Impact of Banking Information Systems Security on Banking in China:
The Case of Large State-Owned Banks in Shenzhen Economic Special Zone—An Introduction

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This paper focuses on information security in Chinese Banking Information Systems (BIS), which can only be understood in the context of the wider reforms of the Chinese banking sector. A small pilot study of banking in Shenzhen was carried out. Shenzhen, in southern China, is one of the Economic Special Zones and may be considered as being at the leading edge of development in banking and a pointer towards future developments of banking in China. Information security was found to be inadequate in the banking sector. If security is seen primarily as a human, rather than a technical issue (Williams and Hitchings 1991) this result could have been anticipated in the rush to install the technology to support the new banking services. It was seen as a reflection of the poor appreciation by senior management of information security. The overall integrity of the banks did not seem to depend on BIS, however; it was the background of the people controlling the banks that was of more concern. The residual influence of the (communist) party and the state, inappropriate in a non-command economy, appears to have been responsible for some poor lending decisions, resulting in loans which may never be recovered.

As China moves from a command economy to a more market-oriented one, many private firms have come into existence. Chinese banks have also been created to offer services to the new firms that are comparable to the banking services available in developed economies. In particular, the provision of on-line banking services has been given a high priority. Computer-based Banking Information Systems (BIS) are supporting, and may even be driving, these online services. The aim of this paper is to look at the security around these systems.

Hentona (1995) and Lipton (1996) suggested that exposure to foreign banks with sophisticated banking services or practices will help develop the Chinese banking system. This has occurred but serious problems remain, for example, lack of proper regulation. How to sustain rapid growth in services offered to customers without management losing control inside the banks, is one of the most important problems facing Chinese banks.

Shenzhen, in southern China, is one of the Economic Special Zones (ESZ) and is therefore seen as being at the leading edge of economic reform and the accompanying development of banking. As such, it can be viewed as a pointer towards the future of banking in China. A pilot survey into the Information Systems (I.S) on which modern banking depends, especially regarding information security, was carried out in Shenzhen in April 1997.

The UK is seen as one of the leading banking centres in the world and as such, a possible role model for Chinese
banking, referred to by Lipton (1996). An assumption is that the recent evolution of Chinese banks has progressed in a similar manner to that of the UK for example, but at an accelerated pace. In the UK, the issue of information security is being looked by the government’s Department of Trade and Industry (DTI) and other bodies. They stress the importance of an appropriate awareness by senior management towards security of I.T, and recommend the implementation of ten key controls (DTI, 1996a). This approach is seen as one the Chinese banking industry should consider.

The organisation of this paper is as follows. The next section briefly describes the banking system in China and is followed by a section on information security. This is followed by a section on methodology. No hypothesis testing was carried out, but rather gathering information with questionnaires, semi-structured interviews, and internal bank documents. The difficulty of obtaining information and the small sample used, is explained.

The data from the survey is then discussed in the next two sections. First, the services offered by the Chinese banks interviewed; their BIS and management issues. The second section looks at information security on its own. Finally, there is a section on conclusions, recommendations and future topics for research.

**Chinese Banking System**

To set the scene, a brief comparison can be made between the banking systems in UK and China as follows.

Banking in the UK has grown continuously over several centuries. Until the latter half of the twentieth century banks were small and regional, in keeping with their customers. Expansion of the banks has matched the growth of the corporate customers, but has always been accompanied by an influx of many small new customers as personal banking has become more widespread. The sector was strongly regulated until the 1970’s when it was deregulated with the aim of increasing efficiency by introducing greater competition.

The use of BIS has also had a relatively leisurely period of growth, spread over several decades. This growth was spurred on by deregulation as I.T. was put to use to improve the administration of personal accounts and interbank clearing, and latterly by the provision of online banking services.

Banking in China however can be characterised by non-leisurely growth. The legacy of earlier periods of banking was effectively severed by the requirements of the communist party. Its new role was to allocate and administer the budget of state organisations – the private sector having ceased to exist. Partial deregulation in the 1980’s has had a major effect of bringing back private bank accounts for businesses and individuals. As in the UK, this has stimulated a demand for the use of I.T in BIS, and in China has resulted in massive growth in this area.

A fuller account of banking in China now follows.

**The Reforms of Chinese Banking**

China began its economic reform in every sector including banking in 1978. Since then, Chinese banks have changed from being strongly regulated to semi-controlled (Yang, 1997). The pattern of Chinese reforms is ‘crossing the river by feeling the stones’ so there have been three waves of reforms.

1. **The Establishment of Specialised Banks**

   Reforms in this wave (1978 to 1983) began with Specialised banks being created or reestablished to assist the transition of the economy.

   These banks, known as the New Big Four because they can be traced back to the Old Big Four, make up the pillars of the current banking system. The Big Four have always acted more like fiscal agents than commercial financial institutions because of having the task of collecting people’s savings and redistributing them to state enterprises and for purposes specified in the state’s plan for granting loans and credits.

   It was during this wave that the PBOC operated in the style of Western central banks, with the goal to ‘...make the PBOC a true central bank with the responsibility to maintain currency and price stability...’ (EIU, 1993).

2. **Bank Loans Replace Budgetary Grants**

   The Second Wave of banking reform began when bank loans replaced budgetary grants on working capital of state enterprises in 1983. Despite the rapidly increasing magnitude of their operations, the entire banking system was still under strict government control.

3. **Commercialisation and Liberalisation - a Regulatory Framework with Chinese Characteristics**

   Since 1989, there has been the Third Wave of banking reform with the aim of establishing a freely competitive financial system within the Socialist Market Economy - Specialised banks become commercial banks and compete freely with other foreign and domestic financial institutions under the administration of PBOC.

   The most significant developments in this wave have been:

   - The creation of three new policy banks to manage policy loans to the state sector in order to free up the four specialised banks for commercial lending and further risks management.
   - Renminbi, the Chinese official currency, current account convertibility established on January 1, 1997.

To foreign banks, China is “the opportunity of a lifetime” (Goldie-Scot, 1996). There are over 500 foreign financial institutions in China. These institutions were restricted to foreign currency business with foreign and joint-venture companies before the Renminbi market opened on second half of 1996.
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