的論文題目為"*Corporate Governance, CEO Compensations, and Cross-Border M&A Synergies for Acquiring Bank*"。本論文主要實證探討在跨國購併中是否主併與目標銀行在公司治理的差異會與短期與長期綜效有關，著重於董事會規模與高階經理人薪酬在主併與目標銀行間的差異如何對跨國購併溢酬具潛在的影響性。跨國購併購成主併銀行如何藉由購併案改善其公司治理機制，本研究實證結果指出銀行位於高經濟成長國家且主併與目標銀行間經濟成長差距小較容易進行跨國購併；然而，銀行跨國購併卻容易發生在主並與目標銀行間在貨幣與貪污自由度愈大的情況。當主併銀行擁有較大董事會規模，則表現較差的購併綜效(分別以 1 天、1 週、1 個月的合併溢酬來衡量)，此外當主併銀行高階管理者享有較高薪酬時，可能表現較高的購併溢酬，但此現象無法被「累計異常報酬」 (cumulative abnormal returns, CAR)與「買入持有異常報酬」(buy-and-hold abnormal returns, BHCAR)所支持。

關於跨國併購的長期綜效，擁有較高的高階管理者薪酬之主併銀行表現較低的合併溢酬，特別是當主併與目標銀行間在公司治理差距愈大時，愈不利於長期合併溢酬。其中，當主併銀行具有較高管理者在董事會的比例時，會顯著地提高長期購併的表現。本論文也獲得任教於英國 St Andrews 大學財務與經濟系 Chronopoulos 教授(E-mail：dc45@st-andrews.ac.uk)的寶貴評論與建議，有利於本論文後續修改的工作。

二、與會心得

本此大會僅安排一場專題講座，由目前任教於美國紐約大學(New York University)史騰商學院(Stern School of Business)財金系 David L. Yermack 教授以*"RECENT DEVELOPMENTS IN SHAREHOLDER VOTING AND CORPORATE GOVERNANCE"*為題進行演說，主要針對股東投票與公司治理在近其學術探討的研究方向。整體而言，本人參與此次研討會深感獲益匪淺，不僅也擔任評述與討論法國 EMLYON 大學財金系 Belze 教授的論文(論文題目：Neutralization of Corporate Governance Mechanisms: The Preventive Anti-Takeover Defenses in a Code Law Country)，而且也特別是與幾位研究財務金融與銀行相當出色的學者，例如：Patrick J. Kelly (俄羅斯 New Economic School)、Susan Hume (美國 College of New Jersey)、Li Xie (英國 Durham University)、Francis In (澳洲 Monash University)、Nikolaos Milonas (希臘 University of Athens)、Laurence Booth (加拿大 University of Toronto)、Shantanu Banerjee (英國 Lancaster University)、Robert Korajczyk (美國 Northwestern University)、Marti Subrahmanyam (美國 New York University)、Gordon Alexander (美國 University of Minnesota)、Wing-Keung Wong (香港 Hong Kong Baptist University)、Giorgio Di Giorgio (義大利 LUISS Guido Carli University)、Regis Blazy (法國 University of Strasbourg)、Taufiq Choudhry (英國 University of Southampton)、Karin Joeveer (英國 Queens University Belfast)、Christophe Godlewski (法國 EM Strasbourg Business School)等人，有相當充分的學術請益與研究交流心得。

三、考察參觀活動(無是項活動者省略)

本次研討會大會並無安排任何考察參觀活動，僅舉辦 1 場學術演講、迎賓招待(Slowacki Theatre)與晚宴(Crown Piast Hotel)等活動。

四、建議

本次研討會在金融機構與公司理財場次的與會學者其研究水準相當不錯，對於論文問題詢問與建議相當務實與中肯，特別是評論人都非常認真對論文提出很好的建議，對於公司理財與金融機構研究有興趣的學者，可藉由此研討會獲得相當重要的寶貴意見。

五、攜回資料名稱及內容

本人帶回此次會議手冊一份，大會所有發表的論文全文檔案，皆可以在國際財務管理學會 2012 年學術年會的網站下載(www.mfsociety.org)。

【附件】論文發表接受函

shenghong@mail.nhu.edu.tw

19 February 2012

Dr. Sheng-Hung Chen
55, Sec. 1, Nanhua Rd., Zhongkeng, Dalin, Chiayi 62248, Taiwan, Chiayi , 62248, China

Dear Dr. Chen:

MC12~314 "Corporate Governance, CEO Compensations, and Cross-Border M&A Synergies for Acquiring Bank"
Dr. Yu-Jiun Shen -Nanhua University, Chiayi, Taiwan

Congratulations! Your paper has been reviewed and accepted for presentation at the 19th Annual Conference of the Multinational Finance Society, to be held at the hotel Novotel Krakow Bronowice, Krakow, Poland, between June 24 - June 27, 2012. This year we received a large number of submissions and the acceptance rate was much lower than normal. We expect the conference to be of high quality and particularly stimulating.

In case the abstract of your paper exceeds one thousand (1.000) characters or includes non-ASCII characters, please login to your account and adjust it accordingly. Please make sure that your name and names of your co-authors appear in the same sequence as the cover page of your paper. Please note that your abstract, names and affiliations will be published in the conference booklet, to be distributed to all conference participants.

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If you're a foreign participant, a visa may be necessary for entrance to Poland. Please check with the local Polish embassy for the specifics.

Thank you very much for your interest in the conference. We hope to personally meet you at the conference.

Sincerely yours,

The conference Program Chairs

Professor Michael Gombola
Professor Leszek Preisner
Professor Panayiotis Theodossiou
Professor Anna Zalewska

Corporate Governance, CEO Compensations, and Cross-Border M&A Synergies for Acquiring Bank

Abstract

This paper aims to investigate empirically whether difference in corporate governance between acquirer and target banks through Cross-Border Merger and Acquisition (CB M&As) are associated with better or worse performance from short- and long-term perspective. We focus on exploring how differences in board size and CEO compensations between acquirer and target bank would potentially influence bank takeover premiums through CB M&As. CB M&As pose a mechanism on how acquiring bank would improve their corporate governance via deal. Our empirical evidence reveal that banks in a country with higher GDP and small difference in GDP between target and bidder would like to engage the cross-border deal. However, bank would like to take CB M&As as a country with larger gap in monetary and corruption of freedom. Acquiring bank with larger number of managing director in board would demonstrate bad performance, measured by takeover premiums of 1day, 1 week, and 4 weeks, respectively. In addition, acquiring banks with higher CEO compensations are more like to have higher takeover premiums of 4 weeks, but this case does not hold in CAR (cumulative abnormal returns) and BHCAR (buy-and-hold abnormal returns). Regarding the long-term performance, bidder banks with higher CEO compensations are more like to have lower takeover premiums of CAR and BHCAR. Specifically, larger governance difference between bidder and target are harmful to acquiring bank's long-term takeover synergies. Specifically, bidder banks with higher portion of managing directors in their boards would significantly enhance the longer-term post M&A performance.

Keywords: Bank Cross-Broader M&A, Corporate Governance, CEO Compensations, M&A Synergies, Governance Quality

1. Introduction

Could acquiring bank with better corporate governance gain higher takeover synergies in short and long run through Mergers and Acquisitions (M&As)? This question could be first answered by Weston et al. (2004) viewpoint that corporate mergers as a result of expected efficiency-enhancing or synergetic gains via successful resource integration from targets would create potential value for bidding banks. Is Cross-Border M&As (CB M&As) with mediating effect of country governance standard specifically different from domestic M&As? There has been substantial expanded in both the number of domestic and cross-border M&As, the most majority of M&A activity involves financial institutions from the same country (Amel et al, 2004; Buch and DeLong, 2004). Doidge et al. (2007) and Benos and Weisbach (2004) all indicate that firms from country with better corporate governance are more likely to invest domestically rather than abroad. Specifically, domestic M&As are not more likely to be made by bidders that have access to more expensive debt capital which predominates in country with weak protection on creditor rights (Martynova and Renneboog, 2008). Debt financing is frequently used in cross-border M&As and associated information costs and regulatory restrictions would substantially discourage the number of cross-border deals (Buch and DeLong, 2004). Goergen et al. (2005) show that strong protection of minority shareholders cause firm takeovers cost and hence forces firms to search for potential targets abroad for M&A deal, particularly in those countries with weaker minority shareholder protection. Therefore, CB M&As can add an extra element to the benefit of domestic M&As because they are combined with an additional set of frictions that can obstruct or facilitate mergers.

In the light of specific industry characteristics, some authors concentrate on short-term announcement effects and clearly conclude that M&As seem to create value for bidding firms. Mentz and Schiereck (2006) indicate that bidder enjoys significant positive short-term returns as a result of the global synergy in the automotive supply industry. Gompers et al. (2003) emphasize the firms with stronger shareholder rights would have higher market value. Following Gompers et al. (2003), Wang and Xie (2009) construct Governance-Index from the firm-level shareholder rights and find that when the weaker the targets shareholder rights relative to the bidders, the transform target

control would improve corporate governance post M&As. Therefore, such an acquisition leads to a better use of target assets and then creates more value to bidding firm. Moreover, the larger differences in shareholder rights index between the bidder and target, the more enormous synergies can be generated by the target. According to value creation potential for short-term is ascribed to the target's shareholders (Bradley et al, 1988). However, most studies of merger activity on long-term financial performance address on evaluating the extent to which the short-term losses or gains reported by financial markets when the M&As are announced and later maintained. Dutta and Jog (2009) summarize that most of the studies, dominated by US studies and many with overlapping sample periods, and report negative long-term abnormal returns. Mitchell and Stafford (2000) show that the long-term Abnormal Returns (AR) are no significant existing while using the Buy and Hold Abnormal Returns (BHAR) method.

Traditional agency theories from finance literature point out the conflict of interest between CEOs and board of director. A takeover with another firm is an important process in the life of company. The substantial benefits from control changes between target and bidder substantially enlarge synergistic gains via M&As, particularly while the combined firm has better protection because better corporate governance of bidder. In addition, the higher corporate governance standard in the country for bidding firm, the higher abnormal returns to the bidder and target firms from the takeover exist. The bidder's corporate governance standards are better than those of the target; the abnormal returns will be extremely higher when the governance standards of the target will now be more rigorous; the acquisition may result in an improvement in corporate governance at the target. This is called "positive spillover by law hypothesis" by Martynova and Renneboog (2008). In contrast, a negative spillover is that the target is subject to better corporate governance regulation than the bidder. Fama and Jensen's (1983) discuss that outside directors are motivated to protect shareholders' interest because they have a strong incentive to protect their private reputations. They conclude that outside directors are effective in controlling agency problems. Specifically, bank directors with professional knowledge of doing banking business enable them to monitor and advise managers much efficiently. To reduce the presence of conflict of interest between banks and regulators, boards play a important monitoring role on internal governance like regulators and also deal with legal responsibilities (Andres and Vallelado, 2008).

CB M&As show a fundamental characteristics of the global business landscape (Finkelstein, 1999) and have the same reasons with domestic ones that two firms will merge when combining them increases the value from the perception of the acquiring firm's managers. National borders add an extra element to the benefit of domestic mergers since they are associated with an additional set of frictions that can impede or facilitate mergers. Through CB M&As' expansion this could help firms to obtain rents and to benefit from differences in tax regulation as result of market inefficiencies cross the country, such as national controls over labor and resources markets (Scholes and Wolfson, 1990; Servaes and Zenner, 1994).

However, CB M&As in global banking industry seem to encourage multinational bank to obtain a broader geographic market, to have access to local technological expertise, and to provide a lower cost production platform. Recently, the banking industry plays a prominent role in the payment system and in the good function of economic systems. Since bank deposits taken from customers are highly leveraged, bank is subject to be highly regulated more than non-financial firms. Banks are responsible to safeguard depositors' rights, to grant the stability of the payment system, and to reduce systemic risk. Based on these reasons, corporate governance of global banking industry has been advocated as an important research topic in recent. Some studies concentrate on corporate governance for non-financial firms, yet few is little known in investigating corporate governance of banking industry (Levine, 2004; Caprio et al., 2007; Adams and Mehran, 2008).

Banks devoted to cross-border M&As may be pursuing benefits associated with economies of scale, economies of scope, risk and revenue diversification, among others. Therefore, the purpose of this paper is to analyze the premium and synergy effects of domestic and cross-border M&As for a sample of global banking industry in short- and long-term.

We study performance of bidder firms and combined firms in the banking industry using M&A premiums from SDC database as well as either cumulative abnormal returns (CAR) or buy-and-hold-abnormal-returns (BHARs) model to analyze statistically reliable indications of short- and long-term performance. This paper aims to investigate whether difference in corporate governance between bidder and target banks through CB M&As generates higher synergy. An additional source of takeover synergy

in cross-border M&As may be caused of improvements in the governance of the bidder's and target's firms as a result of spillovers of corporate governance standards between the two firms.

Our study focuses on how board size, the compositions of the boards of directors significantly influence bank merger premiums through CB M&As. We record that CB M&As are a mechanism how banks improve the corporate governance. In international law, a full takeover leads to a change in the nationality of the target firm such that the bidder's corporate governance regulation will apply to the combined company, effectively replacing the target corporate governance (Bris and Cabolis, 2008). Authors find that those changes in corporate governance within a firm have value implications. In the firm-level, Boards with a higher percentage of independence are associated with lower takeover premiums. Independent outside directors is treated as a representative for defending shareholders' benefits because they help to lower shareholder and management problems. Brown and Maloney (1999) find that higher insider and lower outsider director turnover is associated with improved performance. Rossi and Volpin (2004) find that bidders are more regularly with better investor protection than targets' country. The bidder's country is stronger investor protection than in the target's country that in M&A deals have a higher premium (Starks and Wei, 2004 and Bris et al., 2008). In the country-level analysis, before M&A announcement, abnormal returns appear to be negative for a period of four days (Houston and Ryngaert, 1994); in another case, low abnormal returns for a period of ten days after M&A announcements in US sample (Bertin et al., 1989). These arguments suggest that the country-level and firm-level governance structure should interact between firms located in two different countries.

Based on some findings from Hall and Liebman (1998) as well as Aggarwal and Samwick (1999), the CEO's total compensations are measured by the sum of annual salary, bonus, long-term incentive plan, other annual compensation, value of option grants, value of restricted stocks grants, value change of existing option holdings, value change of existing restricted stocks, and value change of direct equity holdings. A CEO's personal benefits present not only operation of a firm by agency problems in the day-to-day, but also making decision mergers from acceptable profitability (Hartzell et al., 2004).

The second contribution is that we examine whether CEO compensation increase or decrease affects premiums after CB M&As deals. Bank managers have incentive to engage CB M&As and are willing to play an important role in making the decision to persuade potential benefits from global banking market and in creating synergies form activity diversity. Bank's decision-making shows close relationship between aggregate officer and director stock ownership with various factors. Moeller (2005) indicates that target's CEO has more entrenched power to reduce takeover premiums.

2. Literature Review

2.1 Impacts of Board Structure on Corporate Performance

We pay close attention to the difference in quality of corporate governance between bidder and target in global banking industry. Adams and Mehran (2008) point out that M&A deals may make a larger board more desirable for these firms and document that board size is significantly associated with characteristics of their sample firms' structures. Cotter et al. (1997) define independent directors as more than 50 % portion. They show the target shareholder returns are higher when the target's board is more independent.

In the case of banking study, a large merger performance literature reports that the board of directors plays a main role in the corporate governance process (Fama and Jensen, 1983). Therefore, a bank board seat may be a valuable asset to a board member. Andres and Vallelado (2008) focus on some evidence that bank board structure is relevant to bank performance. Their results show that larger and not excessively independent boards might enhance more efficient in monitoring and advising functions, and in turn creating higher market value.

Previous studies on nonfinancial industry have mixed results on the effect of corporate governance on merger premiums. Brewer III et al. (2010) examine the effect of governance characteristics on merger premiums in banking during the 1990s. They find bid premiums increase with the independence of the target's board but this is unaffected by board size of target. Additionally, Wang and Xie (2009) construct a data set on the number of 207 stock-for-stock mergers from 1996 to 2004. Their results

indicate that the post-merger board composition does affect target merger premiums. They also find interesting evidence that independent outsiders are always better monitors and the outside directors may also trade shareholder wealth for board seats in the combined firm. The outsiders' monitoring role is not uniform in all situations and across all firms. The effectiveness of outside monitoring depends on their personal interests.

Besides the board of director, some authors have found other corporate governance variables have a statistically significant effect on firm value. Yermack (1996) uses Tobin's Q in a sample of industrial companies as an approximation of market valuation and finds a negative correlation between board size and firm valuation. This result shows that companies get the highest market value when boards are small, implying that the greatest incremental costs descend as boards grow from in size from medium to small.

Jensen (1986) points out those acquisitions intensify the conflicts of interest between managers and shareholders in public corporations. The diversity of the board of directors may also improve its monitoring effectiveness (Jensen, 1993). Small boards are more effective in monitoring a CEO's actions. When boards get beyond seven or eight people they are less likely to function effectively and are easier for the CEO to control. Hence, keeping boards small can help improve their performance. Larger gains to insiders come from a merger offer; thus, higher share ownership by insiders promotes a larger bid premium. We also focus on the influence of ownership structure on corporate value. Mínguez-Vera and Martín-Ugedo (2007) find a non-significant relationship between the ownership of large block holders and firm value, and also show a positive effect of the degree of control with regard to firm value.

However, Brown and Maloney (1999) as well as Bange and Mazzeo (2004) suggest that boards with a higher level of the dispersed of ownership are associated with lower takeover premiums. This is because higher level of the dispersed of ownership seems important to increase the free-rider problem (Grossman and Hart, 1980; Shleifer and Vishny, 1986). In contrast, Subrahmanyam et al. (1997) focus on the stock returns of successful bidders in bank acquisitions. They find higher levels of the concentration of ownership by boards are associated with higher takeover premiums.

Nevertheless, previous literature focuses on narrow performance measures and

draws limited inference from selective sample. In this paper, we attempt to measure the effect of differences in board composition and ownership structure between targets and bidders on merger premiums and synergy in cross-border M&As in context of international study.

2.2 Impacts of CEO Compensations on Firms Value

Previous empirical evidences have indicated how size and performance affect pay for CEO compensation. The managers have incentives to increase firm size as to realize higher compensation (Jensen, 1989). Firm size can be enlarged through M&A, therefore, the CEO compensation substantially affects a CEO's decision to acquire another firm. Hartzell et al. (2004) indicate that bidder's CEO **seems to benefit much from the** completion of **M&As**. They identify compensation specifically related to acquisition deals and show the compensation of the CEO on the target firm, rather than that of the bidder CEO. Bliss and Rosen (2002) analyze the relationship between mergers and compensation of bank CEOs between 1986 and 1995. They examine how growth by mergers adds to compensation of CEO, and find that mergers have significantly positive effect on compensation. However, compensation increases even if mergers cause the target stock price to decline after a merger announcement. In other words, the type of compensations affects merger decisions since CEOs with more stock-based compensation were less likely to make an acquisition. Different from previous literature, we investigate whether CEO compensations increase and have significant effects on CB M&A premium after CB M&As.

2.3 Determinants of Cross-Border M&A and Performance Effect

National borders are connected to a set of factors that are likely to influence the benefits and costs of a merger because every country has their own cultural identities. People in different countries have different management of system, religions, and cultural, all of which increase the contracting costs connected with combining two firms across borders (Ahern et al., 2010). Technological changes and the deregulation of national branching by banking industries are suggested as possible explanations

for this difference in the post- acquisition performance of merged banks(Cornett et al., 2006). Vander Vennet (2002) studies a sample of European cross-border deals and finds an increase in profit efficiency for target banks on the first year after an acquisition. Beccalli and Frantz (2009) find the opposite result that a decrease in profit efficiency and an increase in cost efficiency after cross-border deals.

Recent literature discovered evidence that premium valuation drive merger activity and that bidders tend to have relatively high price to-value and price-to-book ratios (e.g., Dong et al., 2006; Rhodes-Kropf et al., 2005). Andre et al. (2004) indicate that long-term abnormal returns of bidders acquiring Canadian targets is high than Canadian bidders acquiring foreign targets. Dutta and Jog (2009) reach insignificant negative long-term abnormal returns of bidders.

Shleifer and Vishny (2003) principally suggest that acquisitions by overvalued firms may represent attempts by rational managers to capitalize on market inefficiencies. According to their arguments, these acquisitions can be in the best interests of shareholders because they result in long-run returns that are not as bad as they would be otherwise. In this way, mergers might represent a type of arbitrage in which managers are capitalizing on inefficient markets. Aw and Chatterjee (2004) study UK acquirers and find the performance of UK acquirers in domestic transactions (UK targets) surpasses that of UK acquirers of US targets, and the performance of UK acquirers of US targets exceeds that of UK acquirers of Continental targets. Moeller and Schlingemann (2005) study US acquirers and document significantly lower announcement period returns for acquirers in cross-border transactions than for acquirers of domestic targets. For the long term, they report that cross-border acquirers experience significantly lower improvements in operating performance in the five years after acquisition.

3. Data and Methodology

3.1 Data

Table 1 provides variable definitions. Our M&As sample announced between 1997 and 2009 are mainly collected from SDC (Securities Data Corporation) Platinum database.

[Table 1 is approximately here]

A total of 325 acquisitions are between January 1, 1997, and December 31, 2009. Deal related information is also obtained from the SDC database while financial statement information is gained from the Osiris database. We retain 141 deals if bank‘s information from Osiris is incomplete. Stock price data on target and bidder banks are obtained from Datastream. Datastream calculates cumulative abnormal returns and buy-and-hold-abnormal return. For each bank within a country we calculate the annual Tobin's Q. Specifically, director data and CEO compensations are collected from annual report. We select corporate governance variables from annual report so we retain 70 deals. Country level data on macroeconomic variables are collected from World Development Indicators (WDI) and International Monetary Fund (IMF), respectively. Additionally, data on governance across countries are used from Worldwide Governance Indicators (WGI) profiled by World Bank. As described above, we omit some sample because of it lacks of data. However, our identify final identify sample of domestic and cross-border M&A announcements consists of 70 deals involving firms from 44 countries.

3.2 Selection Criteria on Bank M&As

We retain only those cross-borders and domestic M&As that satisfy the following criteria: (i) We filter down bidder and target banks are publicly listed; (ii) Both domestic and cross-border transactions are all considered. The starting point in selecting the sample of bank's information from BankScope is involving all financial institutions between1997 and 2009.

Table 2 shows cross-border and domestic M&As deals by year and country. A large fraction of the sample is represented by financial institutions from panel A: 10.6% in 2007, 11.3% in 2006, and 7.8% in 2005 for cross-border M&As; 5% both in 2008 and 2007, 5.7% in 2006 for domestic ones.

[Table 2 is approximately here]

Panel B shows that the M&As by country between bidders and targets. A large fraction of the sample is represented by country from are Peru (10%), United States (9%) and France (8%) for cross-border M&As, United States (38%), Italy(9%) and Spain (9%) for domestic ones. According to Table 2 panel B, the United States is the world's first largest country for M&A. Secondly, the majority is concentrated in the Europe cities.

3.3 Measuring synergy in M&As

3.3.1 Cumulative Abnormal Returns (CARs)

We measure synergy effects at the takeover announcement using the methodology developed by Wang and Xie (2009). Data on stock price as the market return is collected from Datastream. The market models were estimated by using Ordinary Least Squares (OLS) regression over a 160 trading day period starting at trading day t = −260 relative to the earliest announcement date of the M&A event.

For each bidding and target firm, we compute cumulative abnormal returns (CAR) around cross-border and domestic M&A deals when announcements are completed over the period starting 2 day prior and after 2 day. Therefore, we calculate the 5-day cumulative abnormal returns for the acquirer (ACAR) and the target (TCAR), respectively. The portfolio cumulative abnormal return (PCAR) is average of the TCAR and ACAR over the event window (−2, +2). The abnormal returns accumulate and separate into different event windows: short-term (-5, +5), (-2, +2), (0,+10) and long-term (0,+100), (0,+100), (0,+180), (0,+365) (0,+730). The longest event window is 730 days: T = [0; 730] days, t = 0 being the announcement date of the transaction.

3.3.2 Buy-and-Hold Abnormal Returns (BHARs)

Following Bris and Cabolis (2008), we calculate buy-and-hold abnormal returns controlling for firms by each transaction determined between 1997 and 2009. Abnormal returns are calculated for a window around cross-border and domestic M&A deal

announcements for all the bidder or target firms if daily data are available. We first estimate the following market model:

$$Y_{ijt} = \lambda_i + \delta_i^r Y_{rjt} + \delta_i^u Y_{ut} + \mu_{it} \quad t = -260,...,-100 \tag{1}$$

where Y_{ijt} stands for the daily stock return for each the target or the bidder bank *i* in country *j* , Y_{rjt} is the country *j* of stock price return, and Y_{ut} is the world market index. The residual μ_{it} is the excess returns representing every firm in a day. The abnormal returns accumulate and separate into different event windows: short-term windows include (-5, +5), (-2, +2), and (0,+10); long-term windows include (0,+100), (3,+100) (0,+180), (0,+365), and (0,+730).

$BHAR_i^{(T_1,T_2)}$ stands for buy-and-hold-abnormal return of company *i* in period (T_1, T_2) and is estimated as

$$BHAR_i^{(T_1,T_2)} = \prod_{t=T_1}^{t=T_2}(1+\widehat{\mu_{it}}) - 1 \tag{2}$$

3.4 Empirical specification

3.4.1 Estimating the Probability of Engaging in Cross-Border M&As

Following Focarelli, Panetta, and Salleo (2002), we use a Logit model to estimate the characteristics of banks that are involved in cross-border acquisitions in comparison to those that are not part of any deal during the sample period. The dependent variable is a binary choice variable. If a bank is the bidder of domestic M&As in a year, the dependent variable equals to zero. On the contrary, a bank is the bidder of cross-border M&As in a year, the dependent variable equals to one. The model to estimate is given by:

$$
\begin{aligned}
M\&A_{i,j}^{CB} &= \beta_0 + \beta_1 \text{Log(TA)}_{i,j} + \beta_2 \text{ROE}_{i,j} + \beta_3 \text{Log(Market Capitalization)}_{i,j} + \beta_4 \text{Log(GDP)}_j \\
&+ \beta_5 \text{DF (Corruption)}_j + \beta_6 \text{DF (Shareholder Protection)}_j \\
&+ \sum_{k=1}^{8} \delta_k \text{DF(Freedom)}_j + \varepsilon_{i,j}
\end{aligned}
\tag{3}
$$

where $M\ \&\ A_{i,j}^{CB}$ is the dependent variable and defined one if a bank i in country j absorbed by the activity of cross-border M&As and otherwise, it equals to zero if a bank i in country j absorbed by the activity of domestic M&As. We include the cross-country difference in stock market, degree of freedom, and institutional governance variables in the regressions.

Bank-level variables of financial characteristics

We consider the attitude of the deal. We control for the size of bilateral banks as proxy by taking the natural logarithm of the bank's total assets Log(TA). Zollo and Leshchinkskii (2000) find that the size of the bidder had a significantly negative impact on the acquirer's M&A-success. The largest of targets provide more returns for bidders, suggesting that the acquisition of a larger firm may provide greater opportunities to achieve economies of scope; however, larger mergers may also be more difficult to manage (Asquith et al, 1983). To measure the profit efficiency of a CB M&A transaction we use a relative profitability way that is compared to the ratio of a bidder's return on equity (ROE) and a target's return on equity (Beitel et al, 2004). We use ROE as it has developed as a major profitability measure used by capital markets analysts and as it estimates profit efficiency based on capital employed given that capital is usually a very scarce resource in banks.

Log (Market Capitalization) is the natural logarithm of the bank's market capitalization. Some hypotheses for different opinion have been considered in the literature. The literature provides some hypotheses predicting a negative relation between banks' capitalization and the likelihood of being a target. We accept the

capitalization as an index of managerial ability or efficiency. Because the potential gains from a better management are smaller, better capitalized banks will help decrease the potential buyers. We don't accept a bank's capitalization is high; an acquisition by a badly capitalized and inefficient acquirer might not be fostered by the supervisor. Another literature for a negative link suggested by Hannan and Pilloff (2007) is that buyers prefer high leveraged (poor capitalized) targets because it enables them to maximize the magnitude of post-merger performance gains relative to the cost of achieving those gains. For a given asset size, the purchase price premium of the acquisition is generally lower, the higher capitalized is the bank. Some predict a positive relationship the high capitalization as the inability of a bank to diversify assets would be more attractive for better diversified acquirers. They may find highly capitalized targets because acquirers face regulatory pressure to increase capitalization. Finally, the managers of banks with high capital ratios may be operating further below their profit potential because of reduced pressure to obtain high earnings.

Country-level variables of macroeconomic environment, institutions, and governance

We obtain the data from the *World Development Indicator* (WDI) produced by *World Bank* and control for the level of economic development as proxy by GDP average annual real growth rate. Annual percentage growth rate of GDP at market prices is according to some alterations in local currency. Economic freedom is the fundamental right of every human to control his or her own labor and property. We use the Economic freedom constructed by the World Bank's Doing Business study as our primary measure of the freedom difference between the bidder and the target. The freedom variables which are the difference variables between bidders and targets, including overall freedom, business freedom, trade freedom, fiscal freedom, monetary freedom, investment freedom, financial freedom, corruption, labour freedom and shareholder protection.

3.4.2 Identifying the Probability of CEO Compensations in M&As

Bonus is the cash bonus paid to the CEO for the year in which the merger is

completed. We follow Grinstein and Hribar (2004) who are interested in how much bonuses will pay to CEO after M&As deals. We examines whether M&A bonuses actually represent additional compensation to CEOs. The following equation is considered.

$$\begin{aligned}\text{CEO Bonus}_{i,j} &= \beta_0 + \varphi\left(\widehat{\text{M\&A}}\right)_{i,j}^{CB} + \beta_1 \text{Return}_{i,j} + \beta_2 \text{ROA}_{i,j} + \beta_3 \text{ROAGrowth}_{i,j} + \beta_4 \text{Size}_{i,j} \\ &+ \beta_5 \text{SizeGrowth}_{i,j} + \beta_6 \text{ROE}_{i,j} + \beta_7 \text{ROEGrowth}_{i,j} + \omega_{i,t}\end{aligned} \quad (4)$$

We define the dependent variable is the bonus that the CEO of bank i receives at the end of year t due to M&As (Grinstein and Hribar, 2004). The independent variables include: Size is the firm size as measured by the book value of assets. Previous research has shown connection with firm size and CEO compensation (Gomez-Mejia, 1994; Lambert et al., 1991). We measure firm size using the logarithm of sales. We use the relative profitability measured with the ratio of return on assets ($\text{ROA}_{i,j}$) and return on equity ($\text{ROE}_{i,j}$), namely. ROA Growth is defined as the percentage growth in ROA relative to previous year. ROE Growth is the percentage growth in ROE relative to previous year. Return is the stock return of the bank. Bliss and Rosen (2002) show mergers are the way to increase firm size and find that M&A can help firm growth which is good for CEO compensation. Grinstein and Hribar (2004) investigate CEO compensation for successful M&A deals. They indicate that CEO power makes them do a decision of Cross-Border M&As which in turn plays a significant role in determining M&A bonuses.

3.4.3 Investigating the Impacts of Corporate Governance Difference between Target and Bidder on Takeover Premiums in CB M&As versus Domestic M&A

Following Wang and Xie (2009), the empirical model is specified for investigating the impact of corporate governance on takeover premiums. Our dependent variable is

takeover premium measured as between bidder and target. The independent variables are board size (BOASIZE), board composition (BOACOM), CEO compensations (CEO), and control deal characteristics as Tobin's Q, method of payment, and SIZE.

$$\begin{aligned}\text{Premiums}_{i,j} \text{ / (BH)CAR} \\ =\alpha_0+\lambda\Phi\widehat{(\text{M\&A})}_{i,j}^{CB}+\sigma\Omega\widehat{(\text{Bonus})}_{i,j}^{CEO}+\beta_1\text{BOANUM}_{i,j}+\beta_2\ \text{BOACOM}_{i,j} \\ +\alpha_1\ \text{Tobin's Q}_{i,j}+\alpha_2\ \text{SIZE}_{i,j}+\alpha_3\text{EA}_{i,j}+\alpha_4\text{LE}_{i,j}+\alpha_5\text{DL}_{i,j}+\eta_{i,j}\end{aligned} \tag{5}$$

where $\text{Premiums}_{i,j}$ is that the price change of the target, computed as the ratio of the difference of the bidder offer and target stock price per share to the target price per share. Bidder offer price per share is generated form exchange ratio multiplied by the bidder closing price on the completion day of each merger transaction. Therefore, we define as bank i in country j had completed M&As transactions while the bidders paid over the market prices to the target that it is additional expenditure. (BH)CAR is computed by stock price of bidder and target. The acquisition synergy is defined as the portfolio's cumulative abnormal return during an event window.

$\Phi\widehat{(\text{M\&A})}_{i,j}^{CB}$ is the predicted probability estimated from Equation (3). $\Omega\widehat{(\text{Bonus})}_{i,j}^{CEO}$ is the predicted value estimated from Equation (4). CEO compensation is CEO receives the base salary and annual bonus at the end of the financial year. Therefore, we study how much CEO compensation can affect premiums. As independent variables we use first of all board size refers to the total number of shareholders on the board in each sample firm, which is inclusive of the CEO and Chairman for each accounting year is at the end of the financial year in bank i in country j. Both bidder and target boards, board compositions are separated inside directors, independent outside directors, and gray directors (Baysinger and Butler, 1985; Brewer et al., 2000; Wang et al., 2009). We classify directors as insiders if they are also employed by the bank and hold management positions in the bank or recently retired from the bank, such as the CEO or the president of a bank. Independent outside

directors is defined as if they are not employed from the bank. In other words, there is no association with the firm except for the directorship such as retired managers of another firm or professors in universities. 'Gray directors' are those who have some kind of relation with the firm, including lawyers affiliated with the firm, investment bankers, lenders of the firm, retired managers of the company, relatives of the current managers, employees of its important business partners, and the firm's consultants. We measure inside directors as simply the proportion of inside directors to the total number of directors on the board. Independent outside directors is the ratio calculated as the number of insider boarders over overall board. Gray directors are the ratio calculated as total number of gray directors on the board. We would like to know whether ownership concentration affects bank merger premiums through CB M&As.

Based on empirical specification by Wang and Xie (2009), we use firm size (SIZE) and Tobin's *Q* as control variable that represent bidder and target characteristics and include the deal characteristics with the method of payment and exchange rate. $EA_{i,j}$ is the ratio of book value of equity divided by the summation of total assets, deposits, and liabilities. It measures the proportion of the total assets that are financed by stockholders. $DL_{i,j}$ is the ratio of deposits over liabilities, meaning that banks with higher DL might generate a higher market valuation. According to previous studies on banking industries, bank size and means of payment has been found to be significant in determining the bid premiums (see Beatty et al., 1987; Cheng et al., 1989; Fraser and Kolari, 1988; Rogowski and Simonson, 1989; Brewer et al., 2000). Therefore, we add those variables in the equation (5).

5. Empirical Results

5.1 Descriptive Statistics

Table 3 shows descriptive statistics of variables by CB M&As deals, including financial characteristics of bidder bank, macroeconomic condition, and difference governance between acquirer and target banks. First, the mean of cross-border M&A is 0.6905, meaning that bidder want to choose cross-border M&A is 69.05 percentage

points**.**

[Table 3 is approximately here]

Mean of difference GDP between bidder and target bank is -0.4544. The most likely reason is that target returns incorporate the probability of an acquisition falling through. The mean of takeover premium for 4 weeks, 1 week and 1day are 24.7471, 19.3388 and 16.7105, respectively, indicating that on average the takeover premium for 4 weeks is higher than that of 1 day. This implies cross-border M&As have long-term effect on their market expectation. The mean of synergy of bidder for 3 months, 6 months, 1 year and 2 years are 1.082, 1.549, 4.167 and 10.186 in CAR, respectively. In contrast, the mean of synergy of target for 3 months, 6 months, 1 year and 2 years are -0.723, -1.436, -1.868 and -3.686 inCAR, respectively. BHAR also show the same results that the mean of synergy of bidder is positive. The mean of synergy of target for 3 months and 6 months are negative, but 1 year and 2 years are positive. This is conform to existing evidence that increasing of M&A transactions value for target shareholders vary with the time (Xie and Wang, 2009; Dong et al. 2006).

5.2 Cumulative Abnormal Returns of Trend in Banking Industry

Mergers include CB M&As and domestic M&A in terms of both absolute returns. Figure 1 and Figure 2 plot cumulative abnormal returns differences and cumulative combined abnormal returns differences of cross-border, domestic, and all M&As deals over our sample period, respectively. Both figures show similar patterns.

The CAR difference in CB M&As increases after finished M&A. however, the CAR difference in domestic mergers develop slowly. Figure 1 and Figure2 figure out that CAR of cross-border M&A is higher than domestic M&A. Cross-border returns may be expected to be higher if the acquirer can apply one country's superior management techniques, if the acquirer can secure firm lever scale economies (Scherer and Ross, 1990).

Figure 3 show graphical CAR differences between bidder and target bank for CB M&As. It figures out that CAR is faster growth in cross-border M&A. Figure 4 show

CAR looks smooth in domestic M&A, and cumulative abnormal returns differences between bidder and target bank is larger.

5.3 Identifying Cross-Country Determinants of CB M&As in Banking Industry

Table 5 shows factors determining cross-border M&As and the results of the Logit estimation used in Eq. (3). Given the many freedom's variables colinearity in Eq. (3), columns (1) through (9) were tested individually one by one degree of variable of freedom. The coefficients for growth rate of GDP are significantly positive. This suggests that banks in a country with higher GDP between target and bidder would like to engage the cross-border deal. We find that the coefficient of DIF GDP is significantly negative. The survey results are representative of GDP of bidder's bank is smaller than target's bank. Therefore, banks in a country with higher different of GDP between target and bidder would prefer CB M&As.

[Table 5 is approximately here]

We find all institutional freedom variables are statistically significant. We show that bidder's country with higher shareholder protection than target's have more CB M&A activity. In CB M&As, country of target offer less shareholder protection than those of the bidders. Being acquired by a firm with greater shareholder protection may improve the efficiency of target firms having poor legal and institutional environments but the benefits are not so clear for bidder firms (Rossi and Volpin, 2004). Monetary freedom connects an estimate of price controls and a measure of price stability. Bank would like to take cross-border M&As as the monetary price of country is stable and more larger gap between bidder and target in monetary freedom. Moreover, ROE have significantly negative sign. We measure operating performance as return on equity (ROE). Bank would like to take cross-border M&As but higher probability of ROE to takeover poor performing banks. Economic freedom disintegrated by Corruption due to insecurity and uncertainty. Corruption of country is not serious that Bank would like to engage the cross-border deal. Specially, we find Shareholder Protection is insignificant and Corruption of country is significantly negative sign in columns (10).

5.4 Impacts of corporate governance difference between target and bidder on takeover premiums in CB M&As: Firm-level

Table 6 reports the premium effect of mergers and acquisitions on the total sample of bidder and target firms in the banking industry.

[Table 6 is approximately here]

In firm-level, we discuss the transaction costs of integrating the two companies that the premiums paid for the targets, and the acquirers' overvaluation at the time of the acquisition. Banks pay more premiums of 4 weeks on bank CB M&A activities. The difference between cultural, geographical distance and policy may increase the costs of bidder and target through CBM&A. Bidder banks with higher CEO compensation are more like to have higher takeover premiums of 4 weeks. In addition, bidder bank with larger number of managing director in board would demonstrate bad performance measured as takeover premiums of 1day, 1 week, and 4 weeks. It is expected between a bidder in a country with bad performance and a target in a country with stricter corporate governance regulation, as the induced poor performance by the bidder may lessen the quality of corporate governance of the target. Accordingly, bidders agree to overpay for the target in premium.

Log (TA) has a significantly negative effect on premiums suggesting that larger bidder is more likely to make takeover decisions of poor governance of target. Target reduces the bargaining of chance because target's operation performance is poor or target is subject to poor corporate governance regulation. DIF GDP is positive that bidder tends to overpay in takeovers. GDP has larger gap between bidder and target that the bidder from country has better economic policies. Bidder is willing to overpay in takeovers. We find that the coefficient of DIF Governance is significantly positive, confirming earlier results by Martynova and Renneboog (2008). It is positive spillover that the bidder corporate governance standards are above those of the target, the premium will be higher as the governance standards of the target will now be more rigorous.

The evidence reports shows that takeover premium is significantly negative when DL is high in long-term. A higher DL may reflect a higher market valuation that bidder makes takeover decisions of poor governance of target. We find when EA is high that takeover premium of 4 weeks is significantly positive. The **Equity Ratio** is a good indicator of the level of leverage used by a company. It measures the proportion of the total assets that are financed by stockholders. The higher of Equity **Ratio** is that the company has higher proportion of equity capital and capital structure is healthier. Therefore, healthy capital structures of bidder want to choice healthy capital structures of target. Bidder is more likely to overpay for target. We further find when LE is high that takeover premium is significantly negative. The lower of LE ratio is meaning that bank has a great ability to pay long-term debt. Creditor has more protection due to long-term debt can be solved for target firms. However, takeover premium is high when Creditor protection is higher.

5.5 Impacts of corporate governance difference between target and bidder on takeover synergy in CB M&As: Market-level

Stock price is affected by the acquisition of message when the company announced the acquisition. The acquisition synergy is defined as the portfolio's CAR and BHAR during an event window. Table 7 and Table 8 report the synergy effect of mergers and acquisitions on the total sample of bidder and target banks in Short-term performance and long-term performance, respectively.

[Table 7 and Table 8 are approximately here]

CB M&As with a low acquisition synergy, lead to higher total compensation of both Short-term and Long-term. Payment of higher CEO compensation is not really an effective control mechanism to create value. Bidder bank with smaller number of managing director in board would demonstrate good performance. However, managing director in board is positive but insignificant effect in (-2, +2). In the same situation, Bidder bank with smaller number of managing director in board can increase bank's synergy in 1 month and 6 months. This implies synergy of cross-border M&A have

long-term effect on their market expectation.

Log(TA) has a significantly positive effect on the abnormal returns, suggesting that the synergy by an acquisition to be an increasing function of the large bidders have stronger corporate governance. Acquisitions made by bidders that have better performance measured by Log(TA) generate greater synergy. However, total Asset increases than last year that can generate higher synergy. Our findings of negative effects of DIF Governance on acquisition synergy indicate that poor takeover decisions lead to decrease firm value.

In long-term, this shows that synergy is significantly positive when DL is high in long-term. A higher DL may reflect a higher market valuation. We find EA is high that synergy is significantly positive. **Equity ratio** is a good indicator of the level of leverage used by a company. It measures the proportion of the total assets that are financed by stockholders. The higher of equity **ratio** is that the company has higher proportion of equity capital and capital structure is healthier. Therefore, a healthy capital structure reflects a higher synergy. We further find when LE is high that synergy is significantly negative. The lower of LE ratio is meaning that bank has a great ability to pay long-term debt. Creditor has more protection due to long-term debt can be solved for target firms. In other words, acquirer returns are higher when the target country has higher creditor protection.

6. Conclusion

We illustrate that differences between the bidder and target corporate governance standards have an important impact on the returns and takeover premiums from cross-border mergers and acquisitions. Using M&As data on 141 deals from 1997 to 2009, this paper addresses the issue about the compositions of the boards of directors and board sizes between acquirer and target banks on synergy gains through CB M&As. We empirically investigate the impact of differences compositions of the boards between bidder and target banks on cross-border M&As premiums. Second, we examine whether CEO compensation increase or decrease affects premiums after CB M&As deals.

However, bidder bank with larger number of managing director in board would demonstrate bad performance measured as takeover premiums of 1day, 1 week, and 4 weeks. In addition, bidder banks with higher CEO compensation are more like to have higher takeover premiums of 4 weeks, but this case does not hold in CAR and BHAR. Regarding the long-term performance, bidder banks with higher CEO compensation are more like to have lower takeover premiums of CAR and BHAR. Specifically, larger governance difference between bidder and target are harmful to bidder bank's long-term takeover synergies. Bidder banks with larger managing directors in their boards would enhance the longer-term post M&A performance.

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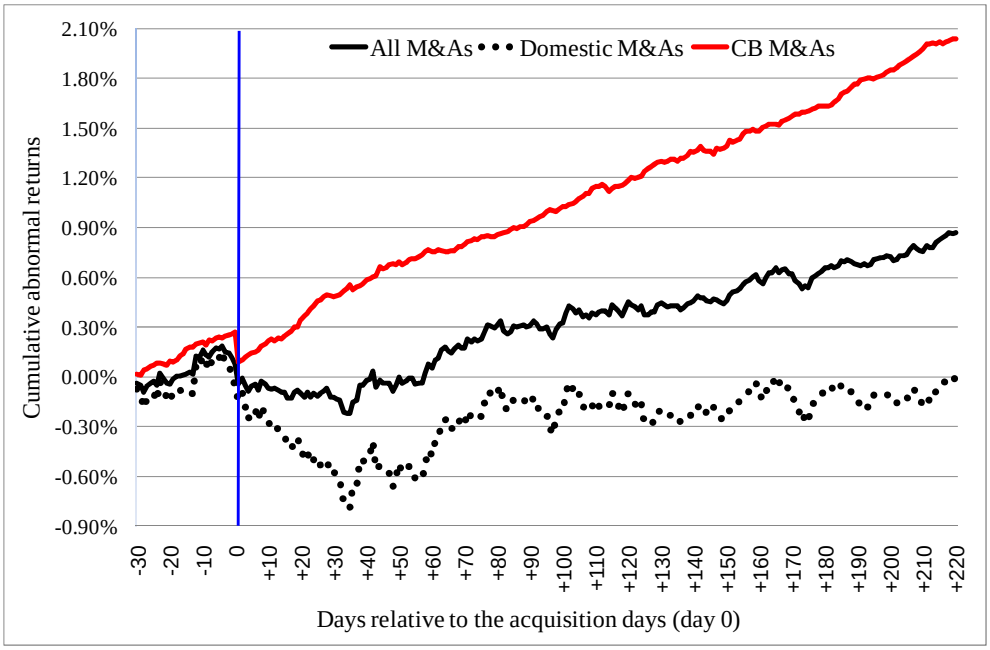

Figure 1. Cumulative abnormal returns differences among cross-border, domestic, and all M&As. (Note: # of observations for cross-border, domestic, and all M&As are 60, 80, and 140, respectively)

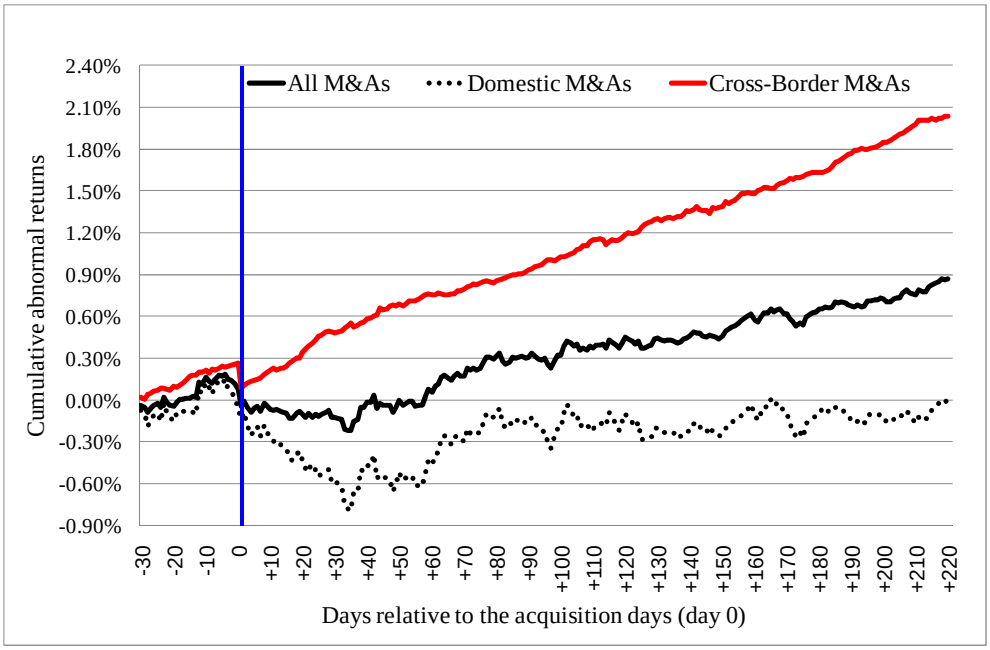

Figure 2. Cumulative combined abnormal returns differences among cross-border, domestic, and all M&As. (Note: # of observations for cross-border, domestic, and all M&As are 60, 80, and 140, respectively)

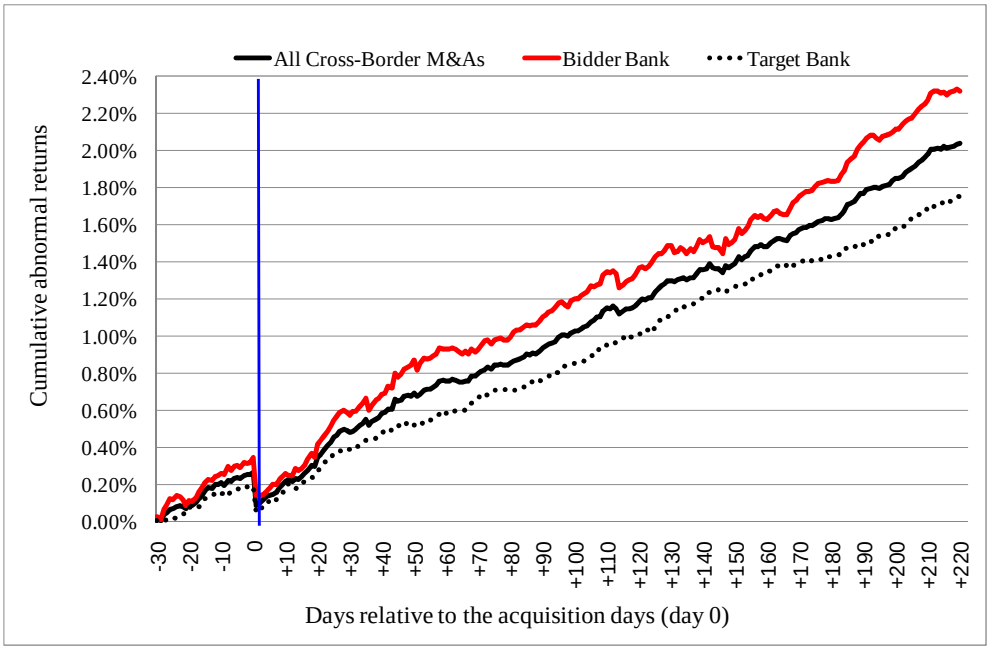

Figure 3. Cumulative abnormal returns differences between bidder and target bank for cross-border M&As. (Note: # of observations for cross-border M&As, bidder banks, and target banks are 60, 60, and 60, respectively)

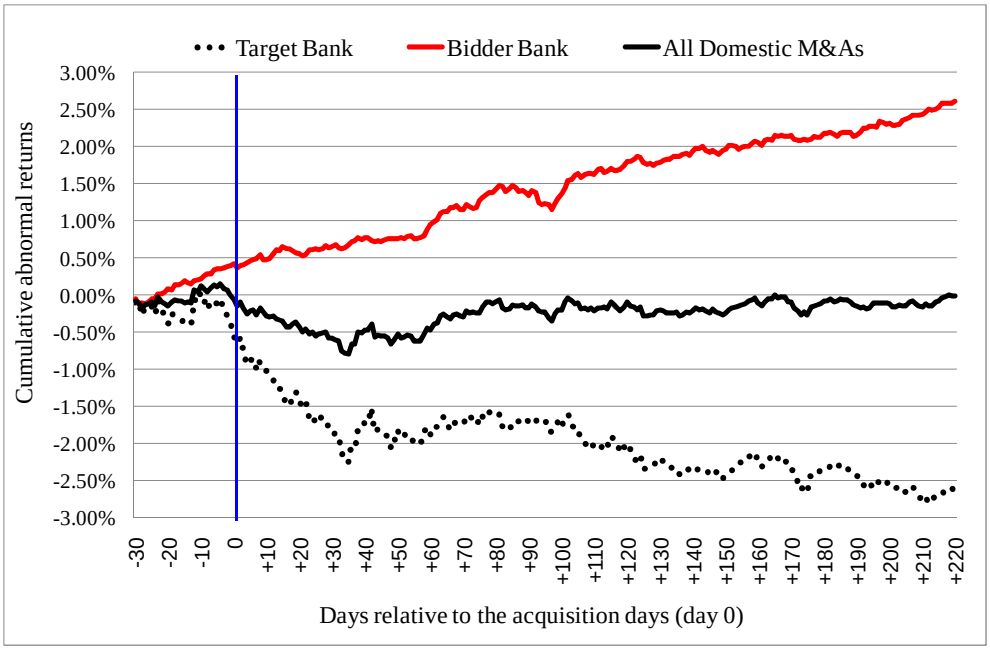

Figure 4. Cumulative abnormal returns differences between bidder and target bank for domestic M&As. (Note: # of observations for domestic M&As, bidder bank, and target banks are 80, 80, and 80, respectively)

Table 1 Definition of all dependent and independent variables

Variable	Expected sign	Definition
Panel A: Deal characteristics		
Premium		Premium of offer price to target trading price.
CAR/ BHAR		The two-day market adjusted return between the day prior to the announcement and the day after the announcement. The longest event window is 730 days.
Panel B: Governance characteristics		
Board Size	+	The total number of shareholders on the board in each sample firm.
Board Compositions	+	Separation of inside directors, independent outside directors, and gray directors.
CEO compensation	+	The sum of salary, director's fee, superannuation and bonus.
Panel C: Performance and characteristics		
Market Capitalization	−	The natural logarithm of the bank's market capitalization.
ROA	+	Operating income before interest, depreciation, and amortization, scaled by book value of total assets.
ROA Growth	+	The percentage growth in ROA relative to previous year.
ROE	−	Measure the rate of return on the ownership interest of the common stock owners.
ROE Growth	+	The percentage growth in ROE relative to previous year.
Size (Log TA)	+	The firm size as measured by the book value of assets.
Size Growth	+	The percentage growth in Size relative to previous year.
Market Return	+	The stock return of bidder or target.
Equity/Total Assets	+	The ratio of book value of equity to total assets and represent the degree of financial leverage.
Liabilities /Equity	+	The ratio of book value of Liabilities divided by the Equity.
Deposits/Liabilities	+	The ratio between deposits and liabilities. A higher DL may reflect a higher market valuation.
Tobin's Q	−	It is counted as the sum of the market value of common equity plus the book value of preferred shares plus the book value of total debt divided by the book value of total assets

Table 1 (continued)

Variable	Expected sign	Definition
Panel D: Country-level characteristics		
GDP	+	Growth rate of gross domestic product in US dollars.
Growth rate of GDP	+	The percentage growth in GDP relative to previous year.
Corruption	−	Economic freedom by introducing insecurity and uncertainty into economic relationships.
Shareholder Protection	+	It refers to the protection provided by the corresponding corporate law or the commercial code to the shareholders of a company.
Business freedom	+	A quantitative measure of the ability to start, operate, and close a business that represents the overall burden of regulation as well as the efficiency of government in the regulatory process.
Trade freedom	+	A composite measure of the absence of tariff and non-tariff barriers that affect imports and exports of goods and services.
Fiscal freedom	+	Measure of the tax burden imposed by government.
Investment freedom	+	In an economically free country, there would be no constraints on the flow of investment capital. Individuals and firms would be allowed to move their resources into and out of specific activities both internally and across the country's borders without restriction.
Monetary freedom	+	Measure of price stability with an assessment of price controls. Both inflation and price controls distort market activity.
Financial freedom	+	Measure of banking security as well as a measure of independence from government control.
Labor freedom	+	A quantitative measure that looks into various aspects of the legal and regulatory framework of a country's labor market.

Table 2 Cross-Border and Domestic M&As Deals by Year and Country

Panel A: M&As Distributions by Year

year	All M&As		CB M&As		Domestic M&As	
	N	%	N	%	N	%
1997	1	0.7%	0	0.0%	1	0.7%
1998	2	1.4%	1	0.7%	1	0.7%
1999	6	4.3%	2	1.4%	4	2.8%
2000	8	5.7%	7	5.0%	1	0.7%
2001	15	10.6%	9	6.4%	6	4.3%
2002	4	2.8%	1	0.7%	3	2.1%
2003	7	5.0%	4	2.8%	3	2.1%
2004	13	9.2%	9	6.4%	4	2.8%
2005	19	13.5%	11	7.8%	8	5.7%
2006	22	15.6%	16	11.3%	6	4.3%
2007	22	15.6%	15	10.6%	7	5.0%
2008	16	11.3%	9	6.4%	7	5.0%
2009	6	4.3%	4	2.8%	2	1.4%
Total	141	100.0%	88	62.4%	53	37.6%

Panel B: M&As Distributions by Country

country	All M&As		CB M&A		Domestic M&As	
	N	%	N	%	N	%
Australia	4	3	2	2	2	4
Austria	3	2	3	3	0	0
Belgium	3	2	3	3	0	0
Canada	6	4	4	5	0	0
China	4	3	4	5	0	0
Cyprus	3	2	3	3	0	0
Denmark	1	1	1	1	0	0
Egypt	2	1	0	0	2	4
France	9	6	7	8	2	4
Germany	6	4	5	6	1	2
Greece	2	1	1	1	1	2
Hong Kong	2	1	1	1	1	2
Iceland	1	1	0	0	1	2
Italy	9	6	4	5	5	9
Japan	5	4	4	5	1	2
Korea	1	1	0	0	1	2
Kuwait	1	1	0	0	1	2
Latvia	1	1	1	1	0	0
Malaysia	3	2	2	2	1	2
Netherlands	7	5	5	6	2	4
Peru	9	6	9	10	0	0
Poland	1	1	1	1	0	0
Portugal	2	1	2	2	0	0
Qatar	2	1	2	2	0	0
Singapore	5	4	4	5	1	2
Spain	10	7	5	6	5	9
Sweden	3	2	0	0	3	6
Taiwan	1	1	1	1	0	0
United Arab Emir	1	1	1	1	0	0
United Kingdom	8	6	5	6	3	6
United States	28	20	8	9	20	38

Panel C: Cross-border M&As Distributions by Country

		Bidding bank																													
	Country	AU	AT	BE	CA	CN	CY	DK	EG	FR	DE	GR	HK	IS	IT	JP	KR	KW	LV	MY	NL	PE	PL	PT	QA	SG	ES	SE	TW	AE	GB	US	Total
Target bank	AR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0	0	3
	AU	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	4
	AT	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
	BD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2
	CZ	0	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
	DK	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	3
	EG	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
	FR	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
	DE	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
	GR	0	0	0	0	0	3	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
	HK	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	5
	ID	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	0	0	0	0	0	0	6
	IT	0	0	0	0	0	0	0	0	2	1	0	0	0	5	0	0	0	0	0	3	1	0	0	0	0	2	0	0	0	0	0	14
	JP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
	KR	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	6
	LT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	LU	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	MY	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	3
	MX	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	3
	NL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
	OM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
	PK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
	PH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
	PL	0	0	2	0	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0	2	0	1	1	0	0	0	1	0	0	0	2	12
	ZA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
	ES	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	5
	TW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
	TH	0	0	0	2	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	1	0	8
	TR	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
	GB	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	3
	US	0	0	0	2	1	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	0	0	0	0	3	0	0	0	1	20	31
	TOTAL	4	3	3	4	4	3	1	2	9	6	2	2	1	9	5	1	1	1	3	7	9	1	2	2	5	10	3	1	1	8	28	141

Note: AR=ARGENTINA, AU=AUSTRALIA, AT=AUSTRIA, BD=BANGLADESH, BE=BELGIUM, CA=CANADA, CN=CHINA,CY=CYPRUS, CZ=CZECH REPUBLIC, DK=Denmark, EG=EGYPT, FR=FRANCE, DE=Germany, GR= GREECE, HK=HONG KONG,IS=ICELAND, ID= INDONESIA, ITA = ITALY, JP=JAPAN, KR=KOREA REPUBLIS OF, KW=KUWAIT, LV=LATVIA, ES=SPAIN,LT=LITHUANIA, LU=LUXEMBOURG, MY=MALAYSIA, MX=MEXICONL=NETHERLANDS, OM=OMAN, PK=PAKISTAN, PE=PERU, PH =PHILIPPINES, PL=POLAND, PT=PORTUGAL, QA=QATAR, ZA=SOUTH AFRICA, SG=SINGAPORE, SE=SWEDEN, TW=TAIWAN, TH=THAILAND, TR=TURKEY, AE=UNITED ARAB EMIRATES, GB= UNITED KINGDOM, US=UNITED STATES.

Table 3 Descriptive statistics

Variable	Observations	Mean	Std. Dev.	Minimum	Maximum
Cross-Border M&As	42	0.6905	0.4679	0	1
Bidder characteristics					
Log(Total Assets)	42	0.3858	1.8938	-1.0673	12.3100
Return on Equity (ROE)	42	11.4981	22.6255	-93.1200	33.0600
Market Capitalization (thousand)	42	20,100,000	29,200,000	0	121,000,000
Tobin's Q	42	0.9665	1.1466	-0.15377	7.79927
Deposits/Liabilities	42	0.7727	0.1499	0.4658	0.9654
Equity/ Total Assets	41	0.0733	0.0422	0.0253	0.2559
Liabilities/ Equity	42	0.0810	0.0547	0.0260	0.3440
Growth rate if TA	42	0.1525	0.1694	-0.1524	0.6686
Growth rate of GDP	42	2.6385	2.5556	-0.7	9.5790
Difference (GDP)	42	-0.4544	1.2806	-3.6192	2.7025
Difference (overall Institutions)	42	58.1750	182.3771	0	675.705
Difference (Shareholder Protection)	42	0.3405	1.3437	-1	8.3
Difference (Business Freedom)	42	0.4312	13.2244	-30	45
Difference (Trade Freedom)	42	3.5104	11.6875	-23	43.8
Difference (Fiscal Freedom)	42	-5.2869	11.3689	-28.1035	18.9691
Difference (Monetary Freedom)	42	4.4840	6.7484	-8.51017	21.14692
Difference (Investment Freedom)	42	3.8095	21.1790	-40	60
Difference (Financial Freedom)	42	-0.7143	22.2396	-40	60
Difference (Freedom from Corruption)	42	8.9738	21.2761	-37	69
Difference (Labour Freedom)	42	2.7910	10.9200	-13.7698	50.3873
Difference (Corruption Control)	42	0.1568	0.7260	-1.6622	2.2981
M&A premiums of 1 day	42	16.7105	28.5308	-43.11	117.85
M&A premiums of 1 week	42	19.3388	28.9966	-45.33	117.85
M&A premiums of 4 weeks	42	24.7471	35.9766	-46.35	117.85

Table 4 M&A synergies difference between bidder and target bank in all M&As

	All M&As							
	Bidder			Target			Difference	
	N	Mean	S.D.	N	Mean	S.D.	*t*-statistics	(p-value)
CAR(-2,+2)	69	-0.004%	0.006	69	-0.243%	0.015	1.242	(0.218)
CAR(-5,+5)	69	0.062%	0.011	69	-0.490%	0.032	1.373	(0.174)
CAR(0,+10)	69	0.064%	0.013	69	-0.396%	0.026	1.324	(0.190)
CAR(0,+100)	69	1.082%	0.114	69	-0.723%	0.086	1.093	(0.278)
CAR(+3,+100)	69	1.005%	0.105	69	-1.000%	0.089	1.277	(0.206)
CAR(0,+180)	69	1.549%	0.200	69	-1.436%	0.153	1.033	(0.306)
CAR(0,+365)	68	4.167%	0.401	68	-1.868%	0.294	1.046	(0.299)
CAR(0,+730)	64	10.186%	0.905	64	-3.686%	0.584	1.088	(0.281)
BHAR(-2,+2)	69	-1.404%	0.120	69	-0.233%	0.015	-0.797	(0.428)
BHAR(-5,+5)	69	0.108%	0.011	69	-0.455%	0.029	1.507	(0.137)
BHAR(0,+10)	69	1.562%	0.122	69	-0.250%	0.028	1.196	(0.236)
BHAR(0,+100)	69	1.858%	0.149	69	-0.487%	0.087	1.568	(0.121)
BHAR(+3,+100)	69	3.034%	0.179	69	-0.740%	0.098	1.568	(0.121)
BHAR(0,+180)	69	4.181%	0.331	69	-0.045%	0.161	0.979	(0.331)
BHAR(0,+365)	68	19.381%	1.468	68	3.134%	0.397	0.888	(0.378)
BHAR(0,+730)	64	577.432%	45.366	64	20.529%	1.521	0.982	(0.330)
	Domestic M&As							
	Bidder			Target			Difference	
	N	Mean	S.D.	N	Mean	S.D.	*t*-statistics	(p-value)
CAR(-2,+2)	36	0.060%	0.006	36	-0.383%	0.021	1.238	(0.224)
CAR(-5,+5)	36	0.172%	0.013	36	-0.835%	0.043	1.350	(0.186)
CAR(0,+10)	36	0.165%	0.015	36	-0.665%	0.035	1.311	(0.199)
CAR(0,+100)	36	1.992%	0.146	36	-1.010%	0.103	1.073	(0.291)
CAR(+3,+100)	36	1.786%	0.133	36	-1.529%	0.107	1.252	(0.219)
CAR(0,+180)	36	3.079%	0.254	36	-1.272%	0.174	0.906	(0.371)
CAR(0,+365)	36	6.541%	0.511	36	-3.333%	0.345	1.040	(0.306)
CAR(0,+730)	33	14.241%	1.196	33	-7.790%	0.691	1.006	(0.322)
BHAR(-2,+2)	36	0.068%	0.006	36	-0.364%	0.020	1.241	(0.223)
BHAR(-5,+5)	36	0.174%	0.013	36	-0.770%	0.040	1.368	(0.180)
BHAR(0,+10)	36	0.168%	0.015	36	-0.385%	0.038	0.820	(0.418)
BHAR(0,+100)	36	3.216%	0.197	36	-0.733%	0.105	1.113	(0.273)
BHAR(+3,+100)	36	2.721%	0.173	36	-1.219%	0.120	1.189	(0.243)
BHAR(0,+180)	36	7.477%	0.445	36	-0.090%	0.192	0.967	(0.340)
BHAR(0,+365)	36	35.831%	1.997	36	2.842%	0.485	0.973	(0.337)
BHAR(0,+730)	33	1107.718%	63.180	33	26.419%	1.983	0.983	(0.333)
	Cross-Border M&As							
	Bidder			Target			Difference	
	N	Mean	S.D.	N	Mean	S.D.	*t*-statistics	(p-value)
CAR(-2,+2)	33	-0.074%	0.006	33	-0.090%	0.006	0.174	(0.863)
CAR(-5,+5)	33	-0.059%	0.009	33	-0.113%	0.008	0.283	(0.779)
CAR(0,+10)	33	-0.045%	0.011	33	-0.104%	0.008	0.260	(0.796)
CAR(0,+100)	33	0.089%	0.066	33	-0.410%	0.063	0.306	(0.762)
CAR(+3,+100)	33	0.152%	0.064	33	-0.423%	0.065	0.367	(0.716)
CAR(0,+180)	33	-0.120%	0.119	33	-1.616%	0.130	0.486	(0.630)
CAR(0,+365)	32	1.497%	0.226	32	-0.219%	0.228	0.282	(0.780)
CAR(0,+730)	31	5.869%	0.437	31	0.682%	0.451	0.417	(0.680)
BHAR(-2,+2)	33	-3.010%	0.174	33	-0.090%	0.006	-0.960	(0.345)
BHAR(-5,+5)	33	0.036%	0.008	33	-0.112%	0.008	0.720	(0.477)
BHAR(0,+10)	33	3.082%	0.176	33	-0.102%	0.008	1.031	(0.310)
BHAR(0,+100)	33	0.376%	0.066	33	-0.219%	0.065	0.361	(0.720)
BHAR(+3,+100)	33	3.374%	0.188	33	-0.217%	0.067	1.011	(0.319)
BHAR(0,+180)	33	0.586%	0.118	33	0.005%	0.122	0.195	(0.847)
BHAR(0,+365)	32	0.876%	0.297	32	3.464%	0.275	-0.346	(0.732)
BHAR(0,+730)	31	12.934%	0.541	31	14.260%	0.809	-0.073	(0.942)

*, ** and***stand for statistical significance at the 1%, 5% and 10% level, respectively.

Table 5 Determinants of Cross-Border M&As

	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)	Model (7)	Model (8)	Model (9)	Model (10)	Model (11)	Model (12)
Constant	2.518***	2.516***	2.511***	2.513***	2.448***	2.407***	2.413***	2.511***	2.557***	2.515***	2.288***	-0.047
	(9.311)	(9.263)	(9.300)	(9.065)	(8.794)	(8.694)	(8.133)	(8.697)	(8.776)	(9.300)	(7.899)	(-0.049)
Bidder Characteristics												
Log(TA)	0.030	0.031	0.030	0.029	0.031	0.030	0.031	0.027	0.028	0.030	0.029	0.035
	(0.682)	(0.696)	(0.686)	(0.662)	(0.696)	(0.693)	(0.668)	(0.625)	(0.646)	(0.686)	(0.637)	(0.690)
ROE	-0.006	-0.006	-0.006	-0.004	-0.003	-0.006	-0.006	-0.003	-0.006	-0.006	-0.003	-0.004
	(-0.929)	(-0.917)	(-0.907)	(-0.615)	(-0.390)	(-0.833)	(-0.912)	(-0.411)	(-0.879)	(-0.916)	(-0.459)	(-0.445)
Market Capitalization	0.518***	0.522***	0.501***	0.544***	0.520***	0.522***	0.422***	0.434***	0.474***	0.500***	0.416***	0.447**
	(11.518)	(11.613)	(11.145)	(11.962)	(11.567)	(11.606)	(9.162)	(9.450)	(10.513)	(11.118)	(9.114)	(2.181)
Tobin Q	-1.007***	-1.016***	-1.009***	-1.068***	-1.033***	-0.886***	-1.091***	-1.090***	-1.060***	-1.009***	-0.959***	-0.839**
	(-3.658)	(-3.672)	(-3.669)	(-3.684)	(-3.691)	(-3.163)	(-3.585)	(-3.576)	(-3.534)	(-3.665)	(-3.123)	(-2.249)
Growth rate of GDP	1.030	0.946	1.002	0.930	0.878	0.885	1.299	0.961	0.939	1.005	1.023	1.391
	(1.075)	(0.998)	(1.053)	(1.008)	(0.945)	(0.920)	(1.332)	(1.020)	(1.001)	(1.056)	(1.110)	(1.327)
DIF(GDP)	-0.054**	-0.053**	-0.055**	-0.027	-0.017	-0.025	-0.039	-0.013	-0.040*	-0.055**	0.005	-0.023
	(-2.321)	(-2.279)	(-2.375)	(-1.158)	(-0.743)	(-0.989)	(-1.537)	(-0.524)	(-1.668)	(-2.353)	(0.209)	(-0.632)
Difference in Institutions between Bidder and Target												
DIF(Overall Institutions)		-0.111***										
		(-8.614)										
DIF(Shareholder Protection)			-0.055*									-0.060
			(-1.716)									(-0.443)
DIF(Business Freedom)				0.015***								-0.021**
				(4.132)								(-2.251)
DIF(Trade Freedom)					0.029***							0.030***
					(4.802)							(2.943)
DIF(Fiscal Freedom)						-0.014**						-0.002
						(-2.263)						(-0.227)
DIF(Monetary Freedom)							0.103***					0.089***
							(7.346)					(4.924)
DIF(Investment Freedom)								0.019***				0.015**
								(5.283)				(2.358)
DIF(Financial Freedom)									0.009***			-0.023***
									(3.369)			(-3.915)
DIF(Labour Freedom)										-0.000***		-0.038***
										(-3.296)		(-4.598)
DIF(Freedom Corruption)											0.020***	0.031***
											(6.943)	(4.276)
Observations	141	141	141	141	141	141	141	141	141	141	141	141
Pseudo R^2	0.0271	0.0292	0.0297	0.0344	0.0385	0.0300	0.0703	0.0452	0.0323	0.0291	0.0596	0.122
Log Pseudo Likelihood	-276.1	-274.5	-275.4	-273.6	-272.4	-274.8	-263.4	-270.5	-274.1	-275.6	-265.9	-248.3
χ^2	152.8***	225.8***	147.2***	194.4***	176.7***	165.6***	190.3***	153.7***	142.2***	158.9***	166.7***	92.88***

Table 6 Regression results: M&A Premiums

Variable	M&A Premiums		
	1day	1week	4weeks
Constant	44.328*	50.453**	48.858
	(2.015)	(2.099)	(1.513)
Probability (Cross-Border M&A)	1.035	1.346	12.038**
	(0.329)	(0.397)	(2.065)
Bidder's characteristics			
Log(Bonus)	1.030	1.902	3.434*
	(0.780)	(1.325)	(1.789)
# of Managing Directors in Board	-1.272**	-1.096*	-1.480**
	(-2.246)	(-1.936)	(-2.148)
Log(TA)	-3.030***	-3.893***	-4.761***
	(-3.812)	(-4.093)	(-4.134)
Deposits/Liabilities	-47.105*	-63.782**	-64.546*
	(-1.981)	(-2.272)	(-1.743)
Equity/TA	912.950	972.375	1,609.606*
	(1.670)	(1.610)	(2.046)
Liabilities/ Equity	-629.908	-682.524	-1,211.495**
	(-1.582)	(-1.563)	(-2.083)
Growth TA	-43.841**	-42.809*	-70.678**
	(-2.104)	(-1.897)	(-2.219)
Tobin's Q	0.939	1.177	0.709
	(1.006)	(1.080)	(0.432)
DIF_GDP	10.493***	11.962***	17.478***
	(2.897)	(3.083)	(4.246)
DIF_Governance	0.043**	0.032	0.064*
	(2.289)	(1.621)	(2.041)
Observations	38	38	38
R^2	0.339	0.347	0.360

*, ** and***stand for statistical significance at the 1%, 5% and 10% level, respectively.

Table 7 Regression results: Short-term performance

Variable	CAR			BHAR		
	(-2,+2)	(-5,+5)	(0,+10)	(-2,+2)	(-5,+5)	(0,+10)
Constant	-0.003	-0.007	-0.006	-0.003	-0.007	-0.006
	(-0.482)	(-0.757)	(-0.538)	(-0.483)	(-0.755)	(-0.540)
Probability (Cross-Border M&A)	-0.000	-0.000	0.000	-0.000	-0.000	0.000
	(-0.341)	(-0.073)	(0.213)	(-0.340)	(-0.078)	(0.214)
Bidder's characteristics						
Log(Bonus)	-0.000	-0.000	-0.001*	-0.000	-0.000	-0.001*
	(-0.600)	(-1.094)	(-2.008)	(-0.601)	(-1.098)	(-2.013)
# of Managing Directors in Board	-0.000	0.000	0.000	-0.000	0.000	0.000
	(-0.271)	(0.112)	(0.210)	(-0.268)	(0.116)	(0.214)
Log(TA)	0.000	0.001***	0.001***	0.000	0.001***	0.001***
	(1.218)	(2.888)	(3.375)	(1.217)	(2.886)	(3.378)
Deposits/Liabilities	0.003	0.009	0.010	0.003	0.009	0.010
	(0.666)	(1.267)	(1.208)	(0.666)	(1.263)	(1.209)
Equity/TA	0.050	0.029	-0.086	0.051	0.030	-0.085
	(0.503)	(0.179)	(-0.495)	(0.507)	(0.184)	(-0.489)
Liabilities/ Equity	-0.034	-0.020	0.082	-0.034	-0.021	0.082
	(-0.476)	(-0.172)	(0.650)	(-0.480)	(-0.176)	(0.644)
Growth TA	0.004	0.017*	0.015	0.004	0.017*	0.015
	(0.683)	(1.921)	(1.437)	(0.682)	(1.921)	(1.441)
Tobin's Q	0.000	0.000	0.000	0.000	0.000	0.000
	(1.117)	(1.248)	(0.839)	(1.113)	(1.246)	(0.834)
DIF_GDP	-0.000	-0.001	-0.001	-0.000	-0.001	-0.001
	(-0.520)	(-0.902)	(-1.004)	(-0.523)	(-0.898)	(-1.003)
DIF_Governance	-0.000	-0.000**	-0.000	-0.000	-0.000**	-0.000
	(-0.476)	(-2.437)	(-1.101)	(-0.476)	(-2.439)	(-1.105)
Observations	38	38	38	38	38	38
R^2	0.041	0.309	0.239	0.042	0.309	0.240

*, ** and***stand for statistical significance at the 1%, 5% and 10% level, respectively.

Table 8 Regression results: Long-term performance

Variable	CAR					BHAR				
	(0,+100)	(+3,+100)	(0,+180)	(0,+365)	(0,+730)	(0,+100)	(+3,+100)	(0,+180)	(0,+365)	(0,+730)
Constant	-0.098**	-0.095**	-0.152**	-0.350**	-0.734**	-0.097**	-0.092**	-0.185	-0.335	-0.609
	(-2.681)	(-2.417)	(-2.290)	(-2.641)	(-2.770)	(-2.644)	(-2.344)	(-1.115)	(-1.127)	(-1.214)
Prob(CBMA)	0.004	0.006	0.005	0.014	0.039	0.004	0.006	-0.000	-0.001	-0.002
	(0.586)	(0.853)	(0.379)	(0.497)	(0.680)	(0.489)	(0.817)	(-0.019)	(-0.015)	(-0.030)
Bidder's characteristics										
Log(Bonus)	-0.004**	-0.004**	-0.006*	-0.010	-0.022	-0.004**	-0.004**	-0.008	-0.011	-0.023
	(-2.080)	(-2.625)	(-1.836)	(-1.344)	(-1.446)	(-2.077)	(-2.680)	(-1.152)	(-1.045)	(-1.327)
# of Managing Directors in Board	0.002*	0.002*	0.003*	0.006	0.013*	0.002*	0.002*	0.003	0.006	0.013*
	(1.717)	(1.883)	(1.752)	(1.656)	(1.907)	(1.720)	(1.927)	(1.065)	(1.421)	(1.716)
Log(TA)	0.005***	0.005***	0.007**	0.015**	0.032***	0.005***	0.005***	0.009**	0.014**	0.028**
	(3.201)	(4.004)	(2.555)	(2.540)	(2.784)	(3.167)	(3.992)	(2.169)	(2.114)	(2.227)
Deposits/Liabilities	0.086**	0.089**	0.106	0.222	0.450	0.085**	0.087**	0.151	0.212	0.363
	(2.170)	(2.363)	(1.479)	(1.546)	(1.595)	(2.127)	(2.298)	(1.230)	(1.018)	(0.963)
Equity/TA	1.686*	1.268	2.782*	6.324*	13.668**	1.756*	1.287	3.059	6.545	13.912
	(1.964)	(1.517)	(1.801)	(1.972)	(2.195)	(2.033)	(1.539)	(1.102)	(1.387)	(1.671)
Liabilities/ Equity	-1.152*	-0.811	-1.791	-4.139*	-9.012*	-1.199*	-0.819	-1.942	-4.224	-9.020
	(-1.912)	(-1.375)	(-1.650)	(-1.838)	(-2.023)	(-1.990)	(-1.394)	(-0.924)	(-1.189)	(-1.456)
Growth TA	0.161***	0.155***	0.272***	0.577***	1.218***	0.159***	0.151***	0.243	0.506	1.052*
	(4.600)	(4.258)	(4.714)	(4.535)	(4.923)	(4.708)	(4.326)	(1.301)	(1.631)	(1.973)
Tobin's Q	0.001	0.000	0.002	0.003	0.005	0.001	0.000	0.002	0.002	0.003
	(0.326)	(0.283)	(0.519)	(0.490)	(0.379)	(0.290)	(0.225)	(0.328)	(0.315)	(0.181)
DIF_GDP	-0.014*	-0.016**	-0.026*	-0.057*	-0.118**	-0.014*	-0.016**	-0.027	-0.053	-0.096
	(-1.844)	(-2.102)	(-1.865)	(-1.954)	(-2.058)	(-1.784)	(-2.087)	(-1.463)	(-1.577)	(-1.493)
DIF_Governance	-0.000***	-0.000***	-0.000***	-0.000***	-0.001***	-0.000***	-0.000***	-0.000	-0.001*	-0.001**
	(-4.740)	(-3.723)	(-4.594)	(-5.021)	(-5.314)	(-4.818)	(-3.670)	(-1.266)	(-1.962)	(-2.408)
Observations	38	38	38	38	38	38	38	38	38	
R^2	0.516	0.500	0.480	0.508	0.519	0.512	0.495	0.227	0.355	

*, ** and***stand for statistical significance at the 1%, 5% and 10% level, respectively.

國科會補助計畫衍生研發成果推廣資料表

日期:2012/10/20

國科會補助計畫	計畫名稱: 銀行競爭、效率及風險之全球銀行實證分析
	計畫主持人: 陳昇鴻
	計畫編號: 100-2410-H-343-005- 學門領域: 產業組織與政策

無研發成果推廣資料

100 年度專題研究計畫研究成果彙整表

計畫主持人：陳昇鴻	計畫編號：100-2410-H-343-005-
計畫名稱：銀行競爭、效率及風險之全球銀行實證分析	

成果項目			量化			單位	備註（質化說明：如數個計畫共同成果、成果列為該期刊之封面故事...等）
			實際已達成數（被接受或已發表）	預期總達成數(含實際已達成數)	本計畫實際貢獻百分比		
國內	論文著作	期刊論文	0	0	100%	篇	
		研究報告/技術報告	1	0	100%		
		研討會論文	1	0	100%		
		專書	0	0	100%		
	專利	申請中件數	0	0	100%	件	
		已獲得件數	0	0	100%		
	技術移轉	件數	0	0	100%	件	
		權利金	0	0	100%	千元	
	參與計畫人力（本國籍）	碩士生	2	0	100%	人次	
		博士生	1	0	100%		
		博士後研究員	0	0	100%		
		專任助理	2	0	100%		
國外	論文著作	期刊論文	0	0	100%	篇	
		研究報告/技術報告	1	0	100%		
		研討會論文	1	0	100%		
		專書	0	0	100%	章/本	
	專利	申請中件數	0	0	100%	件	
		已獲得件數	0	0	100%		
	技術移轉	件數	0	0	100%	件	
		權利金	0	0	100%	千元	
	參與計畫人力（外國籍）	碩士生	0	0	100%	人次	
		博士生	0	0	100%		
		博士後研究員	0	0	100%		
		專任助理	0	0	100%		

其他成果 (無法以量化表達之成果如辦理學術活動、獲得獎項、重要國際合作、研究成果國際影響力及其他協助產業技術發展之具體效益事項等，請以文字敘述填列。)	無

	成果項目	量化	名稱或內容性質簡述
科教處計畫加填項目	測驗工具(含質性與量性)	0	
	課程/模組	0	
	電腦及網路系統或工具	0	
	教材	0	
	舉辦之活動/競賽	0	
	研討會/工作坊	0	
	電子報、網站	0	
	計畫成果推廣之參與（閱聽）人數	0	

國科會補助專題研究計畫成果報告自評表

請就研究內容與原計畫相符程度、達成預期目標情況、研究成果之學術或應用價值（簡要敘述成果所代表之意義、價值、影響或進一步發展之可能性）、是否適合在學術期刊發表或申請專利、主要發現或其他有關價值等，作一綜合評估。

1. 請就研究內容與原計畫相符程度、達成預期目標情況作一綜合評估 ■達成目標 □未達成目標（請說明，以 100 字為限） □實驗失敗 □因故實驗中斷 □其他原因 說明：
2. 研究成果在學術期刊發表或申請專利等情形： 論文：□已發表 ■未發表之文稿 □撰寫中 □無 專利：□已獲得 □申請中 ■無 技轉：□已技轉 □洽談中 ■無 其他：(以 100 字為限)
3. 請依學術成就、技術創新、社會影響等方面，評估研究成果之學術或應用價值（簡要敘述成果所代表之意義、價值、影響或進一步發展之可能性）(以 500 字為限)