

# Chinese banking system: Peculiarities in a comparison with Italian case\*

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**Abstract:** The analysis of principal data on Chinese banks highlights how they are exposed to credit risk, primarily generated from loans to public companies. Chinese banks have a good capital provision; The analysis of economic data describes a system oriented towards relationship lending; The average profitability per employee shows wide margins of improvement in terms of efficiency and technological equipment. The comparison with the case of Italy, which like China can be considered an economy heavily oriented to banking intermediation, it is useful to highlight some peculiarities of the Chinese banking system.

**Key words:** China; banking system; bank performances

## 1. Introduction

This paper presents an analysis of the Chinese banking system, whose features will be highlighted by comparison with the Italian banking system. Despite the deep cultural and dimensional differences between the countries there are, in fact, some qualitative aspects that make the comparison possible between the two systems. Among these aspects, the progressive reduction of State's presence in banks' ownership, which began only in the last two decades, the orientation of the financial system to banking intermediation, the difference in development reached by geographical areas, the small and medium enterprises' role as the economy driver, still disinclined to invest in innovation. In relation to the development models adopted, it's also possible to identify other elements in common with the two economies:

(1) The presence of "clusters" and orientation to exports

A peculiarity of Chinese and Italian economic systems is the model based on the so-called "industrial districts". In China, they were first introduced in the early eighties, in Italy the phenomenon is clear from the 1970s. This development model is part of a strategy for economic growth that, for both countries, can be defined as "export-oriented": China, in the late 1970s, started, in fact, to identify sales in outside markets as the preferred destination of its production; in Italy, after the Second World War, exports were considered to be the driving force of economic recovery;

(2) The importance of the tertiary sector

In China, it is about 40% of national Gross Domestic Product (GDP), in Italy 69%;

(3) The geographical distribution of national production

In China, 59.7% of GDP is produced in the Eastern region, 23.2% is due to the Central region and 17.1% in

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\* Section 3.4, section 3.5, section 4 are attributable to Manuela Gallo, while section 1, section 3.2, section 3.3 to Valeria Vannoni. Section 2 as collaboration between the two authors.

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the Western region. In Italy, 31.8% of GDP is produced in the regions of North-West, 22.3% is due to the regions of North-East and 21% is produced in the Central regions, and finally, 24.8% in Southern regions.

The research stems from the aim to investigate the evolution of Chinese banking system and the role it plays in supporting the country's economy, having as reference the Italian case for the interesting traits in common mentioned.

The work is organized as follows: Section 2 gives a brief account of the literature; Section 3 is devoted to empirical verification, carried out with attention to the profiles of capital adequacy (Section 3.2), profitability (Section 3.3), costs (Section 3.4) and asset quality (Section 3.5) of intermediaries included in the samples constructed for the two systems. Section 4 contains, finally, some reflections based on evidences obtained from research.

## 2. Literature review

It's possible to ideally divide into two periods of the history about the economic development in China: a first phase, until the early 1970s, marked by a so-called "forced growth"<sup>1</sup>, in line with the dictates of Maoist economic conception (Kornai, 1972), and a second phase, called "export and investment-led" (Charles & Karouni, 2008), which began at the end of the 1970s and still is in progress.

In literature, the main contributions analyze the link between enterprises and banking system, with particular attention to the transformation implemented by China since the 1970s and the gradual systematic and institutional change (Charles & Karouni, 2008), from planned economy to market economy (Chiarlone & Amighini, 2007).

As an alternative to the interpretative key of the economic development strategy of China represented by the "export and investment-led", it was identified as an approach of financial growth.

Checks on Chinese reality were conducted using two main approaches: through the analysis of the causal relationship between finance and development<sup>2</sup> and through cross-section surveys (Sanacuore, 2008).

Studies related to the first approach were on the basis of financial deepening indicators or using so-called "unconventional" approach, which pay attention to political and cultural factors (Iannini, 2008). The cross-sectional surveys have, instead, based on the assumption that the economic organization of China, from a space viewpoint, is described as a de facto federalism, in which each region can be considered as an autonomous economic entity (Boyreau-Debray, 2003). The finance-development nexus testing has led, in most cases, to conclude that China is a "counterexample" to evidences of substantial literature on the topic: despite the inadequate financial system and regulatory framework, in fact, Chinese economic growth size is surprising (Allen, Qian & Qian, 2005)<sup>3</sup>.

The ownership structure of the banking system is one of the central elements in the relationship between banks and economic development in China. Through a soft control on state banks, China has been successful in financing public owned company, avoiding the collapse of many industries, with implications, however, adverse to the quality of granted loans (Boyreau-Debray, 2003; Iannini, 2008). The empirical results suggest that the credit

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<sup>1</sup> The concept of "forced growth" is linked to that one of sacrifice, as a conscious renouncing a certain level of consumption in order to reap benefits for the future. Sacrificing consumption, in fact, it would be possible to increase profitable investments and thus support growth in the future.

<sup>2</sup> This relation may be direct (Goldsmith, 1970), reverse (Patrick, 1996) or biunivocal (Maswana, 2006).

<sup>3</sup> There were, however, appropriate specifications of this general result: Allen, et al (2005) distinguishes players of Chinese economy among state-owned enterprises, listed companies and private sector, noting that while the finance-growth nexus would be checked for state-owned enterprises and listed companies, it doesn't remain valid for the private sector.

disbursed by the banking sector to the public one had a negative impact on economic growth, attributable to the obligation to support state-matrix enterprises, characterized by low profile of efficiency and productivity.

About the critical factors that affect the quality of financial intermediation, Iannini (2008) analyzes the state of banking and financial regulatory systems, still far from the standards of advanced countries and the destination of flows from banking sector, markedly influenced by government authorities.

Although some questioned about the applicability of the concept of allocative efficiency in a transition country (Maswana, 2005), there is no doubt that the privileged destination of bank credit to finance public companies has influenced the role of the banking sector in supporting Chinese economic growth, as to bringing it closer to a political function (Iannini, 2008).

The braking effect of granting credit to public enterprises is also confirmed by cross-section investigations of Boyreau-Debray (2003).

At present, the banking system is the main source of financing in China (Ferri & Chiarlone, 2007), partly due to the limited development of alternative solutions (Hansakul, 2006): the liquidity of the system and, therefore, the availability of resources to be allocated to credit, however, they are assured by high levels of domestic savings, not pursued through an efficient management of intermediaries. The size of bank credit could become an endogenous source of weakness for the country (Moreno, 2002): a structure of companies' accounts affected by the weight of financial costs and, on the other hand, banks' exposure to them could, in fact, trigger dangerous phenomena of "credit crunch" (Iannini, 2008).

### **3. Empirical analysis**

#### **3.1 Methodology**

Data analyzed below are taken from the Bankscope database, maintained by Fitch/IBCA/Bureau Van Dijk and National Supervisors publications. Because of the scarcity of information available on Chinese banks' balance sheets, the sample was constructed by including all institutions whose individual balance sheets are in the database for three evaluated years (2005-2007), regardless of quotation, which excluded the Central Bank, China Construction Bank Corporation and Bank of China Limited, because their asset value differs so significantly from the rest of banks. The sample amounts of 61 institutions, including publicly owned commercial banks or in form of joint stock companies (53), credit cooperatives (2) and other banks (banks owned by foreign groups, Merchant Banks and Policy Banks) (6).

For comparison, they were analyzed for data reported for the first 60 intermediaries, for asset size, of the sample obtained, with similar criteria, for Italy, by excluding from the assessment banks with gaps in information required, Bank of Italy and Deposits and Loans Cash<sup>4</sup>.

The average value of total assets amounted in 2007, respectively to 15,038,238 thousand Euros for China and to 13,356,161 thousand Euros for Italy.

#### **3.2 Capital adequacy**

In China, the information about capital requirements to be met by banks against the risks incurred in conducting their business are contained in the document of China Banking Regulatory Commission (CBRC),

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<sup>4</sup> The assets of the institutions included in the two samples are, respectively, for China 19.11% and for Italy 24.45% of total assets of the system at 31 December 2007.

*Regulation Governing Capital Adequacy of Commercial Banks* (2004)<sup>5</sup>. The minimum ratios provided therein are, respectively, of 8% for total capital adequacy (capital adequacy ratio) and 4% for core capital (core capital adequacy ratio).

Following the publication of the *New Basel Capital Accord* (2004), the CBRC issued a document, *The Core Indicators for Risk-based Supervision of Commercial Banks* (2005), which has introduced some changes in line with the estimates of the Second Basel Accord<sup>6</sup>. The attitude of China Supervisory was, however, an initial disinterest in the news provided by the Agreement of 2004.

Only at the end of 2008, the National Supervisory Authority issued rules on how to implement the Second Basel Accord, by changing Chinese laws relating to capital requirements as necessary<sup>7</sup>.

Such attention to management of risks inherent in banking has given satisfactory results: by the end of 2006, over 66% of the banks fulfilled the requirement of 8%.

Compared to Italy, we observed a delay in the implementation of Basel 2 guidelines: in Italy, in fact, the rules on capital adequacy of banks are contained in the Bank of Italy Circular No. 263, 27 December 2006 (and subsequent updates), which provisions are in force since 1 January 2007. The safety threshold of requirement for total capital adequacy is set at 10%, while the ratio calculated on the basis of core capital is expected to have minimum of 6%<sup>8</sup>.

Referring to the empirical test, we considered the figures used by Tier 1 ratio (capital/risk-weighted assets) and Total Capital ratio (core capital and supplementary/risk-weighted assets) during the period of investigation.

**Table 1 Capital adequacy ratios**

Country	China			Italy		
Year	2005	2006	2007	2005	2006	2007
Tier 1 ratio (%)	17.45	14.09	13.09	9.46	9.10	8.72
Total Capital ratio (%)	16.98	14.35	14.30	10.82	10.53	10.30

Data source: own elaboration on Bankscope data.

The sample<sup>9</sup> confirms the good results at large obtained by Chinese banks: in the considered period, in fact, both Tier 1 ratio and Total Capital ratio values are significantly above the minimum required and more than those recorded by banks included in the Italian sample (see Table 1). Aggregation processes that affected the Italian market in recent years (Novello & Novello, 2006; Focerelli & Panetta, 2002) may have increased the difficulties regarding the implementation and compliance with the requirements of Basel 2<sup>10</sup>; Conversely, the repeated

<sup>5</sup> Before this document by CBRC, there were in force the provisions contained in *Regulation Governing Asset/Liability Ratio Management*, promulgated by People's Bank of China in 1996.

<sup>6</sup> In March 2005, appropriate measures were adopted regarding the monitoring of operational risk.

<sup>7</sup> The enforcement of Basel 2 contents is expected by end 2010; Deadline may be extended at the end of 2013 upon approval by the CBRC, in case of impossibility in compliance with the deadline. About mandatory minimum capital standards, CBRC has recently issued additional documents to confirm its intentions to line national banks to Basel 2, despite the initial reluctance: *Guidelines for the Supervision of the Internal Rating System for Credit Risk of Commercial Banks* (April 2009) and *Guidelines on the Categorization of Banking Credit Risk Exposures Book of Commercial Banks* (April 2009). The authority responsible for banking supervision in China has also repeatedly stated the importance of controlling credit risk and operational risk.

<sup>8</sup> This is the so-called Core Tier 1 ratio: It is the ratio of core capital, net of hybrid capital instruments and total at risk assets.

<sup>9</sup> Of the 61 Chinese banks subject to verification, 36 institutions have values available for the *Tier 1 ratio* in 2005, 42 in 2006 and 45 in 2007; with regard to *Total Capital ratio*, the number of observations available, is respectively, 44 (2005), 51 (2006) and 51 (2007). In the Italian case, 45 banks have available values for both ratios in 2005 and in 2006. The two information are available for 51 banks in 2007, and there were 52 observations for the *Tier 1 ratio* and 50 for the *Total Capital ratio*.

<sup>10</sup> As in Miele (2008).

interventions in favor of major Chinese banks have had a positive impact on coefficients<sup>11</sup>.

### 3.3 Profitability

Table 2 shows the main indicators of profitability observed from the samples.

The analyzed sample<sup>12</sup> highlights the overall progress made by banks in China: In the considered period, in fact, net interest incomes recorded an increase in absolute value of 58.9%, which corresponds to an increase in gap between rates on assets and liabilities, as a percentage on bearing asset equal to 15.28%. Similarly, the index obtained by dividing net interest incomes for the average size of assets is rising.

The relevance of other operating income on the outcome of observed intermediaries is small: the average value for three years, calculated in relation to average balance sheet's asset, is 0.37%. Total operating income varies significantly during the investigated period: In 2007, it is even higher than that of 2005 of 59.4%. This is largely due to the variation of the interest incomes' component and has a significant and inevitable impact on the result before taxes.

The profitability of invested capital for shareholders, measured by ROAE (return on average equity), undergoes a significant increase in 2007 compared to the previous year, which had reported an although slight decrease compared to 2005. The asset of intermediaries shows an attitude to generate increasing revenues, as summarized in the size of ROAA (return on average asset). This result testifies the effects of the modernization process that affects the Chinese market.

**Table 2 Profitability ratios**

	China			Italy		
	2005	2006	2007	2005	2006	2007
Net interest revenue (th eur)	232,002	262,453	368,645	222,428	247,357	280,708
Net interest margin (%)	2.64	2.80	3.04	2.26	2.39	2.32
Net interest revenue/Average asset (%)	2.50	2.64	2.89	2.11	2.24	2.18
Other operating income/Average asset (%)	0.36	0.37	0.38	1.65	1.65	1.54
Total operating income (th eur)	254,451	287,326	405,694	395,416	433,934	467,166
Profit before-tax (th eur)	88,140	107,209	189,458	136,344	151,295	142,521
ROAE (%)	11.20	10.66	18.10	12.97	12.44	11.37
ROAA (%)	0.69	0.72	0.93	0.79	0.78	0.67

Data source: own elaboration on Bankscope data.

With regard to the Italian sample, interests' income rose 26.7% in three years: in the same period, net interest margin increased by 2.67%, while showing a decline in 2007. The ratio between interests' income and average assets has an unsettled trend, but growing in three years (+3.62%). The incidence of other operating revenues, while low, is significantly higher than in the case of Chinese banks: This is due to the more traditional banking

<sup>11</sup> In this regard, the L. No. 2, 28 January 2009, *Conversion into law, with amendments, decree-law 29 November 2008, n. 185 on emergency measures to support families, work, employment and enterprise and to redesign, according to the anti-crisis, national strategic framework* and the DM 25 February 2009, by which the Ministry of Economy and Finance has issued provisions on procedures and conditions for subscription to public special bank bonds aimed at supporting the economy. The notes in question (so-called "Tremonti bonds") offer the opportunity to strengthen the Core Tier 1.

<sup>12</sup> Of the 61 banks in Chinese sample, 58 institutions have values available for all indicators considered, in 2005, 61 institutions in 2006 and 60 in 2007. In the Italian case, all banks in the sample have available values for the set of indicators tested in each of three years.

model of Chinese intermediaries. The share of operating revenues attributable to interests' income, however, is significant in both samples, confirming a more significant role played by relationship lending in their credit intermediation. The operating revenues increased by 18.15% in three years, the profit before tax decreased in 2007, but grew 4.53% between 2005 and 2007. Unlike China, the profitability of the sample for Italian banks is decreasing both in terms of results for the shareholders (ROAE) and yield-bearing assets (ROAA).

To assess the contribution of the main areas of activity to the formation of the economic performance of intermediaries, it is suggested, finally, the following breakdown of ROAE (as shown in equation (1)):

$$ROAE = \left( \frac{\text{Net Interest Revenue}}{\text{Average Equity}} \right) * \left( \frac{\text{Total Operating Income}}{\text{Net Interest Revenue}} \right) * \left( \frac{\text{Profit After Tax}}{\text{Total Operating Income}} \right) \quad (1)$$

The ratio of net interest revenue and average equity expresses the importance of traditional credit activity; The second factor of the formula measures the return generated by other revenues than those attributable to the interest margin; The last element indicates, finally, the impact of operating costs and extraordinary items on total operating revenues.

Applying the above illustrated formula, the results are shown in Table 3.

**Table 3 ROAE breakdown**

	China			Italy		
	2005	2006	2007	2005	2006	2007
Net interest revenue/Average equity (%)	34.44	35.18	36.49	29.39	31.80	30.91
Total operating income/ Net interest revenue	1.10	1.09	1.12	1.78	1.69	1.66
Profit after tax/Total operating income (%)	29.64	27.68	44.28	24.83	23.20	22.10
ROAE (%)	11.20	10.66	18.10	12.97	12.44	11.37

Data source: own elaboration on Bankscope data.

The impact of net interest margin is always higher in China, confirming what was already noted about a still predominantly traditional feature of institutions in that country. The ratio of total operating income and net interest revenues confirms that in Italian banks, other operating revenues contribute to the formation of economic performance with a greater extent than is the case of China. Profit after tax on total operating income for the Chinese sample has increased in the three years of 49.39%, indicating a decreasing weight of operating costs, while the trend for Italian banks appears contrary.

### 3.4 Costs' analysis

Macroeconomic events, the increased competition from international financial systems and the gradual reduction of the gap between active and passive rates, have prompted banks to review their costs' structure in order to increase the level of profitability and efficiency. This process of cost reduction is still ongoing in Italy, and it has focused mainly on the "other administrative expenses", which have greater flexibility than the higher staff costs<sup>13</sup>. This reference appeared particularly significant because of the peculiarities of the Chinese economic system, based on a high intensity of human capital, and as for the traditional, substantial weight that staff costs have always taken in the overall costs of Italian banks<sup>14</sup>. The differences between the two countries are apparent

<sup>13</sup> Among these, for example, costs related to property management, to stationery, advertising, telephone and postal charges or outside professionals fees, moreover, are not inconsiderable expenses, whose redundancy is often made manifest as a result of merger and acquisition processes (Bombonato, 2003; Cannizzo & Bargioni, 2004).

<sup>14</sup> As in Sella (2003); Giachetti, Torriero and Balestreri (2001); Columba and Eramo (2008).

already from the first indicator, Total Operating Expenses, which despite increases in the period 2005-2007 in both China and Italy, in each case presents average values considerably higher in Italy<sup>15</sup>.

The comparison between operating costs and margin of intermediation, known as cost to income ratio, in Italy confirms the higher incidence of operating costs on the main level of profitability of banks, with rates even higher to 10%, compared to the same value for China, both in 2005 and 2007. Despite the increase in total operating income, the rise was absorbed by increasing in operating costs, on equal terms of average employed staff in the period considered<sup>16</sup>.

The staff costs are, as evident from Table 4, the most representative of the total operating costs, but the operating costs include also other objects, like provisions for risks and value adjustments/write backs in tangible and intangible assets and other management charges or incomes. The higher operating costs for Italian banks, therefore, seem to be justified by the presence of residual items, being lower than Chinese, by average, both losses in loan provision and personnel expenses, in at least two of three years. This increase may have contributed the rising investment in technology, a crucial competitive leverage for banks that want to consolidate their IT infrastructure to improve efficiency and streamline costs, and adjustments to MiFID legislation, IAS and Basel 2, affecting in particular the 2006 year.

**Table 4 Main costs' analysis**

	China			Italy		
	2005	2006	2007	2005	2006	2007
Total operating expenses (th eur)	165,120	179,623	214,251	261,736	285,215	328,559
Total operating expenses (th eur) (net of loan loss prov)	115,255	122,544	154,108	226,308	243,822	271,268
Personnel expenses (th eur)	99,035	127,646	177,621	119,982	124,232	140,738
Cost to income ratio (%)	44.31	39.94	36.78	55.26	53.99	55.64
Total operating income (th eur)	254,451	287,326	405,694	395,416	433,934	467,166
Number of employees	5,650	4,775	5,337	1,900	1,920	1,898

Data source: own elaborations on Bankscope data.

The analysis becomes even more interesting referring to the number of employees, which is more significant in China, even more than double that in the Italian case. Examination of these datas, however, must be made with caution, taking into account that, for most Chinese banks (over 50% of them) the number of employees is not reported, so the considerations described here suffer from partiality in the sample's data. Similar assessments should be undertaken with regard to personnel expenses, which are growing in a three-year period for both countries.

A more comprehensive analysis can be conducted through the breakdown of cost to income ratio (as shown in equation (2)), by identifying three ratios: labor costs per employee, incidence of personnel costs in total operating costs and average profitability per employee:

$$Co / Toi = (Cpers / emp) / [(Cpers / Co) * (Toi / emp)] \quad (2)$$

<sup>15</sup> The figure in question, however, should be analyzed taking into account the cost of living in two countries, it is an absolute value rather than a percentage. For this reason, it was considered useful to give more importance to the breakdown of cost to income ratio in each of three years.

<sup>16</sup> It is noted that the value of cost to income ratio is calculated from Bankscope, by relating the total operating expenses, considered net of loan loss provision (impairment losses and provisions for loan losses) to total operating income.

with:

$\text{Co/Toi} = \text{Total operating expenses/Total operating income} = \text{Cost to income ratio};$

$\text{Cpers/emp} = \text{Personnel expenses/Number of employees} = \text{Average labor cost per employee};$

$\text{Cpers/Co} = \text{Personnel expenses/Total operating expenses} = \text{Incidence of personnel costs in total operating costs};$

$\text{Toi/emp} = \text{Total operating income/ Number of employees} = \text{Average profitability per employee}.$

**Table 5 Cost to income ratio<sup>17</sup> breakdown**

	China			Italy		
	2005	2006	2007	2005	2006	2007
Total operating expenses (th eur) (net of Loan loss Prov)	115,255	122,544	154,108	226,308	243,822	271,268
Cpers/Emp	17.19	17.88	21.37	70.68	74.11	76.37
Cpers/Co (%)	39	43	47	48	48	48
Toi/Emp	74.41	73.28	85.55	332.60	349.80	347.15
Costo to income ratio (%)	41	39	36	55	56	56

Data source: own elaborations on Bankscope data.

This breakdown is shown in Table 5, from which emerges that in Italy staff costs per employee are significantly higher than in China, an average of 74% against 19% for Chinese banks. In view of this, as predicted, the incidence of personnel costs in total operating costs is almost similar between the two countries, at around 43% in China and 48% in Italy. But what seems most interesting is the average profitability per employee, 4 times higher in Italy, showing a greater degree of technical and operational efficiency, while China still shows inefficiency and technological backwardness.

### 3.5 Asset quality

The assessment of asset quality is done on the basis of indicators in Table 6.

The figures below show how China has assisted in the three analyzed years in a retraining of assets, made evident by reduction of suffering on total loans. This significant decrease was induced by the policy of upgrading banking assets strongly desired by Chinese government authorities, in order to cope with the huge weight of bad loans arising from the relationship between the four largest Chinese banks and state enterprises<sup>18</sup>. In Italy, by contrast, the percentage of non-performing loans continued to increase in a three-year period, showing a deterioration in credit which can be justified by real macroeconomic deterioration and widespread uncertainty that has characterized the markets, following the numerous scandals, whose result was to push toward the phenomena of adverse selection and moral hazard. In any case, the highest level of provisions for credit losses recorded in China and the greater amount of “loan loss provision/net int. rev ratio”<sup>19</sup> can be interpreted as a lower ability to

<sup>17</sup> It is noted that values of cost to income ratio shown in Table 5 differ from those in the previous Table 4, because it's calculated only from banks that had all the necessary data to proposed breakdown for the analysis. The value reported, moreover, is calculated as the average of cost to income ratio values, using the formula specified in the text, for all available banks and not using average data, since these data are available only for a limited number of banks.

<sup>18</sup> An important measure taken by government authorities to tackle the problem of bad debts has been the establishment of four asset management companies (AMCs), supported financially by the Central Bank, to restructure non-performing loans of each of the four state commercial banks, through the collection and sale of these credits, as a result of debt-equity swap, securitization and the subsequent issuance of bonds (Pei & Shirai, 2004).

<sup>19</sup> The “loan loss provision/net interest revenue ratio” indicates the relationship between provisions and write-downs for losses on loans and the interest margin. The value should be set as low as possible: In a properly managed bank, in fact, if the loan portfolio is more risky, this should be reflected in a higher interest margin, reflecting an appropriate return on risk.



manage credit than Italian banks. It should be noted also that data could suffer from the lack of uniformity in the interpretation of the concept of suffering/bad loan<sup>20</sup>.

**Table 6 Asset quality analysis**

	China			Italy		
	2005	2006	2007	2005	2006	2007
Net loans/Total assets (%)	54.90	55.64	53.60	69.91	70.82	70.74
Loan loss prov/Net int rev (%)	20.61	22.85	25.84	13.51	19.63	18.72
Impaired loans/Gross loans <sup>21</sup> (%)	5.33	3.52	2.34	4.84	5.08	5.83
Loan loss prov (th eur)	61,420	63,718	67,917	36,019	47,762	58,246

Data source: own elaborations on Bankscope data.

**Table 7 Chinese banks' non performing loans at December 2007 for branches of economic activity (in eur millions)**

	Non performing loans	Total loans	NPL/Total loans (%)
Total	117,948	1,910,796	6.17
Financial companies	5,833	93,551	6.24
Non financial companies	102,293	1,462,660	6.99
Industrial	57,317	703,566	8.15
Construction	2,100	62,686	3.35
Services	4,876	696,408	6.16
Families	9,822	354,585	2.77

Data source: own elaborations on data by China Banking Regulatory Commission, *Annual Report 2007*<sup>22</sup>.

China Banking Regulatory Commission (CBRC), in its annual report for 2007, provided some data on commercial banks<sup>23</sup> from which we can deduce which are the economic sectors most exposed to credit risk. Table 7 shows that non performing loans in China result especially from non-financial businesses: here, the most affected

<sup>20</sup> Bank of Italy proposes the following definition: "Claims to be collected is uncertain (for banks and financial intermediaries which have provided the funding) because the borrowers are in insolvency (including non-judicially determined) or in situations substantially similar".

In China, the People's Bank of China establishes the following categories of loans, in order of increasing risk for the intermediary:

- Pass: The borrower is able to honor incurred debts;
- Special mention: The given is still able to sustain the commitment in loan's returning, but there are factors that could prevent the success of the operation;
- Non-performing: It can be assumed with good approximation that the debtor will be unable to repay the loan (substandard); if the debtor is unable to repay the capital nor pay the interests on loan, resulting in significant losses for bank, credit is classified as Doubtful; claims that, ultimately, can not be recovered, if not legal, are defined loss.

<sup>21</sup> The index impaired loans/Gross Loans provides information on the relationship between suffering and total amount of loans; in particular, impaired loans is a broad concept of bad loans, which also includes past due. The higher the value of such ratio is, the lower the quality of credit and, therefore, the greater the risk in management of loan portfolio.

<sup>22</sup> The classes have been constructed by aggregating the entries used by CBRC as follows: In financial companies, which were considered as "financial services (sector)" and "leasing and business services"; In non financial companies, in industrial, farming, forestry, animal husbandry and fishing, mining, manufacturing, production and supply of electricity, gas and water; In construction, in services, transport, storage and post, information transmission, computer services and software, wholesale and retail trades, hotel and catering services, real estate, scientific research, technical services and geologic prospecting, management of water conservancy, environment and public facilities, services to households and other services, education, health, social security and social welfare, culture, sports and entertainment, public management and social organizations. For families, at the end, it has been considered the entry Personal loans. The amounts, in local currency, were converted into euros at the exchange RMB/€ observed at 31 December 2007 by the Italian Exchange Office.

<sup>23</sup> The assets of the institutions in this category, at 31 December 2007, represent 73.4% of the total assets of the system.

sector is the industrial one, which, moreover, showed the highest rates of development over the period, followed by financial companies and, finally, families.

Data relating to financial firms is certainly the most interesting because it highlights the inherent weakness of a sector which should serve as a support to the rest of the country's economy, but is still far from the end of its development process and convergence towards the more developed countries.

The distribution of loans by sectors of economic activity shows that bank credit in China is mainly intended to finance industry (36.82% of total) and services (36.45%); the percentage of loans to non-financial and construction companies are, instead, limited to respectively 4.90% and 3.28% of the total. Loans to households are, finally, 18.56% of the total granted credit by banks. In line with the division just commented, non performing loans are higher in non-financial companies (86.73% of total). In particular, in the industrial sector, there is a value equal to 48.59% of the total, in services, it's 36.35%. The results are marginal for construction (1.78% of the total). For non-financial companies, the percentage is 4.95%, while for families it's 8.33%.

From a geographical point of view, loans and non performing loans are widespread as shown in Table 8.

**Table 8 Chinese banks' NPLs and loans at December 2007 by location<sup>24</sup> (% values)**

	NPLs	Total loans
Total (%)	100.00	100.00
Headquarters (%)	2.97	3.19
Eastern region (%)	45.48	68.83
Central region (%)	30.66	15.87
Western region (%)	20.89	12.12

Data source: own elaborations on data by China Banking Regulatory Commission, *Annual Report 2007*.

The eastern region is the main beneficiary of bank credit: the same region gives the greatest contribution to national gross domestic product formation (59.7% of Chinese GDP). The central region accounts for 15.87% of total loans and the western region for 12.12%. The two regions are involved in composition of national product in percentages, respectively, equal to 23.2% and 17.1% of the total. The geographical distribution of loans by banking sector is reflected in percentage of non performing loans by area.

## 4. Conclusions

Chinese banking system is exposed to a substantial credit risk, generated by the concentration of loan portfolio and the substantial presence of non-performing loans. The limited development of financial market has also contributed to a concentration of risk in the banking sector and the reasons why were pursued policies aimed at supporting the development of equity and bond markets, the improvement of bank-client relationships and dealing with the NPLs' treatment by transfers from banks to markets, through which restructure debt and redistribute risks<sup>25</sup>.

The policies of the government authorities, despite having significantly improved banks' balance sheet

<sup>24</sup> The eastern region includes the administrative provinces of: Beijing, Tianjin, Hebei, Liaoning, Shanghai, Jiangsu, Zhejiang, Fujian, Shandong, Guangdong, Hainan; the Central region puts together provinces of Shanxi, Jilin, Heilongjiang, Anhui, Jiangxi, Henan, Hubei, Hunan; the Western region, at least, collects Chongqing, Sichuan, Guizhou, Yunnan, Tibet, Shaanxi, Gansu, Qinghai, Ningxia, Xinjiang, Guangxi, Inner Mongolia.

<sup>25</sup> As in Shiyu, Yi, Zhengming (2006); Pei, Shirai (2004).

quality, reducing NPLs, have not yet been sufficient to renew the banking business, which is still heavily influenced by the presence of the public sector in the economy, which led to the granting of loans to state enterprises, with criteria very far from the assessment of actual creditworthiness<sup>26</sup>. No coincidence that the increase in credit is focused mainly on state-owned enterprises, and indeed, until the Chinese State will play, at the same time, as supervisor and the majority shareholder of the banking system, banks will have to extrication from a difficult situation: unconditional support to the country's economic growth or pursuit of allocative choices based on risk-return criteria<sup>27</sup>.

The analyzed sample confirms, however, good results in the process of capital strengthening, in fact, both Tier 1 ratio and Total Capital ratio values are significantly above the minimum required and more than those recorded by banks in the Italian sample.

The analysis of profitability describes two banking systems oriented to relationship lending, in fact, the share of operating revenues attributable to interest income is significant in both samples, while the incidence of other operating revenues, although low, is significantly higher for the Italian sample—This is due to the type of activity, more traditional and less complex, held by banking intermediaries operating in China.

Finally, one of the most important aspects is represented by average profitability per employee, 4 times higher in Italy, which would mean that China still suffers certain degree of inefficiency and technological backwardness.

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<sup>26</sup> As in Lord N., Wu S. and Kurtz, M.. (2009). *Macquarie Research*, 20 May.

<sup>27</sup> As in Lord N., Wu S. and Kurtz, M. (2009).

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(Edited by Ruby and Chris)