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China's Changing Business Model of Banking

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Abstract

The recent turmoil of the global financial system urges both academics and professionals to rethink the fundamental question of the appropriate banking business model. For the emerging economies the paradigm of the Western style of banking and finance has clearly failed. This is particularly true for China where the banking reform turns to a cornerstone in the transformation from the separated to the universal banking system after a track record of almost thirty years reform policy.

Surprisingly enough, academic research about the gradual changes of the China's banking business model is still rare especially in an international context. The current paper aims to shed some light in this regard by conducting a comparative study based on data of banks from China, Europe, the UK and the USA. The analyses reveal that the profitability in Chinese banks is mainly bolstered by the guaranteed interest margin set by the central bank and the growth potential in assets and loans. As a result the risk pricing mechanism in loan business as evident in Western peer banks is not established in China's banking sector yet. Therefore, the diversification in fees and commissions income is most important for the competitiveness of Chinese banks. In terms of business models this is equivalent with the implementation of the universal banking model, a turnaround that is already under way, particularly through the establishment of bank owned fund management companies.

However, it will be shown that this transformation is so far not accompanied with an inappropriate leverage of risks due to a strict regulatory environment, which limits non-interest income business of Chinese banks to services fees and provisions from customers instead of trade for own account. Given the momentum of stricter bank regulations on an international level as well, a system convergence between Western and Chinese banking style could be expected in the foreseeable future.

Keywords: *Banking business models, financial crisis, universal banking, China' financial system*

JEL classification: G01, G20, G21, G28

I. Introduction

In the disastrous crisis year of decades for the global banking industry, Chinese banks celebrated their stunning advances in the global banking league of market capitalization, total assets, profitability and brands. The state-owned commercial bank giants ICBC, CCB and BOC[1] are ranked as the world largest banks by assets with the most valuable brands and are the three most profitable banks over the world in 2008[2]. The market capitalization of those three banks also took over the first three places of global ranking by the end of June 2009, regardless of the fact, that the whole banking industry was deemed as insolvent with non-performing loan (NPL) ratio of over 20% only five years ago. China has done its home work of banking reform with gradual but persistent and caution steps: from separating policy lending from state-owned commercial banks (SOCBs), to the hundred billion dollar bail-out of the whole banking system by transferring NPLs to separate asset management companies, followed by establishing modern corporate governance structure and introduction of foreign strategic participation as well as bringing banks to capital markets step by step.[3] Despite the long lasting discussion of severe problems such as operational inefficiency, lack of risk management skill, policy lending and so on, the fact can not be neglected that the vanilla business model and strict regulation guarded China's banking sector in most instances from the spill-over of the recent financial turmoil.[4]

The belief that Western banking model was regarded as sample model for banking reform in emerging markets was severely shaken after the financial crisis. Lessons are learned that escalating bank return by inflating risks, a popular model which the success of most Western banks were thanks to before the crisis, is proved to be not sustainable. A new round of debates broke out among academics and banking managers on banking business model after the crisis time.[5] One stream of opinion claims the radical way back to "narrow banking" in which banking business is mainly limited to deposits, lending and settlement. Another stream points out the fact that the business scope in banking has undergone essential changes in the last three decades as a compulsory adaption to changed business environment. Interest margin has been narrowed by aggressive global competition. Growth potential in corporate lending is limited by substitutes on corporate bond markets. Alternative investment in money markets, investment fund and insurance products has channeled deposits directly into capital markets. And institutional investors have gained ground as major lenders and investors of some banks.

As a consequence, capital market linked services have gained weight as revenue sources, with a gradual move to more exposure to market risks instead of credit risks. Alongside with the changed role of banks from financer to capital market service provider, other functions in which banks had a dominant role have been also undermined: The settlement function of banks has been more and more outsourced to external IT specialized firms; Rating agencies and financial information providers have been increasingly replacing bank's role as credit monitor; and even more, banks seemed to have lost part of the most valuable asset – their creditability – through the current crisis. Considering the challenging operating environment

[1] ICBC: Industrial and Commercial Bank of China, CCB: China Construction Bank, BOC: Bank of China

[2] See Financial Times Asia, April 29th, 2009, p. 3.

[3] See for instance Neftci and Xu (2007), Loechel and Zhao (2006), Wu (2005) and García-Herrero, Gavilá and Santabárbara (2006) for an overview of the reform process.

[4] Backed with the strong performance of Chinese banks in the crisis, Liu, Mingkang, Chairman of CBRC, expressed his full convince in China's banking regulation concept in his newly published article "Basic rules helped China sidestep financial crisis" in Financial Times Asia. See Financial Times Asia, June 29th, 2009, p. 7.

[5] For competing opinions on banking business model after the crisis, see for instance Dobbs and Kuehner-Hebert (2008) and Rizzi (2009).

in banking, BCG calls for changes of bank's role from "risk taker" to "trade facilitator".[6] We believe that the financial crisis will not only change the mind-set of private households and the risk perception of investors, but also marks the end of expending the business scope of banks and the return to a more customer-oriented instead of capital-market focused business model centered on commercial banking business activities.

The implications of this turnaround is of special value for China's banks which saved the disruption phase of system shake caused by bank's extensive risk taking in trading and leveraging by creating paper gains through financial innovation far beyond the needs of the real economy. The narrow business model in China's separated banking system and strict foreign capital control prevented the infection of the global financial turmoil. Based on the experiences of the transformation of a separated to a universal banking model[7] in Western banking, Lv Suiqi, Deputy Chair of the department of finance at the Peking University, stressed however that Chinese banks could no longer rely on the old business model based on interest rate spread which is determined by China's central bank. Instead, it is essential to explore other revenue sources such as asset management products to increase the core competitiveness of commercial banks.[8] However, Chinese banks face the dilemma to adapt their business models on a more and more liberalizing environment in terms of currency, interest rates and capital markets, without a convincing paradigm of international universal banking standards. Due to the financial crisis, further deregulation of China's banking sector towards an integrated banking business model was even slowed down upon to the results of reconsideration of the benefits and risks of the Western style of banking. Liu Mingkang, for instance, Chairman of CBRC[9], stated at the Luijiazui Forum in May of 2009 in Shanghai: "We don't discuss universal banking."[10]

Against this background, the current paper reflects the revenue diversification process in Chinese banks in comparison with the business scope in European and Anglo-Saxon peer banks. To our best knowledge, this paper has the unique value to first address the business model transformation in China's banking sector in an international context with scientific methods by analyzing data based on regression analysis.[11] The main hypothesis is that China's banking business model is gradually moving from a segregated towards a universal banking system, forced by interest rate liberalization, capital market development and further opening of domestic financial markets.

In detail we prove that the profitability of Chinese banks is so far mainly driven by an interest margin above the level in Western peer banks. As the interest margin is artificially held high in China through an administrated interest rate regime, this business model can not sustain. Moreover, we discover that the risk pricing mechanism is still not established in Chinese banks' lending practice. The guaranteed interest margin and stable loan growth provide little incentive to improve risk management skills and to diversify revenue sources through innovative non-interest income products. Compared to Western peers with high investigation in proprietary trading, we notice that fees and commissions instead of trading income dominate the non-interest income in Chinese banks. We also identify that synergies in China's

[6] See BCG Creating Value in Banking 2009.

[7] In this paper, we define "universal banking" as the combination of commercial banking, investment banking, asset management and other related financial services in contrast to the separated banking business model, which focuses banks on commercial banking activities alone. The "universal banking" model can be extended to an "integrated financial services provider" model by adding insurance to the service scope.

[8] See 21st Century Business Herald, May 14th, 2009, p. 10.

[9] CBRC: China Banking Regulatory Commission, the regulatory and supervisory body for banking in China

[10] See The Wall Street Journal Asia, May 18th, 2009, p. M2.

[11] For a comprehensive overview of China's financial sector in general see Zhu, Cai, and Avery (2009).

first trial of universal banks in the form of bank's majority holding in asset management companies are realized through economies of scale since bank related funds are larger in size and provide favorable management and custody fee condition.

As the internationalization of the Chinese currency quickens the pace as demonstrated with the ambitious appeal of Chinese Central Bank governor Zhou Xiaochuan to rebuild the global currency system,[10] the liberalization of the domestic interest rate system of China to a more market orientation is simultaneously foreseeable. At the same time, promotion of direct financing through capital markets to reduce the current high risk concentration in financing of over 80% through banking will fuel the capital market development in China and therefore disintermediation. Chinese banks face the unique challenge and opportunity of business model transformation to more engagement in non-interest income business with balanced fees and commissions, high portion of investment in high-graded government, financial and corporate bonds, limited trading for risk hedging and restricted exposure in equity and derivative products. There is no reason to believe that this controlled as well as highly regulated extension of the commercial banking business model of Chinese banks will be accelerated towards a Western style high-leveraged trading and asset business model.

The paper is organized as follows: After a short review of relevant research in section II, the evolution and the driving forces of China's banking sector from the separated to the universal banking system are introduced in section III. Section IV analyzes the return and risk impact of interest income and non-interest income in Chinese banks in comparison with their peers from Europe, the UK and the USA. Section V evaluates the first trial of universal banking model in China – bank's majority holding in asset management companies and identifies the synergy sources in Chinese universal banks. A conclusion in section VI summarizes the results and provides outlook for future development of banking business model in China.

II. Literature Review

The exacerbation of the crisis was triggered with the bankruptcy of Lehman Brothers on September 14th, 2008.[12] The domino effect through interlinks among financial institutions and the large-scale engagement in speculative subprime real state sector allowed the fast spread-out of the pandemic to almost all universal banks, which ended up with global dry-up of credit and market liquidity and a recession in global economy. Voices became louder to bring banks back to the basic roots: deposit and loans, the narrow function of a "utility bank" model. However, it is also the evidence of the crisis that stand-alone investment banks without stable financing source from deposits are vulnerable to market disrupts and bankruptcy risks.[13] As a result, both leading investment houses Goldman Sachs and Morgan Stanley were converted to bank holding companies under the cover of FDIC, conducting commercial deposit taking and lending services. The current crisis renewed the long-lasting academic interest engaging with the expansion of bank's business scope in non-interest income businesses and its impact on risk and return profile of diversified banks.

Unfortunately, years-long academic debates and practices still have not yet brought conclusive results for our insight in this research area. Previous studies[14] generally believe the

[10] See Zhou (2009).
[12] For a judgement of the crisis in historical comparison see Reinhart and Rogoff (2009).
[13] For discussions about banking business model after the crisis, see for example Schildbach (2009).
[14] For an overview of benefits and costs in integrated financial services providers, see for instance Loechel, Brost and Li (2008).

revenue enhancement and risk diversification gain from expansion in non-interest income businesses, this conclusion has been however not yet conclusively proven on the basis of various ambiguous empirical results. Allen and Jagtiani (2000) find that combining banking with securities services and insurance activities reduces the overall risk. DeYoung and Rice (2004) reveal persistent outperformance in term of higher sharp ratio of diversified, non-traditional banking compared to traditional banking for over 1,200 US banks for the time frame from 1993 to 2003. Ebrahim and Hasan (2004) evaluate the gains from the view of the capital market and find out that banks with heavier involvement in non-interest income business are credited with more growth potential and consequently with higher market valuation. Contradictorily, Stiroh (2004) points out that the volatility in trading revenue largely diminishes the risk reduction through diversification in non-interest income businesses and the interest and non-interest income became more correlated over time. Laeven and Levine (2007) investigate the diversification discount of financial conglomerates and show that the benefit gains from economies of scale and scope can not compensate the costs from agency problem in financial conglomerate, which leads to a trade discount of financial conglomerates on the capital market. Similar results are found by Schmid and Walter (2008). They reveal comprehensively the existence of conglomerate discount in the financial services industry and conclude that the total balance of functional diversification is value-destroying. However, with more differentiated analysis, they show that the combination of commercial banking with insurance and the combination of commercial banking with investment banking produces significant premium. Kwan and Ladermann (2009) review the portfolio effects of business divergence in banking and conclude that both securities and insurance services are more profitable and more risky than banking. They emphasize however the necessity to differentiate sub-activities in securities and insurance and point out that securities underwriting and insurance agency businesses for instance can reduce the overall risk of bank holding companies. De Jonghe (2009) explicitly examines the impact of bank diversification on financial system stability and concludes that interest income is less risky than non-interest income in crisis time. The ambiguous empirical result seems to draw together the following overall picture: The diversification in non-interest income is regarded as the solution to compensate the shrinking interest income in time of disintermediation in banking. Compared to interest income, non-interest income business has higher return and higher risk pattern. The overall performance of financial conglomerates is determined by the trade-off of scale and scope economies with diseconomies from conflict of interests and agency problems. Within non-interest income business, the composition in underwriting, trading and agency services further determines the return and risk profile.

The above results from academic research on the revenue and risk impact of non-interest income business were in large extent confirmed by the development path in banking in last years. Backed by an upward trend of business circle in overall economy and capital markets, the diversification in Western banking especially in proprietary trading granted years of double-digit capital return and induced the radical transformation of bank's role from lenders to traders. The excessive engagement in profit making from speculative asset bubbles beyond the needs in real economy uncovered the risk side of the business model and is blamed as one of the main causes of the financial crisis. Voices are louder to bring banks to "basics". Our understanding of the "basics" is bank's role as financial intermediate to serve the real economy, both as lender and capital market service provider in the sense of a universal bank, rather than business scope restriction which is not realistic and affordable in the post-disintermediation time with balanced role of bank and capital markets financing. This new understanding of banking business model requires new framework to supervise risks in banking. Blundell-Wignall, Atkinson and Lee (2008) propose to bundle diversified services in banking only under "non-operating financial holding" to prevent risk transfer. Change of

paradigm to integrated risk management taking into consideration of the interactions of various risks from interest and non-interest income within a financial conglomerate group urges.[15] Compulsory disclosure of non-interest income business lines has become necessary to evaluate the aggregated risk profile of a universal bank.

The current emergence of research of Chinese scholars about the topic also reflects the high relevance of the above discussion of bank's diversification in non-interest income business for Chinese banks. Chen (2009), for instance, recently points out that the restriction of permissible services in banking leads to bank's concentration on lending business, which in turn causes pro-cyclical credit expansion. Mao (2008) addresses the point that the high risks from proprietary trading diminished the diversification benefit of universal banking in the crisis and emphasizes that the non-interest income business in universal banking should concentrate in fees and commissions services.

However, the change of China's banking business model towards non-interest income and hence towards the universal banking system is still a relative new phenomenon and relevant research rare.[16] The current paper aims to fill this gap and contributes to the general debate on banking business model after the financial crisis.

III. Transformation of Segregated to Universal Banking System in China

As if by a miracle, Chinese banks escaped almost unaffected from the crisis year, in greater extent as a result of the lucky fact that Chinese banks still follow the narrow banking model with strict restriction in engagement of investment banking and the strict foreign currency control policy in China prevents the risk transfer from international capital markets. This segregated banking system was established in 1993 with the issuance of "*Resolution on Financial System Reform"* of the State Council and legally established with Article 43 of the *Law of People's Republic China on Commercial Banks* issued in 1995:

> *"Commercial banks are not allowed to make trust investment, trade in shares or make investment in fixed assets of non-self use within the People's Republic of China. Commercial banks are not allowed to make investment in non-banking institutions and enterprises within the People's Republic of China."*

Correspondently, the separation of securities from banking is regulated through Article 6 of the *Securities Law of the People's Republic of China* enforced in 1998:

> *"Securities business shall be engaged in and administered as a business separate from the banking business, trust business and insurance business. Securities companies shall be established separately from banks, trust companies and insurance companies."*

The integration of banking in insurance institutions is restricted according to Article 104 of the *Insurance Law of the People's Republic of China* issued in 1995: :

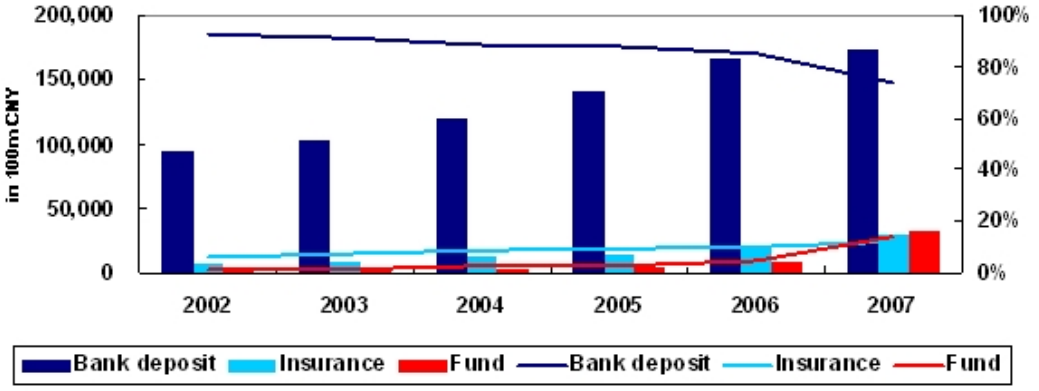
> "*The use of fund of the insurance company is restricted only to bank deposit, trading of government bonds and financial bonds and other forms of fund utilization stipulated by*

[15] See for instance the recent research results of BIS on interaction of market and credit risk, BIS (2009).
[16] Sauders and Walter (1996) are among the first to address the development of universal banking in the Asia Pacific context.

the State Council. The fund of the insurance company may not be used to set up securities operation organizations or to invest in enterprises."

According to the above articles, combination of banking with securities services, real estate and insurance, which are usually included under one roof in European style integrated financial services providers, are prohibited by law in China. Even in international comparison with developing countries, China still belongs to the 10% minority of countries with the most strict activity restriction in the banking sector[17]. Furthermore, the *Provisional Rules Governing Money Brokerage Firms* issued in 2005 grants only non-bank institutions permission to set up money brokerage firms. China's choice for the segregated banking model is all other than accidental. Chinese Academy of Social Science (2001) argues that this decision made in the 1980s was in accordance with the acknowledgement of the draw-back of conflicts of interests in universal banks and the lacked skill in managing risks in diversifying institutions in the immature stage of China's financial institutions, after thorough comparative studies on the America style separated banking system and the European style universal banking system.

Figure 1. Distribution of Savings in China



Source: Almanac of China's Securities Investment Funds 2005-2006, 2007, 2008.

With the pace of financial innovation and shrinking transaction costs, the decline of net interest margin in commercial lending business driven by global competition and the acceleration of disintermediation of traditional commercial banks, major economies with segregated financial system such as the UK (1986), Canada (1987), Japan (1992) and the USA (1999) deregulated the activity separation. China's accession to the WTO and the consequent opening of its financial markets calls for a level playing field in the banking industry in accordance with international standard. With the entry of foreign universal banks, Chinese banks feared the loss of business opportunities in cross-sector services to foreign competitors, as Chinese banks would miss the chance to build up capacities for cross-sector services due to strict activities permission in a separated banking system. The government also noticed that the high concentration of financial assets of over 80% as bank savings (see figure 1) beard concentration risk for the entire financial system and the limited variety of financial products could gradually not meet the increasing market demand for diversified financial services. Financial conglomerates with holding subsidiaries in banking, securities and insurance emerged[18] and some banks like BOC actually by-passed the restriction by setting up subsidiary for cross-sector services in securities and insurance abroad like in Hong Kong. In

[17] See IIB Global Survey (2009) and Barth, Caprio and Levine (2001).
[18] For the development of financial conglomerates in China, see for instance Lin (2003).

2004, an opening clause *"...with the exception stipulated by the State"* was introduced to Article 43 of the commercial bank law and article 6 of the securities law regarding business restriction, which marked the first step of the loosening of activities restriction. Banks should leverage their dominant position in the financial system to foster diversified financing sources and channel funds to capital markets through providing products and services in securities and asset management.

With the overall market enthusiasm for bank's diversification in other revenue sources than lending and to promote capital market development, PBC[19], CBRC and CSRC jointly issued in February 2005 *Administrative Rules for Pilot Incorporation of Fund Management Companies by Commercial Banks*, which established the legal permission for SOCB and JSCB as primary shareholder in equity-holding of fund management companies. Banks are permitted to sell fund products of affiliated fund management companies on the commission basis, however only under third-party condition. The aim was to channel the high liquidity in bank deposits to capital market investment, to increase competition between fund management companies, as well as to diversify bank's revenue resources. This step was regarded as a significant step to transfer China's banking system from the segregated to the universal banking model with a holding structure. Pilot permissions were granted to three of the big five SOCBs: ICBC, CCB and BOCom[20]. Already before this deregulation, BOC circumvented the sector separation by setting up its majority holding fund management company through its holding subsidiaries in Hong Kong in 2004. After the liberalization, the shares were transferred to BOC in 2008. As the last SOCB, ABC got the license in 2008 and founded its own fund management company. All five SOCB-held fund management companies were established as joint ventures with foreign financial institutions. The permission to cross-sector bank holding in fund management companies granted to five SOCBs was expanded to two JSCBs - SPDB[21] and China Min Sheng Bank, setting up joint venture fund management companies in 2007 and 2008 respectively. As depicted in figure 2 and figure 3, the liberalization of bank's participating in fund management companies triggered an expansion in market share of bank related asset managers – in the form of bank subsidiary, bank affiliation and financial conglomerate affiliation[22]. The fifteen fund management companies with bank-linkage occupied 38.70% of total market share in total assets under management among total sixty fund management companies only three years after the liberalization in 2005.

[19] The People's Bank of China (PBC) is the Central Bank in China. The regulation and supervision of financial institutions is carried out through the "central bank plus three commissions" (*Yi Hang San Hui*) system in China. Three commissions include the sector supervisory bodies CBRC, CSRC and CIRC.

[20] BoCom: Bank of Communications

[21] SPDB: Shanghai Pudong Development Bank

[22] Bank subsidiary is defined in this paper as a fund management or securities company majority-held by a bank, bank affiliation is a fund management or securities company minority held by a bank and financial conglomerate affiliation is a fund management or securities company with a financial conglomerate as major shareholder which also has equity participation in banking within the group.

Figure 2. No. of Fund Management Companies

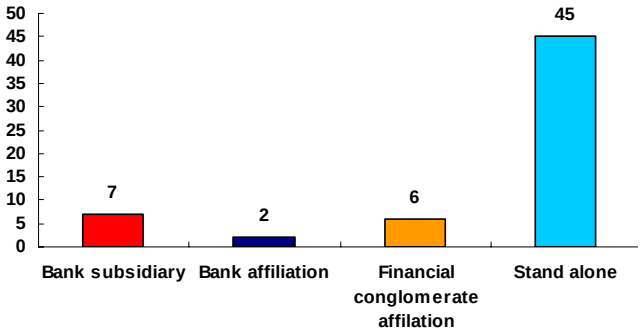
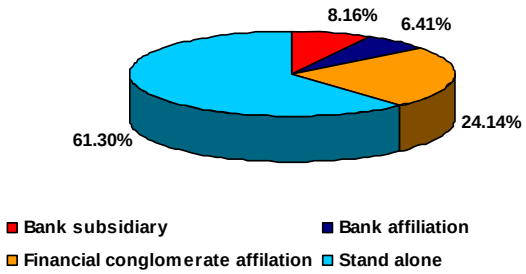


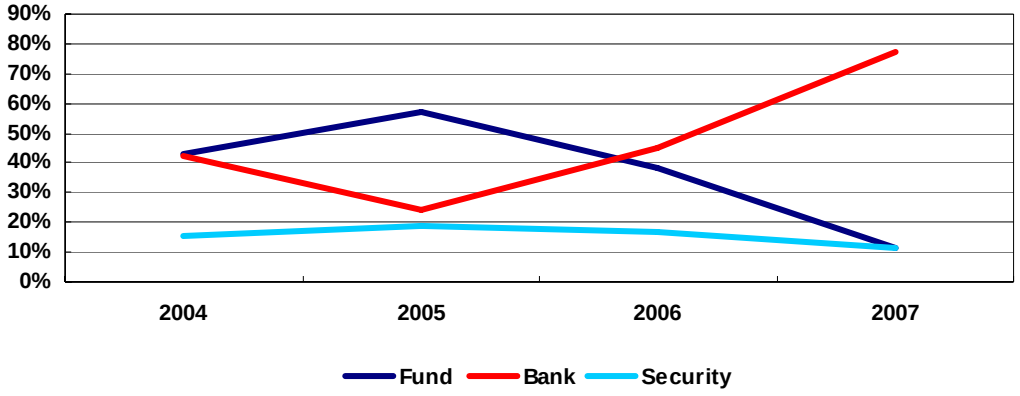
Figure 3. Market Share of Fund Management Companies per Total Assets 2008



Source: Wind

Moreover, the equity link of banks with fund management companies promotes the agent and custody services in banking. Although banks with fund management affiliates are only allowed to conduct business contracts with their affiliates under the same condition as with third party, the business cooperation with affiliated parties is more intensified and the scope of cooperation is broader and deeper, especially that bank as sales agent may favorably choose affiliated funds, securities and insurance companies as partner. The cooperation with affiliated companies is however restricted through Article 8 of the *Law of People's Republic of China on Securities Investment Fund* issued enforced in June 2004, "*A fund trustee and a fund manager should not be the same party, and should not make capital contribution to or hold the shares of each other*". Since eleven of the total fourteen banks with a custody license are listed on the exchange, the above Article is in current discussion to be removed in order to enable fund management companies to optimize their investment portfolios including shares of their custody banks. The manifold possibility of cooperation of banks with their affiliates can be illustrated with the following example: Industrial Bank Co. Ltd., Industrial Securities Co. Ltd. and Industrial Fund Management Co. Ltd., for instance, signed a MoU for strategic alliance in 2007 to share client base, distribution channel, product information and training capacities. The lifting of the separation of banking from fund management in 2005 changed dramatically the landscape of the distribution model in fund products. As shown in figure 4, bank gained significant ground in fund distribution and took over almost 80% of the market share within two years after the policy liberalization.

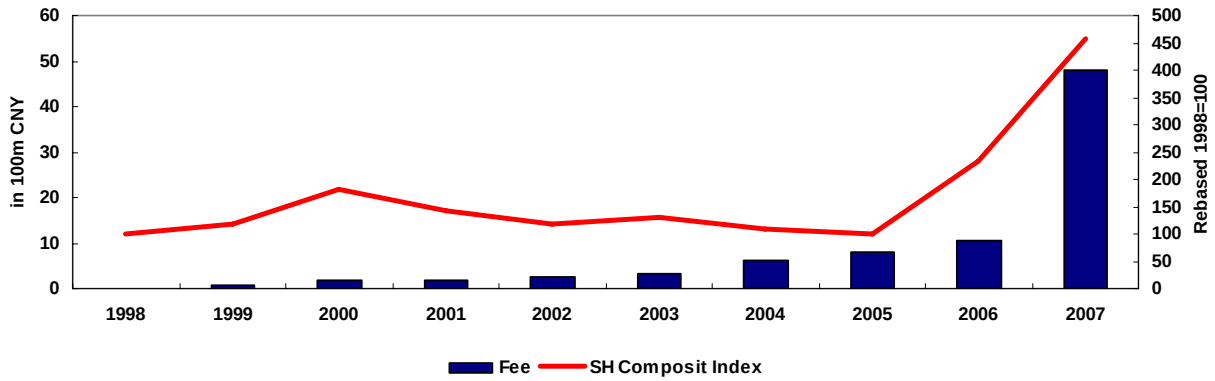
Figure 4. Fund Sales Channel



Source: Securities Association of China

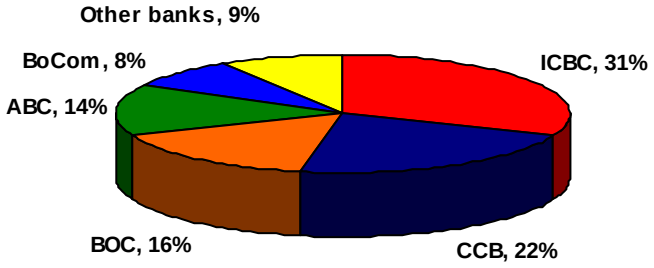
This policy change opened new revenue resources with high growth potential alongside with the booming capital market. Total bank custody fee skyrocketed in 2007 and almost reached the mark of five billion CNY (see figure 5). With the vast branch network, broad customer base and capital strength, the big five SOCBs dominate the fund custody market and took over 90% the market share, as illustrated in figure 6.

Figure 5. Bank Custody Fee



Source: Almanac of China's Securities Investment Funds, wind

Figure 6. Market Share of Fund Custody 2007



Source: Securities Association of China

Compared to the rapid rise of banks in the fund management market, bank's equity holding in securities firms is limited. There is only one securities subsidiary of a bank in China – BOC International (China) Ltd. founded as a subsidiary in 2002 by Bank of China International Holdings, a Hong Kong-based wholly-owned subsidiary of Bank of China Ltd. Securities affiliates of financial conglomerates have long track record in securities services and hold 13.86% of total market share. However, 96 stand-alone securities companies still dominate the market, with 77.47% of total assets in the securities market, as shown in figure 7 and figure 8. From the policy side, it is not expected to see a rapid liberalization and the consequent expansion of bank's market share in securities services in the near term, as what happened in the fund management market with a strong supporting policy favoring bank's engagement. The cautious approach of the Chinese government in dealing with securities services demonstrates its great concern about the transfer of volatile capital market risks to the banking system.

Figure 7. No. of Securities Companies

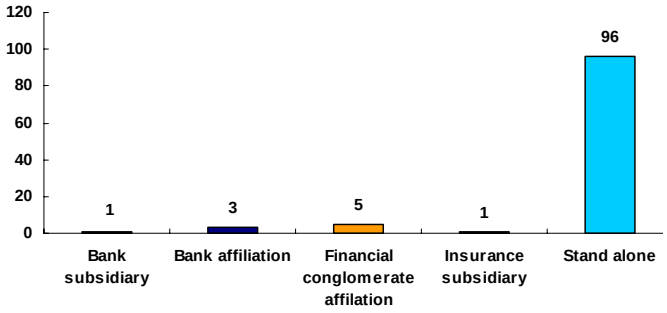
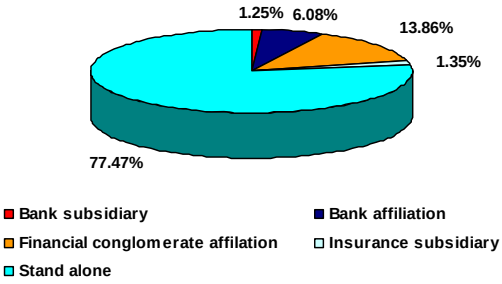


Figure 8. Market Share per Total Assets 2007

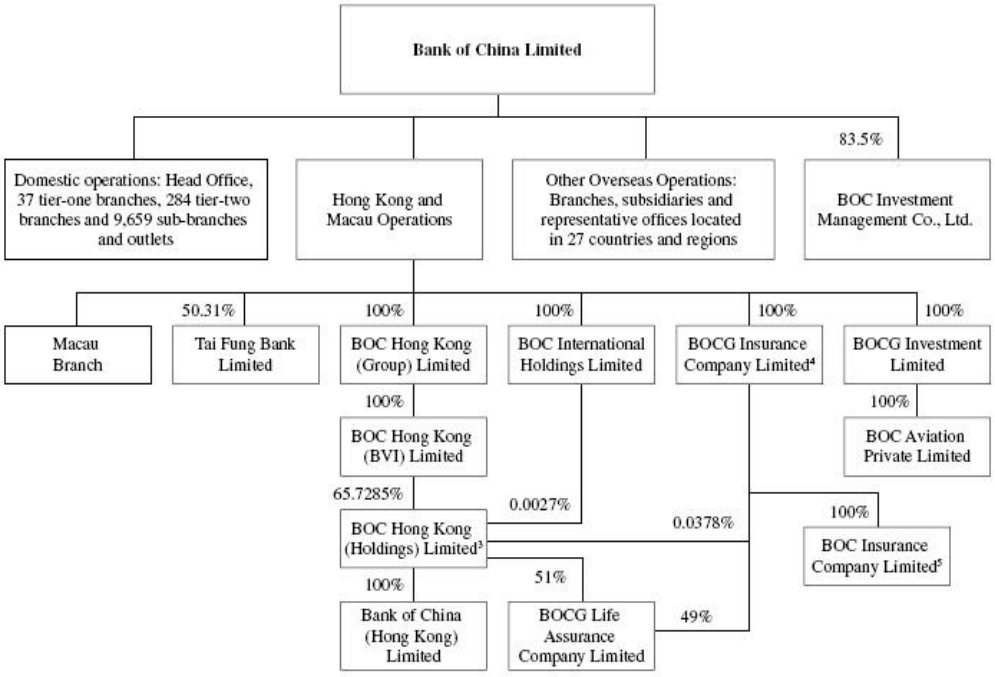


The financial crisis seems not to distract China from its cautious plan of gradual loosening of activities restriction in banking. In November 2009, CBRC issued *Provisional Rules on Commercial Bank's Share Holding in Insurance Companies*, granting bank's equity participation in insurance companies.

Over years, especially the big five SOCBs and JSCBs have build up financial holding emporia with business lines covering banking, securities, asset management, leasing, insurance etc. with subsidiaries at home and abroad. As shown in Figure 9 as an example, the financial group BOC Ltd. covered financial services in banking, insurance, investment and leasing. Similar to the situation in many of its domestic peers, Hong Kong SAR[23], with its liberate regulatory boundary in business diversification for financial institutions, is a preferred location for Chinese banks to explore the expansion in cross-sector services. The investment-banking arm of BOC – Bank of China International (China) Ltd. – was founded as a subsidiary of BOC's wholly owned Hong Kong subsidiary – BOC International Holdings Ltd. to enable the best knowledge and personnel transfer in securities services from Hong Kong to Mainland China.

[23] SAR: Special Administrative Region

Figure 9. Group Structure of BOC



Source: Bank of China Annual Report 2008

Different as the universal banks in Western style, proprietary trading which is deemed much more risky is mostly allowed to be carried out through stand-alone securities subsidiaries, in order to prevent risk transfer from capital markets to bank deposits, not to mention the fact that China has not yet set up deposit insurance system neither for state-owned nor for private banks. Early permissions in trading were granted for trading in low risk class assets like government bonds and other fixed-income securities as well as foreign currencies. The license was linked with strict capital and human resource requirement. For instance, the *Rules on Proprietary Trading in Foreign Currency of Financial Institutions* issued in 1993 set US$20 million as the minimum capital for foreign currency trading. The management and trader should have gained working experiences in trading for five and three years respectively. The scope of the type of securities is however gradually expanded from low risk class assets like foreign currency position, government, financial and corporate bonds to stocks, commodities and derivatives, with the belief that banks have gained knowledge over time. Permissions are however predominantly granted to preferential SOCBs and advanced JSCBs which can meet the strict requirements in capital strength, risk management capacity and specialist know-how.

The overall result shows a rapid expansion of Chinese banks into non-interest income sector since the policy change in 2005. Universal banks in China benefited from the capital boom from 2005 to 2007 and gained considerable market shares in fund distribution, custody and insurance agent services. With the trend of the internalization of the Chinese currency and the subsequent liberalization of interest rates as well as the development of China's capital markets and disintermediation to more direct financing, the move of Chinese banks from the narrow banking model to the universal model seems to be irreversible. The meltdown of the Western banking model with excessive leveraged trading is seen as a confirmation for China's caution in liberating Chinese banks' engagement in proprietary securities trading. In the following section, we compare the current business model of Chinese banks with banking models of Western peer banks, try to understand the return and risk impact of revenue diversification in non-interest income in Chinese, European and Anglo-Saxon banks and to prognosticate the further pace of this transformation.

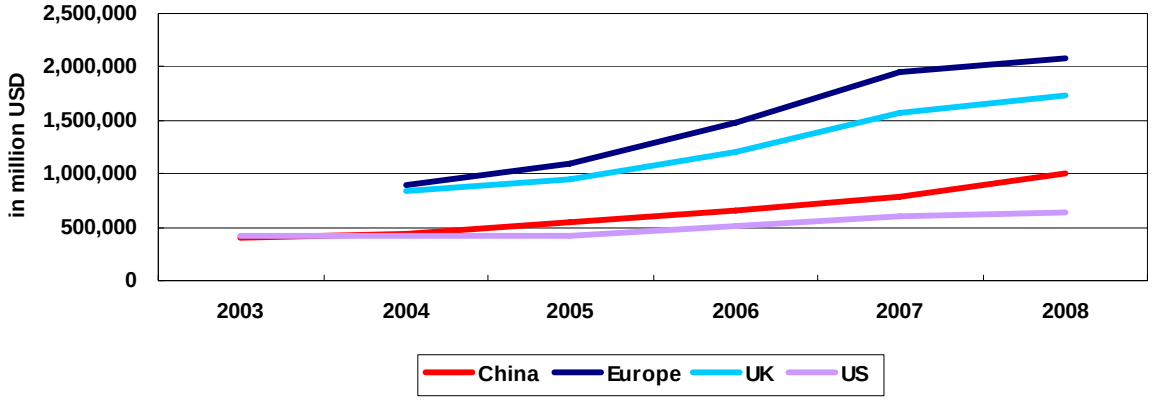
IV. China's Banking Business Model in International Comparison

4.1. Data description

In this section, we compare the business models of Chinese banks with their European, UK and US peers, using data both for top banks defined as the top five banks per total assets in respective regions/countries and panel data of bank annual financial reports over the time frame from 2003 to 2008.[24] We try to understand how differently Chinese banks operate compared to their Western peers and evaluate the sustainability of the current model. Data are drawn for commercial banks from the database *Bankscope*[25]. In order to capture the whole business rage in universal banking, we choose the consolidated financial statements of the selected commercial banks.[26]

Figure 10 provides a comparison of the development in total assets in top banks. As shown in figure 10, the largest banks are concentrated in the Euro area. In Europe, seven banks passed the total assets threshold of one trillion USD (Deutsche Bank, BNP Paribas, Société Générale, Banco Santander, UniCredit, ING Bank and Calyon) at the end of 2008. All big four Chinese SOCBs (ICBC, CCB, ABC and BOC) reached the level of their international peers with over one trillion USD total assets. Barclay, RBS, HSBC from the UK and Bank of America, Citibank from the US play in the same league of large banks with over one trillion assets. With the increasing financial depth in China (currently 278% of GDP, 314% for the Euro zone, 326% for the UK and 385% for the US) and the predominate role of bank deposits as financial assets (currently 58% in China compared to 31% in the Euro zone, 32% in the UK and 23% in the US)[27], a further expansion of assets in Chinese banks in next years is expected.

Figure 10 . Average Total Assets - Top 5



Source: Bankscope

[24] The total sample size is summarized in appendix A.
[25] Bankscope universal format is applied.
[26] Consolidated reports are only available for 17 Chinese banks. For the rest of Chinese sample banks, unconsolidated bank reports are applied. Since the majority banks with unconsolidated reports do not have subsidiary entities, the results will not be altered with this limitation.
[27] See McKinsey *Global Capital Markets: Entering a New Era* (2009).

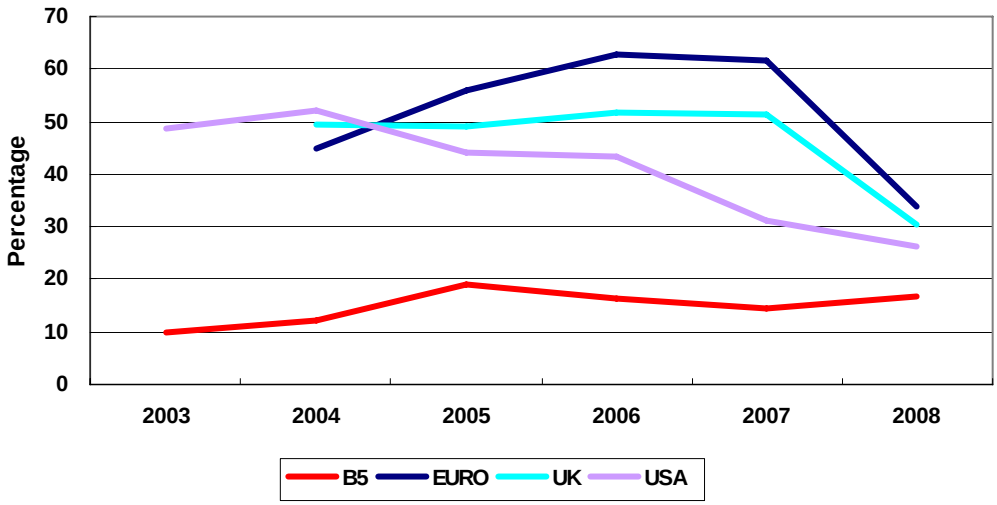
4.2. Business model comparison

Revenue pattern - interest income

In the following, we explore the pattern of revenue resources in banking. We first take a look at the composition of revenue sources in top five banks. Figure 11 manifests the high reliance on lending business in top Chinese banks. The average portion of non-interest income in gross revenue of 14.8% lies far below the level of peer banks in Europe with 51.8%, in the UK with 46.5% and 41.0 % in the US. The figure clearly indicates that Western commercial banks have a more balanced revenue sources between interest income and non-interest income businesses to cope with disintermediation in Western banking systems, while Chinese banks still struggle for a break-through in creating value beyond the lending business. Based on this observation of top banks, we assume:

Hypothesis 1: Compared to Western peers, the profitability pattern in Chinese banks still has a significant higher reliance on interest income from lending business, determined by net interest margin and asset quality.

Figure 11. Non-interest Income / Gross Revenue - Top 5



Source: Bankscope

To test hypothesis 1, we conduct in the following regression analyses for the testing fields based on panel data. The OLS model is used for the following regression equation (Basic model: China, Europe, UK and USA model 1):

$$ROAA_{it} = \alpha + \beta_1 * [\text{Ln (total assets)}]_{it} + \beta_2 * [\text{equity/total assets}]_{it} + \beta_3 * [\text{net interest margin}]_{it} + \beta_4 * [\text{cost income ratio}]_{it} + \beta_5 * [\text{growth of total assets}]_{it} + \beta_6 * [\text{impaired loans/gross loans}]_{it} + \beta_7 * [\text{non-interest income/gross revenue}]_{it} + \varepsilon_{it}$$

With the above equation, we try to test the influence of seven explanatory variables for i bank at time t on profitability measured with ROAA[28]. We choose asset return ROAA instead of equity return ROAE as profitability indicator, because Chinese banks experienced higher fluctuation in equity through asset injection and IPO in last years, and some banks even had

[28] ROAA: return on average assets, ROAE: return on average equity.

negative equity in early sample years before the capital injection. The seven explanatory variables include the natural logarithms of total assets, equity ratio, net interest margin, cost income ratio, asset growth, impaired loan ratio and non-interest income ratio. The total regression results are summarized in appendix B.

The seven variables in the basic models jointly explain 43%, 24%, 51% and 51% (adjusted R) for the return pattern in China, Europe, the UK and the USA respectively. Comparing the results of regression constants, the insignificance of the constant factor in China reveals the high heterogeneity of asset return among diverse types of commercial banks in China, whereas the asset return of Western banks converges to a level of over 1% at 10% significance level (1.0107, 1.0660 and 1.9118 for European, UK and US banks respectively). In China regression model 2 where the sample concentrates in the biggest commercial banks in China, the regression constant with 1.4866 at the 5% significance level shows that the profitability in strongest Chinese banks, including five SOCBs and listed JSCB, lies on the international comparative level.

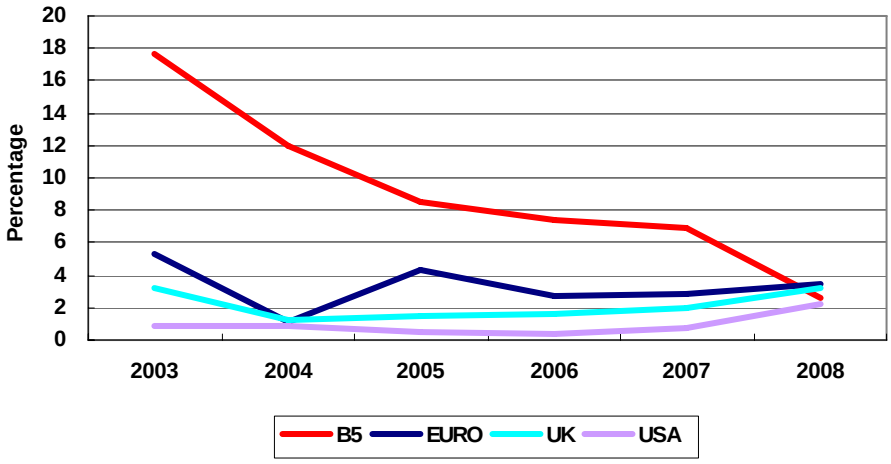
Regarding profitability determinants, net interest margin remains the strongest driving force in China (0.1877), has similar impact on US banks (0.1662), and the impact of margin on UK banks (0.0748) is only half of that in China, but is not significant in European banks. In Western banks, keeping better asset quality plays a more important role than margin, in Europe (-0.0626), in the UK (-0.2049) and in the USA (-0.2875), whereas the NPL ratio has no significant impact on asset return in China. Non-interest income business contributes to higher profitability in Chinese, European and US banks (0.0072, 0.0144 and 0.0100 respectively). The impact in European banks is twice as that of Chinese banks. Also the asset growth contributes to the increase of return in China (0.0030) and in the UK (0.0241). This result reconfirms the high dependence on net interest margin and asset expansion in Chinese banking.

Regarding the lending business, the profitability depends mainly on two determinants: net interest margin and loan quality. The above regression analyses confirms the achievement of China's banking reform in reducing the NPL ratio, for example in top five banks from the average of 17.6% in 2003 to 2.6% in 2008, as shown in figure 12. This success resulted from the government's tremendous efforts from the bail-out removing 1.4 trillion NPLs to separate asset management companies in 1999 and 2000 as well as improved lending practice with more market orientation replacing policy lending and better risk management through restructurings and IPOs in 2004 and 2005. The high asset quality is however partially due to the lending practice in concentrating of loans in large companies, mostly SOEs, since loans of those companies are implicitly guaranteed by the state and the monopoly power of those large firms generates assured return. The result is that 84% of bank loans were lend to 1% of large companies, whereas the more efficient SMEs[29] were under-financed by banks in China.[30] Therefore, the regression results show an insignificant impact of asset quality in Chinese banks' asset return, in contrast to the findings in Western banks.

[29] SME: Small and medium enterprise

[30] McKinsey *Putting China's Capital to Work: the Value of Financial System Reform* (2006).

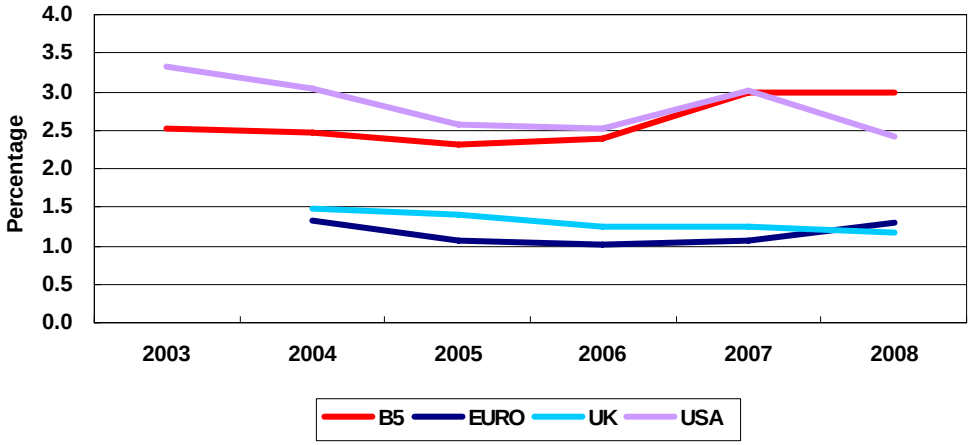
Figure 12. NPLs / Gross Loans - Top 5



Source: Bankscope

We future examine the level and impact factors of net interest margin, another determinant beside asset quality in lending business. As exhibited in figure 13, Chinese top five banks enjoyed an average interest margin of 2.6%, compared to the European average of 1.1% and 1.3% in the UK. The low margin in continental Europe and in the UK can be partially explained by the fierce competition in the European banking markets and the dominant universal banking model in which interest margin is kept low to maintain long-term client relationship and revenues from cross-selling non-interest income products and services to those clients play an important role. Only in the US, banks achieved a slightly higher average margin of 2.8% in last years.

Figure 13. Net Interest Margin - Top 5

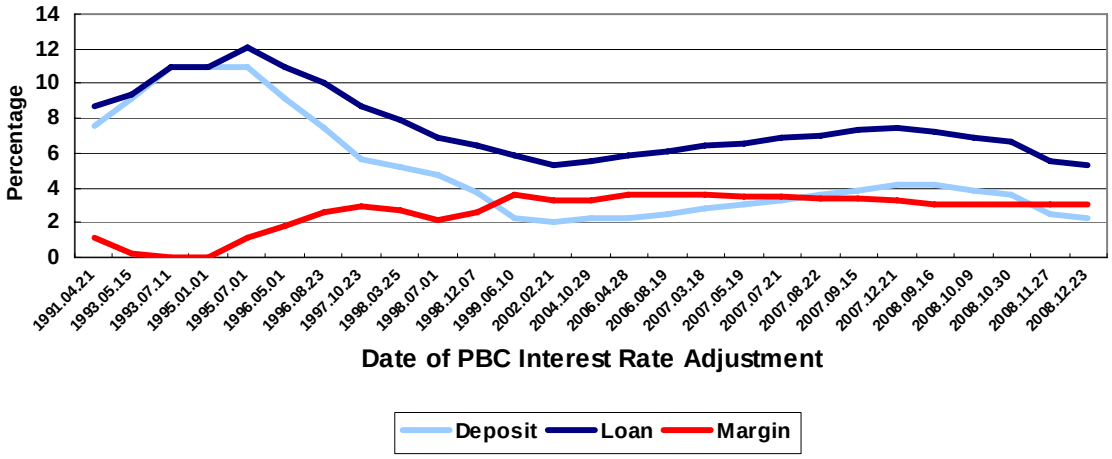


Source: Bankscope

Although the interest margin in absolute figure in China is comparable with that of the USA, the situation of interest rate setting is different in China. PBC, the central bank of China, sets a ceiling of deposit rate and a floor of lending rate, which for example guarantees an official net interest margin of current 3.06% for one-year loan, as illustrated in figure 14. This guided interest rate system was established through *Interim Measures of the Administration of RMB Interest Rates* in 1990 and the revised version *Administrative Provisions on RMB Interest Rates* issued in 1999, which granted the central bank PBC the authority to set the ceiling

deposit rates and floor lending rates. The interest rates on the inter-bank markets and repo rates are allowed to be negotiated among institutional market participants. A floating of the lending rate within the range of 0.9 and 2.0 is permitted from 2004 on, the ceiling deposit rate is however obligatory. The goal is to use guided interest rate as macro-prudential measure for monetary control as well as to prevent banks from losses in fierce competition through high interest rate promise and dumping lending rates. For foreign currency depositing and lending, the price mechanism is more market oriented since only the interest rate for deposits under the limit of 3 million USD is ceiled with a guided interest rate issued by PBC. However, the strict capital control in flows of foreign currency diminishes the freedom in market pricing. The guaranteed profit margin in RMB lending keeps Chinese banks away from the level playing field with international peers which price loans solely on market condition. The artificial higher profit partially conceals the hiding inefficiency in pricing and risk management and impedes innovation in new products and services in China's banking sector. The higher official-set margin can only be held with the current system of capital control for foreign currency capital account. With the internalization of the Chinese currency and more openness of its financial market in the foreseen decade, it is expected that the interest rate regime will be reformed in the direction of more market orientation. Till then, Chinese banks, which fail to build up risk pricing capacity and balanced revenue portfolio, will risk their ability in standing the competition with international peer on a level playing field.

Figure 14. Net Interest Margin from Guided Interest Rates 1991-2008



Source: PBC

Based on the above observation of interest rate setting, we assume:

Hypothesis 2: Due to the administrated interest rate regime, the risk pricing mechanism in lending is distorted in Chinese banks.

We test the risk pricing mechanism in banking by exploring the correlation of other profitability determinates with net interest margin. The results are summarized in appendix C. The striking observation is the converse correlation of loan quality with interest margin in China compared to the positive correlations in European and UK banks. While the risk pricing rule – lower asset quality in terms of higher NPL ratio, higher margin – functions well in Europe and in the UK with positive correlations between impaired loan ratio and net interest margin (0.2403 and 0.5388 respectively), the negative correlation in China with -0.1997 is statistically significant at the 1% level. This can be partially explained by the fact that the administrated net interest margin increased from 3.33% in 2003 to 3.42% at the end of 2007 for one-year loan with the government's intention to prevent the overheating of economy with

higher lending costs. And the same time, the NPL ratio decreased constantly thanks to better risk management. This observation manifests that the government administrated interest rates distort risk pricing mechanism in lending practice of Chinese banks.

Furthermore, the close relationship between cost income ratio and net interest margin in China with -0.4608 confirms that the high interest margin instead of operational efficiency is the real source of lower cost income ratio in China. In respect of the size effect, the negative sign of correlation with total assets shows that large banks in all test fields are not able to use the market power to push through higher margin, which dilutes the concern of the monopoly power of current large size banks. The consistent negative correlation between non-interest income ratios with net interest margin in all testing fields (-0.6203, -0.1205, -0.1662 and -0.3229 in China, Europe, the UK and the USA respectively) documents the disintermediation process in banking: As net interest margin in loan business narrows, banks are looking for other revenue engines in non-interest income business. The highest correlation between net interest margin and non-interest income ratio in China (-0.6203) demonstrates that the high-administrated interest margin reduces in large extent the incentive of revenue diversification in Chinese banks. The high negative correlations between total securities ratios with net interest margin reveal that the thin margin in lending business further drives banks to diversify in securities services (-0.4620, -0.1162, -0.2432 and -0.2297 in China, Europe, the UK and the USA respectively), in China however with stronger diversifying in available for sale securities (-0.5066), in Europe, the UK and the USA stronger in trading securities (-0.1570, -0.5239 and -0.1136 respectively).

To summarize the results from the analysis of interest income as revenue source, the profitability pattern in Chinese banks has a highest dependence on net interest margin, twice as in UK banks, four times compared to US banks and ten times than in European banks. Especially in European banks, the correlation of non-interest income ratio with ROAA is twice than that of net interest margin. At the same, the relationship between net interest margin and impaired ratio follow a unique reverse pattern compared the consistent finding in Western peers: lower loan quality, higher net interest margin, which documents the distorted risk pricing mechanism as a result of the administrated interest rate regime. Although the loan quality experienced great improvement in last years, net interest margin was not adjusted and was kept artificially high, partially in accordance with macro-economical measure to encounter an overheated economy through loan expansion. These findings cause concern of the sustainability of the current business model in Chinese banking sector: At the latest when big SOEs turn directly to capital markets for fund raising and the interest rate is liberalized and adjusted to an international conventional level, Chinese banks which fail to build up capacities to balance interest income and non-interest income business will suffer from a sharp decrease in profitability.

Revenue pattern - non-interest income

Having recognized the backlog in revenue diversification, Chinese banks took tremendous efforts to develop non-interest income businesses, backed by supporting policy and taking advantage of the capital market boom for insurance and funds agency and custody services. In absolute term, the scale of net income from fees and commissions lies however half to two-third back of the level of comparable peers from the UK or Europe, as shown in table 1. And the potential in bancassurance products is not fully explored in China. It is remarkable that the revenue scale of securities trading in Western peers almost reached or even surpassed the level in fee and commission business, whereas the scale in trading of Chinese banks amounted to only a small fraction of net income from fees and commissions. Measured by the

fraction of trading assets in total assets, the limitation of Chinese banks' trading activities is evident, with an average rate of 1.1% (20.1% in Europe, 13.8% in the UK and 9.3% in the US), as illustrated in figure 15. The immature stage of revenue diversification in Chinese banks results on the one side from the fact that the loan business generates sufficient profit thanks to high interest spread and loan growth rate, on the other side from the underdeveloped stage of capital markets as well as limited experience and resources in cross-sector services. Another remarkable fact is that only a small fraction of investment securities (BOC for example 5.3% in 2008) belongs to the active trading securities designated as the asset class "financial assets at fair value through profit and loss" and the majority of the investment securities are high-graded bond securities of the public sector (BOC in 2008 for example with 66.7% government and public sector bonds, 27.1% bonds of financial institutions, 5.5% corporate bonds and 0.8% equity and other securities).

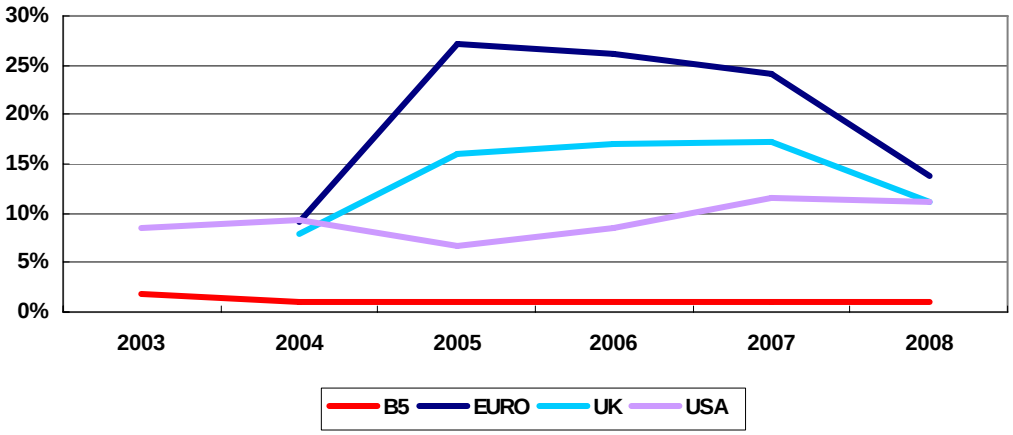
When we compare the results from 2008 with those of 2007 in table 2, it is noticeable that the high volatility in trading income is in great contradiction to the stable income flows from fees and commissions. In crisis time, losses from trading can even diminish the total net fee and commission income, as the case of Deutsche Bank in 2008. Net fees and commissions remain stable positive revenue sources. The composition of non-interest income in fees and commissions as well as in trading of each bank shows the extent of a bank's transformation from a capital market service provider and advisor to capital market risk taker.

Table 1. Overview of Non-interest Income Business in Top 5 Banks in 2008

in million USD	Net G/L on Trading and Derivatives	Net G/L on Securities	Other	Net G/L on Assets at FV through Income Statement	Sub-total	Net Insurance Income	Net Fees and Commissions
China							
ICBC	271	(65)		(101)	106	n.a.	6,330
CCB	352	(324)		110	138	n.a.	5,531
ABC	(647)	71		n.a.	(576)	n.a.	3,424
BOC	(1,017)	289		164	(564)	1,010	5,747
BoCom	224	33		n.a.	257	n.a.	1,271
Europe							
Deutsche Bank	(49,756)	(969)		34,530	(16,195)	n.a.	14,339
BNP Paribas	(16,146)	(478)		19,028	2,403	4,604	8,617
Société Générale	6,750	(249)		(410)	6,091	775	10,906
Banco Santander	1,764	1,557		893	4,215	370	12,429
UniCredit	(3,710)	n.a.		(773)	(4,482)	61	13,364
UK							
Barclays Bank	2,327	392		61	2,780	1,576	15,528
Royal Bank of Scotland	(10,312)	n.a.		n.a.	(10,312)	n.a.	10,621
HSBC Bank	5,480	151		(2,026)	3,606	1,951	7,309
Bank of Scotland	(5,473)	n.a.		n.a.	(5,473)	392	3,373
Lloyds TSB Bank	(17,095)	35		n.a.	(17,060)	15,277	4,686
USA							
Bank of America	(346)	(1,671)		n.a.	(2,017)	n.a.	n.a.
Citibank	(4,058)	(1,900)		n.a.	(5,958)	n.a.	n.a.
HSBC Bank USA	n.a.	n.a.		n.a.	n.a.	n.a.	n.a.
Sallie Mae-SLM Corporation	n.a.	(186)		n.a.	(186)	n.a.	461
RBS Citizens	79	78		n.a.	158	n.a.	n.a.

Source: Bankscope

Figure 15. Trading Securities / Total Assets - Top 5



Source: Bankscope

Table 2. Overview of Non-interest Income Business in Top 5 Banks in 2007

in million USD	Net G/L on Trading and Derivatives	Net G/L on Other Securities	Net G/L on Assets at FV through Income Statement	Sub-total	Net Insurance Income	Net Fees and Commissions
China						
ICBC	178	56	(186)	47	n.a.	5,046
CCB	111	171	47	328	n.a.	4,119
ABC	227	5	n.a.	231	n.a.	3,025
BOC	406	(429)	(368)	(392)	1,206	4,675
BoCom	33	86	n.a.	119	n.a.	933
Europe						
Deutsche Bank	5,370	1,087	4,438	10,894	n.a.	16,842
BNP Paribas	8,984	1,173	1,765	11,922	3,942	8,664
Société Générale	13,143	22	(388)	12,777	1,035	10,317
Banco Santander	3,182	n.a.	n.a.	3,182	438	11,019
UniCredit	772	1,762	(5)	2,530	45	12,924
UK						
Barclays Bank	7,528	1,121	587	9,236	1,039	15,445
Royal Bank of Scotland	2,287	n.a.	n.a.	2,287	n.a.	12,062
HSBC Bank	6,983	1,105	252	8,341	495	8,379
Bank of Scotland	370	n.a.	n.a.	370	298	5,261
Lloyds TSB Bank	6,280	10	n.a.	6,290	(4,190)	5,261
USA						
Bank of America	(3,183)	236	n.a.	(2,947)	n.a.	n.a.
Citibank	(2,804)	468	n.a.	(2,336)	n.a.	n.a.
HSBC Bank USA	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Sallie Mae-SLM Corporation	n.a.	(96)	n.a.	(96)	n.a.	492
RBS Citizens	54	82	n.a.	137	n.a.	n.a.

Source: Bankscope

We extent the above regression analyses by adding the regression variables trading securities ratio and available for sale securities ratio as well as customer deposits ratio to the regression equation (China, Europe, UK and USA model 2) to test the impact of securities trading on asset return. The results are summarized in appendix B.

The surprising finding is that proprietary trading, either classified as trading securities or available for sale securities, does not generate significant higher asset return over the testing period in all testing fields, as indicated by the insignificant coefficients of securities ratio.[31]

[31] We replicate the extended model regression excluding data sets from 2008 for the four testing fields. Neither the coefficients of trading securities ratio nor those of available securities ratio are statistically significant at 10%.

This could result from the fact that the high volatile trading results from one year to another are only averaged out over years and do not generate constant higher asset return.

The coefficients of net interest margin in extended models reconfirm that the profitability in Chinese banks is mainly driven by higher interest margin (0.1418 in China model 2), whereas the effect of margin in Western banks is not significant. Non-interest income contributes constantly to higher asset return in European and UK banks with coefficient of 0.0109 and 0.0122 respectively.

Risk pattern

In the following, we investigate the risk reduction effect through diversification in non-interest income, and this can be the case, if:

Hypothesis 3: The volatilities of interest income and non-interest income are not or negatively correlated.

Regarding non-interest income (NII), we also separate the effect of fees and commissions (FC) instead of trading income. We determine the risk term as the absolute deviation of the outcome from the average value[32]. We test the correlations of the risk factors in the three business lines. As shown in table 3, fees and commissions income is significantly correlated with non-interest income in China, the UK and the USA with correlations of 0.2362, 0.4501 and 0.4823 respectively, which indicates fees and commissions are driving forces of non-interest income in those countries. In all testing fields, the correlations between interest income and non-interest income are statistically not significant, which implies the potential of risk reduction through combining interest income with non-interest income. Hypothesis 3 is confirmed.

Noticeable, fees and commissions income is positively correlated with interest income in UK and US banks (with correlations of 0.2877 and 0.4834 respectively), but not significant in China and in Europe. In the UK and the USA, both interest income and fees and commissions could be more influenced by movement of macroeconomic determinants like interest rate level or general capital market mood, whereas fees and commissions in Chinese and European banks stem from more stable sources like credit card fees, custody fees which are less sensible to determinants of interest income.

Table 3. Risk Correlation

	China			Europe			UK			USA		
	II	FC	NII	II	FC	NII	II	FC	NII	II	FC	NII
II	-			-			-			-		
p-value												
obs.												
FC	0.0846	-		-0.0041	-		0.2877 **	-		0.4834 **	-	
p-value	*0.4078*			*0.9435*			*0.0450*			*0.0226*		
obs.	*98*			*305*			*49*			*22*		
NII	-0.1257	0.2362 **	-	-0.0091	0.0316	-	0.0247	0.4501 ***	-	0.1208	0.4823 **	-
p-value	*0.2174*	*0.0192*		*0.8734*	*0.5831*		*0.8608*	*0.0012*		*0.2515*	*0.0230*	
obs.	*98*	*98*		*311*	*305*		*53*	*49*		*92*	*22*	

II: interest income; FC: fees and commissions income; NII: non-interest income.

*** / ** / * Statistically significant at 1% / 5% / 10%

Source: Bankscope

[32] In case the average value turns to be negative, the risk term is not included in the analysis, with the assumption that long-term average return should not be negative.

We further compare the risk factors for interest income (II), fees and commissions income (FC) and non-interest income (NII) separately[33] for the sample period and generate the mean risk factor for respective testing countries/regions. As shown in table 4, the fluctuation of revenues from fees and commissions as well as from total non-interest income business in Chinese and UK banks is statistically significant higher that that in traditional interest income business (30.68%, 53.87% and 29.17%, 34.17% higher for China and the UK respectively). Non-interest income in US banks also has a higher volatility than interest income (20.30% higher). However, the variation of fees and commissions business in Europe and in the USA and that of total non-interest income in Europe are statistically not significantly higher than that of interest income. It is also remarkable that the income variation of fees and commissions is smaller than that of total non-interest income (23.20% and 5.55% smaller for China and the UK respectively), which indicates the higher risk from securities trading than from fees and commissions business. The overall results show that especially European banks have build up stable non-interest income sources.

Table 4. Risk Comparison

Variable	China					Europe				
	II	FC	NII	II<FC	II<NII	II	FC	NII	II<FC	II<NII
Mean	39.28%	69.96%	93.16%	-30.68% ***	-53.87% **	88.60%	39.53%	67.39%	47.89%	21.21%
obs./p value	*98*	*98*	*98*	*0.0000*	*0.0285*	*311*	*305*	*311*	*0.7979*	*0.6448*
Variable	**UK**					**USA**				
	II	FC	NII	II<FC	II<NII	II	FC	NII	II<FC	II<NII
Mean	22.91%	51.53%	57.08%	-29.17% **	-34.17% ***	26.99%	16.70%	47.29%	1.85%	-20.30% ***
obs./p value	*53*	*49*	*53*	*0.0149*	*0.0046*	*92*	*22*	*92*	*0.7508*	*0.0028*

II: interest income; FC: fees and commissions income; NII: non-interest income.

*** / ** / * Statistically significant at 1% / 5% / 10%

Source: Bankscope

V. Synergies in Chinese Universal Banks: The Example of Asset Management Companies

In the final section, we use the unique transformation process of Chinese banks' equity participation in asset management companies after the liberalization in 2005 as template to demonstrate the impact of the transformation towards the universal banking model. By matching 539 asset management funds with their respective asset management companies, we differentiate the funds between bank-majority holding funds (bank funds), bank-minority holding funds (affiliate funds), funds held by a financial conglomerate (conglomerate funds) and stand-alone funds (stand-alone funds). We analyze the characteristics and performance difference of these funds using data from 2007 to 2008[34] and try to identify the benefits of bank's equity holding in asset management companies. Data are draw from the database *wind*.

As in table 5 illustrated, bank funds emerged after the liberalization of bank's majority holding in asset management companies in 2005. However, over 70% of asset management funds are still held by stand-alone fund management companies which also have longer business tradition.

[33] The risk factor for trading income is not used here since most mean values in trading income turn to be negative as the result of sharp down-ward movement in capital markets in the financial crisis.

[34] This time frame is chosen for reason of better funds data availability only from 2007 on.

Table 5. Founding Year of Asset Management Funds

	Bank (No.)	Affiliate (No.)	Conglomerate (No.)	Stand-alone (No.)
1998	0	1	2	2
1999	0	1	4	9
2000	0	0	1	0
2001	0	1	1	3
2002	0	1	4	14
2003	0	1	8	31
2004	0	2	8	31
2005	4	2	6	31
2006	7	4	14	52
2007	5	3	12	42
2008	17	4	14	82
2009	17	5	11	82

However, the test of asset size shows that bank funds, affiliate funds as well as conglomerate funds are significantly larger in size measured both with total assets and net assets under management at the end of 2008, as summarized in table 6. This result demonstrates that bank-related funds are able to draw investor's attention and to attract more financial resources. The comparative advantage of banks in fund distribution lies in the reputation of established brand and vast distribution network in bank branches.

Table 6. Fund Total Assets Comparison

Variable	Mean				Difference							
	Bank	Affiliate	Conglomerate	Stand-alone	Bank > Other		*P value*	Affiliate > Other		*P value*	Conglomerate > Other		*P value*
Total assets 2008 in bn CNY	5.8746	5.3785	5.8679	3.4274	1.8748	***	*0.0080*	1.3057	*	*0.0849*	2.1151	***	*0.0000*
obs.	*29*	*19*	*73*	*284*	405			405			405		
Net assets 2008 in bn CNY	4.9928	5.1457	5.5560	3.2632	1.2007	**	*0.0437*	1.3226	*	*0.0683*	2.0230	***	*0.0000*
obs.	*33*	*20*	*74*	*298*	425			425			425		

*** / ** / * Statistically significant at 1% / 5% / 10%

Source: wind

Due to the larger size of assets managed by a single fund, especially bank funds are able to offer fund products with favorable condition by lowering management and custody fee, which in turn attracts more assets and intensified the economic of scale. In average, bank funds require 0.12% and 0.01% lower management and custody fee respectively, as shown in table 7.

Table 7. Fees Comparison

Variable	Mean				Difference							
	Bank	Affiliate	Conglomerate	Stand-alone	Bank < Other		*P value*	Affiliate < Other		*P value*	Conglomerate < Other		*P value*
Management fee in %	1.1340	1.2820	1.2092	1.2559	(0.1151)	**	*0.0245*	0.0457		*0.7144*	(0.0347)		*0.2282*
obs.	*50*	*25*	*85*	*379*	539			539			539		
Custody fee in %	0.2220	0.2300	0.2289	0.2326	(0.0098)	**	*0.0349*	(0.0010)		*0.4493*	(0.0023)		*0.2942*
obs.	*50*	*25*	*85*	*379*	539			539			539		

*** / ** / * Statistically significant at 1% / 5% / 10%

Source: wind

Regarding the portfolio structure, we identify that funds with bank linkage invest in average 6% to 8% more in fixed-income products and 4% to 8% less in equity securities, as depicted in table 8. This result can be interpreted with the fact that Chinese banks have longer tradition and gained expertise and market presence in bond market, especially through inter-banking markets and can extend this expertise in their fund subsidiaries.

Table 8. Fund Portfolio Comparison

Variable	Mean				Difference								
	Bank	Affiliate	Conglomerate	Stand-alone	Bank = Other		*P value*	Affiliate = Other		*P value*	Conglomerate = Other		*P value*
Stock%	58.43	54.26	58.61	63.49	(3.5888)	***	*0.0000*	(7.9489)	***	*0.0000*	(3.9399)	***	*0.0000*
obs.	*9,012*	*7,781*	*28,925*	*107,945*	153,663			153,663			153,663		
Bond%	32.55	35.20	32.63	24.70	5.6921	***	*0.0000*	8.4399	***	*0.0000*	6.7082	***	*0.0000*
obs.	*9,012*	*7,781*	*28,925*	*107,945*	153,663			153,663			153,663		
Other%	8.55	10.20	8.72	11.61	(2.4001)	***	*0.0000*	(0.6466)	***	*0.0000*	(2.5858)	***	*0.0000*
obs.	*8,966*	*7,752*	*28,913*	*107,710*	153,341			153,341			153,341		

*** / ** / * Statistically significant at 1% / 5% / 10%

Source: wind

We further compare the performance of bank related and stand-alone funds using daily return of net asset value of funds during the years from 2007 to 2008. We evaluate both the absolute daily return and the abnormal daily return defined as the return over the benchmark with the same portfolio structure. The second measurement should take into account the different portfolio structure of bank-related and stand-alone funds as identified above. For stock investment, daily return of Shanghai Composite Index is chosen as benchmark; for bond investment, daily return of China Composite Bond Index is chosen; and we assume the investment of the rest of assets in the portfolio in short-term and liquid market and choose the daily return of Shanghai Interbank Overnight Rate (SHIBOR) as benchmark. As summarized in table 9, the performance of bank-related funds do not differ much from that of stand-alone funds, both in terms of absolute return and abnormal return compared to benchmark. This result indicates that banks are not the surely better asset manager on the Chinese capital market. The reputation of big Chinese banks is still not the sufficient condition to attract over performing asset managers to deliver better performance than fund managers in stand-alone funds.

Table 9. Fund Performance Comparison

Variable	Mean				Difference					
	Bank	Affiliate	Conglomerate	Stand-alone	Bank = Other	*P value*	Affiliate = Other	*P value*	Conglomerate = Other	*P value*
Fund NAV daily return	(0.0644)	(0.0505)	(0.0435)	(0.0654)	(0.0041)	*0.8874*	0.0104	*0.7393*	0.0209	*0.2358*
obs.	*8,990*	*7,774*	*28,898*	*107,821*	153,483		153,483		153,483	
Fund NAV daily abnormal return #	(0.0298)	(0.0117)	(0.0436)	(0.0389)	0.0095	*0.7414*	0.0275	*0.5715*	(0.0063)	*0.7209*
obs.	*5,812*	*1,952*	*18,344*	*61,245*	87,353		87,353		87,353	

*** / ** / * Statistically significant at 1% / 5% / 10%

Abnormal return = fund daily return - portfolio daily return, portfolio daily return = stock% * SH composite index daily return + bond% * China composite bond index daily return + other% * SHIBOR daily return

Source: wind

Consolidating the above findings, we conclude that potential synergies of bank's equity participation in asset management companies are realized through reputation and distribution network of banks to attract funds flows as well as lower management and custody fee condition through economies of scale. Chinese banks especially apply their expertise in fixed assets investment in their funds products, generating economies of scope.

VI. Conclusion and Outlook

The overall results of the above analyses confirm our suspicion of Chinese banks' high dependence on net interest margin compared to international peers. Due to the rigid interest rate regime, the risk pricing mechanism is still not established in the lending practice of Chinese banks. Compared to the still narrow business model in China, European banks exhibit the highest level of disintermediation. Valverde and Fernández (2007) explain that European universal banks charge low net interest margin for client access and create value through bundling and cross-sell high value-added non-interest income businesses. However, in China, Europe, the UK and the USA, volatilities of interest income and non-interest income are not correlated, which provides potential diversification benefits in revenue diversification

in non-interest income, especially fees and commissions businesses.

Having recognized that the current narrow banking model can not sustain after the interest rate liberalization and with the aim of participating in returns from rapid development of capital markets, Chinese banks gradually diversify in non-interest income businesses with fees and commissions in dominance and limited securities trading. Over a short time of four years, China's major banks have successfully leveraged the strong brand and distribution network to build up presence in fund, insurance agency and custody services. Economies of scale in bank related funds are transferred to investors through lower management and custody fee. Economies of scope are achieved by sharing expertise in investment in fixed-income products.

The cautious liberation of bank's engagement in proprietary trading especially in trading equity and derivative products as well as of bank's participation in securities companies reveals that China learned the lesson of Western banks with over-leveraged trading and over-risked universal banking model of pre-crisis time. A downscale of trading in Western universal banks could bring about the convergence of a post-crisis universal banking model with more stable and moderate return and balanced interest, fees and commissions and trading income.

The transformation towards the universal banking model in China even today already goes further by including insurance services as well. This development opens-up the way for the establishment of the third banking business model in China despite of the separated and the universal, which is the integrated financial service provider. Just recently, in November 2009, China's banking regulator, CBRC, issued *Provisional Rules on Commercial Bank's Share Holding in Insurance Companies*, which permit bank's equity participation in one insurance company. After the failure of the banc assurance model in different European countries, perhaps China could become the new frontrunner with regards to integrated financial service provider. A lot of research is still needed to understand the full variety of the transformation of China's banking sector in an international context.

Appendix

A. Total Sample Description

China	
SOCB	5
JSCB	12
CCB	79
RCB	6
Total	**102**

UK	
Total	**55**

USA	
Total	**101**

Euro Area	
Austria	21
Belgium	14
Finland	7
France	81
Germany	43
Greece	15
Ireland	16
Italy	39
Luxembourg	11
The Netherlands	31
Portugal	11
Slovakia	10
Spain	35
Total	**334**

B. ROAA Regression Results

Variable	China (1)	China (2)	Europe (1)	Europe (2)	UK (1)	UK (2)	USA (1)	USA (2)
Ln total assets	0.0297 ***	0.0215	-0.0450	-0.0744	-0.0499	-0.0089	-0.0364	0.2252
t value	*2.6700*	*0.9800*	*-1.2200*	*-1.4600*	*-1.0700*	*-0.1100*	*-1.3500*	*0.9300*
p value	*0.0080*	*0.3290*	*0.2250*	*0.1460*	*0.2890*	*0.9120*	*0.1780*	*0.4050*
Equity/total assets	0.0202 ***	0.0370 **	0.0747 ***	0.0706 ***	0.0364 *	0.0705 *	0.0255 **	-0.0888 *
t value	*2.6300*	*2.5700*	*4.7900*	*3.7200*	*1.9600*	*1.8500*	*2.5500*	*-2.6700*
p value	*0.0090*	*0.0120*	*0.0000*	*0.0000*	*0.0530*	*0.0770*	*0.0110*	*0.0560*
Net interest margin	0.1877 ***	0.1418 **	0.0450	-0.0703	0.0748 ***	-0.0215	0.1662 ***	0.5813
t value	*6.1400*	*2.1200*	*0.6000*	*-0.6500*	*2.8700*	*-0.0900*	*3.6500*	*0.8700*
p value	*0.0000*	*0.0370*	*0.5490*	*0.5170*	*0.0050*	*0.9290*	*0.0000*	*0.4350*
Cost income ratio	-0.0165 ***	-0.0219 ***	-0.0123 ***	-0.0182 ***	-0.0073 **	-0.0086 *	-0.0233 ***	-0.0419 **
t value	*-7.1100*	*-5.1500*	*-5.6800*	*-5.6100*	*-2.4200*	*-1.9000*	*-15.9600*	*-3.1200*
p value	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0180*	*0.0690*	*0.0000*	*0.0360*
Trading securities/total assets	-	0.8487	-	1.1087	-	-1.2107	-	5.5174
t value		*0.7900*		*1.1400*		*-0.6400*		*1.0300*
p value		*0.4330*		*0.2560*		*0.5270*		*0.3610*
Available for sale securities/total assets	-	-0.1105	-	-1.1059	-	-0.8173	-	-2.1165
t value		*-0.2300*		*-1.2000*		*-0.7800*		*-1.1000*
p value		*0.8210*		*0.2310*		*0.4410*		*0.3320*
Customer deposits/total assets	-	-0.7034	-	0.6326	-	0.1926	-	-1.9943
t value		*-1.4800*		*1.2000*		*0.2700*		*-1.2600*
p value		*0.1420*		*0.2290*		*0.7910*		*0.2780*
Growth of total assets	0.0030 **	-0.0009	0.0006	0.0011	0.0241 ***	0.0043	-0.0011	0.0019
t value	*2.4700*	*-0.3900*	*0.3300*	*0.4900*	*5.9400*	*0.9500*	*-1.0500*	*0.2500*
p value	*0.0140*	*0.6970*	*0.7420*	*0.6250*	*0.0000*	*0.3540*	*0.2960*	*0.8130*
Impaired loans/gross loans	-0.0037	0.0092	-0.0626 ***	-0.0694 **	-0.2049 ***	-0.0028	-0.2875 ***	-0.4189 **
t value	*-1.1900*	*0.7400*	*-2.8800*	*-2.5500*	*-6.3600*	*-0.0800*	*-7.1300*	*-3.0100*
p value	*0.2370*	*0.4610*	*0.0040*	*0.0110*	*0.0000*	*0.9370*	*0.0000*	*0.0400*
Non-interest income/gross revenue	0.0072 ***	-0.0036	0.0144 ***	0.0109 **	0.0034	0.0122 *	0.0100 ***	0.0048
t value	*3.4100*	*-0.7300*	*4.6200*	*2.5100*	*0.8500*	*2.0100*	*4.5100*	*0.1800*
p value	*0.0010*	*0.4650*	*0.0000*	*0.0120*	*0.3960*	*0.0560*	*0.0000*	*0.8630*
Constant	0.3024	1.4866 **	1.0107 *	1.8818 **	1.0660 *	0.3927	1.9118 ***	2.5461
t value	*1.3100*	*2.6000*	*1.9300*	*2.4100*	*1.8700*	*0.2800*	*5.2100*	*0.7800*
p value	*0.1930*	*0.0110*	*0.0540*	*0.0160*	*0.0650*	*0.7850*	*0.0000*	*0.4780*
F value	29.6900	10.0100	22.9200	13.2700	13.1300	3.6500	64.0100	51.3000
R-squared	0.4462	0.5557	0.2513	0.2609	0.5506	0.6133	0.5150	0.9923
Adjusted R	0.4311	0.5002	0.2403	0.2412	0.5087	0.4452	0.5070	0.9729
Obs.	266	91	486	387	83	34	430	15

*** / ** / * Statistically significant at 1% / 5% / 10%

Source: Bankscope

C. Impact on Margin - Pairwise Correlations with Net Interest Margin

	China	Europe	UK	USA
Ln(Total Assets)	-0.1350 ***	-0.1176 ***	-0.3503 ***	-0.3398 ***
p-value	*0.0082*	*0.0000*	*0.0000*	*0.0000*
obs.	*383*	*1,348*	*236*	*472*
Equity/Total Assets	0.1847 ***	0.0450 *	0.4854 ***	-0.0404
p-value	*0.0003*	*0.0983*	*0.0000*	*0.3810*
obs.	*383*	*1,348*	*236*	*472*
Cost Income Ratio	-0.4608 ***	0.0503 *	0.0115	-0.0223
p-value	*0.0000*	*0.0658*	*0.8614*	*0.6304*
obs.	*383*	*1,339*	*235*	*469*
Net loans/Total Assets	0.4035 ***	-0.0290	0.3781 ***	0.3614 ***
p-value	*0.0000*	*0.2890*	*0.0000*	*0.0000*
obs.	*383*	*1,335*	*234*	*469*
Trading Securities/Total Assets	0.1019	-0.1570 ***	-0.5239 ***	-0.1136 **
p-value	*0.3107*	*0.0000*	*0.0000*	*0.0241*
obs.	*101*	*833*	*72*	*394*
Available for Sale Securities/Total Assets	-0.5066 ***	-0.1748 ***	-0.0431	0.2620 **
p-value	*0.0000*	*0.0000*	*0.6670*	*0.0174*
obs.	*373*	*990*	*102*	*82*
Total Securities/Total Assets	-0.4620 ***	-0.1162 ***	-0.2432 ***	-0.2297 ***
p-value	*0.0000*	*0.0000*	*0.0008*	*0.0000*
obs.	*382*	*1,283*	*188*	*467*
Customer Deposits/Total Assets	0.1665 ***	-0.0800 ***	-0.1197 *	0.2637 ***
p-value	*0.0011*	*0.0044*	*0.0905*	*0.0000*
obs.	*383*	*1,267*	*201*	*450*
Bank Deposits/Total Assets	-0.0857	0.0250	0.1206 *	-
p-value	*0.1011*	*0.3746*	*0.0939*	
obs.	*367*	*1,264*	*194*	
Growth of Total Assets	0.0600	0.0033	-0.1000	0.1358 ***
p-value	*0.2840*	*0.9129*	*0.1711*	*0.0037*
obs.	*321*	*1,073*	*189*	*456*
Growth of Total Loans	-0.0195	0.0121	-0.1097	0.2197 ***
p-value	*0.7284*	*0.6953*	*0.1351*	*0.0000*
obs.	*321*	*1,055*	*187*	*447*
Impaired Loans/Gross Loans	-0.1997 ***	0.2403 ***	0.5388 ***	-0.0272
p-value	*0.0004*	*0.0000*	*0.0000*	*0.5672*
obs.	*310*	*571*	*100*	*445*
Loans/Customer Deposits	0.1812 ***	0.0565 *	0.1618 **	-0.0580
p-value	*0.0004*	*0.0582*	*0.0231*	*0.2288*
obs.	*383*	*1,126*	*197*	*433*
Non-Interest Income/Gross Revenue	-0.6203 ***	-0.1025 ***	-0.1662 **	-0.3229 ***
p-value	*0.0000*	*0.0002*	*0.0126*	*0.0000*
obs.	*383*	*1,291*	*225*	*471*

**** / ** / * Statistically significant at 1% / 5% / 10%*

Source: Bankscope

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