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International banking, crises and strategic interests

Dan Costin NIȚESCU
Bucharest University of Economic Studies, Romania
dan.nitescu@fin.ase.ro
Cristian ANGHEL
Bucharest University of Economic Studies, Romania
cristian.anghel10@gmail.com

Abstract. *The article reflect the analysis of the most relevant European, American and Chinese financial banking groups, mainly driven by the context of changes generated by the financial and pandemic crises. The first two parts of the paper highlight the broader context of the design of strategic interests and the competitive development of banking businesses after the financial crisis, together with relevant research findings. The third part of the research includes the analysis and interpretation of the evolution of indicators that have an impact from a competition perspective, for the exponents of the three banking systems analysed, over the period 2009-2020. The fourth part highlights the results obtained, along with qualitative correlations that add value to the research. The paper ends with a section including the authors' conclusions.*

Keywords: financial crisis, competition, international banking, strategic interests, pandemic crisis.

JEL Classification: E63, G01, G15, F450.

Introduction

Top concerns, within crisis and post crisis contexts (financial, pandemic), are linked with the level of competition and cooperation, between the international banking groups, invited to provide solutions and to contribute to the recovery process. The impact has a strategic approach, due to the effects of a crisis, over the long run, for an economy, for a monetary area, for the financial and banking sector.

The paper focuses on competitive developments from the perspective of the impact of the global financial crisis. This has led to changes in the global financial and banking governance framework, the emergence of new bodies and institutions, development of new tools for prudential supervision and resolution of credit institutions. The structural changes resulting from the global financial crisis have significantly influenced the responsiveness, the degree of coordination at the level of authorities, the mechanisms and tools used in the context of the pandemic crisis.

Since the 1970, starting with OPEC energy crisis, every two years a crisis(1) has occurred in one country in the world, affecting at least that region. Selectively, may be reflected the debt crisis in Latin America (1982), the crisis in the USA (1987, Black Monday), geopolitical crises in Eastern Europe (1989), the Asian financial crisis (1997), the Dotcom crisis (1999/2000). After 2000, other crisis contexts reflect the terrorist attacks in the USA (2001), the global financial crisis (2007/2008), sovereign debt crisis (2010), Greek debt crisis (2009-2019), Crimean geopolitical crisis (2014), China real estate crisis (2015), Turkish currency and financial debt crisis (2018), pandemic crisis (2020) and Ukraine geopolitical crisis (2022).

The structure and composition of banking systems differ. They are following the structure of the economies to which they belong, the strategic interests of governments, the commercial interests of companies in the countries of provenience. The contribution of banking systems and capital markets to the financing of economies, the financing of economic expansion, the presence of banking players in financial markets, also influence the design of strategic interests.

The focus of this research captures the evolution of competitiveness in the period between the global financial crisis and the pandemic crisis, 2007-2020. During this period, strong regulatory dynamics, lack of economic growth, "zero" interest rates, low deposit take-up and financial market development for Europe stand out. In the US banking market, the strong links between banks and capital markets support developments and growth in investment banking. In the Chinese banking system, considering the same period, strong economic growth has been oriented towards the financing of international trade, strategic infrastructure programmes and exports.

We have selected two relevant tables to begin the analysis of key indicators, reflecting the competition at the level of European, US and Chinese banking groups.

Table 1. *Top 10 banks/banking groups globally, 1970*

Rank	Bank	Country	Total Assets $m
1	BankAmerica	US	25,573
2	First National City	US	23,092
3	Chase Manhattan	US	22,168
4	Barclays Bank	UK	15,137
5	Manufacturers Hanover	US	11,965
6	JPMorgan	US	11,448
7	National Westminster Bank	UK	10,642
8	Western Bancorp	US	10,617
9	Banca Nazionale del Lavoro	Italy	10,233
10	Chemical New York	US	9,739

Source: The Banker.

And 50 years later, the top 10 banks/banking groups are shown in Table 2.

Table 2. *Top 10 banks/banking groups globally, 2020*

Rank	Previous	Bank	Country	Tier 1 capital ($bn)
1	1	ICBC	China	380
2	2	China Construction Bank	China	316
3	3	Agricultural Bank of China	China	278
4	4	Bank of China	China	258
5	5	JPMorgan Chase	US	214
6	6	Bank of America	US	188
7	7	Wells Fargo	US	159
8	8	Citigroup	US	156
9	9	HSBC	UK	148
10	10	Mitsubishi UFJ	Japan	144

Source: The Banker.

From the two tables, we can see the presence of Chinese banks in the top four positions of the global bank ranking in 2020. These results are considered the consequence of the economic reforms carried out since 1979 for agriculture, the stimulation of exports and imports of high technologies, the granting of incentives for business development, tax and trade facilities to attract investors and trade liberalization. The economic reforms created and developed over the last 50 years have contributed to increasing economic efficiency, stimulating production and increasing the volume of resources for further investment in the economy.

China's trade and investment reforms and incentives have led to a significant increase in foreign direct investment since the early 1990s. These flows represented a major source of China's banking system development, productivity and trade growth. Economic reforms and the liberalisation of trade and investment have transformed China's banking system into a major global trading and banking power. Manufactured goods have represented a significant part of China's trade.

At the start of the global economic slowdown, many Chinese governmental entities borrowed money to stimulate local economies, particularly by supporting infrastructure projects. The Belt and Road Initiative (BRI) was drafted as China's plan to finance and build infrastructure projects across Eurasia. Infrastructure development is one of the five components of the BRI, which include enhanced regional political cooperation, unfettered trade, financial integration and people-to-people exchanges.

The main sources of financing for most of these BRI-participating projects are Chinese development banks, the $40 billion Silk Road Fund, which targets investments in energy infrastructure projects, and two major state-owned commercial banks(2).

Compared to the diversified sources of funding of the Chinese financial and banking system, capital markets in Europe play a relatively modest role in the financing structure of the European companies. Raising funds from the capital markets, and in particular the corporate bond market, is the predominant financing method in the US.

US banks are focusing on investment banking products, with the major US bulge-bracket investment banks (Goldman Sachs, Morgan Stanley, JP Morgan, Citigroup and Bank of America Merrill Lynch) becoming leaders in global investment banking.

The slower development of capital markets and securitisation in Europe has created a barrier to reducing the stock of non-performing assets accumulated during the crisis (especially in countries such as Greece, Portugal, Spain, Cyprus), which penalises the profitability of European banks. In contrast to the European banking market, US investment banks are using the capital markets more aggressively to extract certain assets through securitization, selling assets to US federal agencies or Government Sponsored Entities (GSEs): the Federal Home Loan Mortgage Corporation (Freddie Mac), the Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Banks (FHLB). The role played by banks in the US in terms of providing funds to the private sector is rather underestimated, due to the fact that, the significant amount of debt securitised by banks is not considered.

In the US banking model, securitization plays an important role because it allows banks to "pack" assets, structure and sell them on the capital market in order to free up balance sheet and capital, to increase profitability. US banks use securitisation as a source of funding, as a balance sheet rotation and capital release tool. The volumes securitized by US banks are much higher than the volumes securitized by European banks, leading to higher profitability for US banks compared to their European counterparts.

The research pays particular attention to the elements that contributed to the different path for European and US banking groups, in the period between the global financial crisis and the pandemic crisis. Other research interest is represented by the rapid and strong economic rise of the Chinese banking groups, during 2007-2020. Due to a quick recovery from the global financial crisis, relevant indicators reflect that China outpaced other major economies of the world.

The paper adds value to existing literature by analysing the evolution of the competitiveness of relevant banking actors from the three selected banking systems.

In the second part, studies and articles representative for the problematique are included.

The third and fourth parts of the research include the presentation of the methodology, the analysis of the evolution of the most relevant global banking groups, from a competitiveness perspective and the interpretation of the results. The last part contains the authors' conclusions.

Literature review

According to (Bijlsma and Gijsbert, 2013) bank assets in the EU (excluding Eastern Europe) have increased substantially as a percentage of GDP, in contrast to the US and Japan, where this ratio has remained relatively stable. Regarding bank credit to the private sector as a percentage of GDP, Pozsar et al. (2010) state that in Europe and Japan this volume has been much higher than in the US. In addition, there has been a massive increase in bank credit in the EU, with the exception of the early period of the financial crisis in 2008, while in the US it has remained more stable over the last decade and Japan has not been much affected by the crisis.

Ruzickova and Teply (2015) highlight the theoretical and practical aspects of fee and commission income in the European Union. The authors suggest that the magnitude of fee and commission income depends largely on the bank's business strategy as well as market conditions. Banks facing stronger competition tend to expand more aggressively into potentially riskier non-traditional activities. As a result, they may have higher shares of fee and commission income but may need additional capital.

The authors find that a high deposit-to-asset ratio, an indicator of traditionally oriented banking activity, tends to be associated with higher shares of fee income, while the close relationship between bank and depositors allows European banks to sell more additional fee-based services, given inelastic demand, at higher prices.

Khan et al. (2016) show that the effect of monetary policy on bank lending is reduced as the level of competition is reduced. However, their results suggest that a decrease in the level of competition strengthens the transmission of monetary policy through the bank lending channel. The weakening/strengthening effect is stronger for banks with a high level of capitalization, and high liquidity.

Bremus (2015) studies the impact of foreign direct investment and cross-border banking on market concentration and competition. Both foreign lending and foreign ownership of banks coincide with lower concentration in the banking sector. In contrast, the implications of these two different modes of cross-border banking differ in terms of banks' market power. According to the granularity literature, higher concentration in banking may lead to a stronger variation in aggregate variables such as credit, investment or GDP, and if there is a reduction in cross-border banking, this will lead to higher bank concentration, with the link between bank-level volatility and macroeconomic volatility thus becoming stronger.

Andrievskaya and Semenova (2016) examine bank transparency and concentration with bank disclosure in terms of credit risk. Banking markets are less concentrated in countries with more tightly controlled information transparency. This effect increases as bank credit risks increase, but when these risks are considered too high, information transparency regulation becomes less effective and can lead to the opposite results.

According to the authors (Andrès and Truchet, 2022) European banks need to be more efficient, more profitable, more capitalized. Banking Union and a functioning European Deposit Insurance Scheme (EDIS) are essential elements for the European financial governance. Compared to European banking systems, US banks can subsidise servicing in

Europe, but they do not have to fund resolution, having the ability to transfer an important amount of risk to securitisation markets or to government-sponsored enterprises (GSEs) for their mortgage business.

At the level of European banking markets, the completion of the Capital Markets Union must be based on a mix of merging stock exchanges, harmonising regulatory and supervisory activities around capital markets. A single supervisor at the level of the 27 countries may support the development of Europe's technology sector, transition to renewable energy, and strengthen the resilience and competitiveness of financial institutions.

As in the case of US banks, lending Chinese banks are exposed on trade and present on the capital markets. As highlighted by the authors (Casanova et al., 2021) and (Cerutti et al., 2020), the positive effects which have contributed to the overall economic growth of the Chinese banking system, persist on the long run.

In terms of competitiveness, the authors (Berndt et al., 2016) highlight that the EU has failed to benefit from new technologies to the same extent as the US, mainly due to insufficient investment in skills and organisational change. The financial crisis has had a strong negative effect on productivity growth, more in the EU than in the US.

US banks operate predominantly on an "originate to distribute" model as presented by the authors (Andrès and Truchet, 2022), and this has led to a stronger secondary capital market. It also allows for a stronger primary market and funding market for businesses and banks. The competitiveness gap between the major European banks and their US and Asian competitors also exists due to factors such as interest rates, market fragmentation, especially after Brexit, excess capacity and the fact that the structure of the financial sector in Europe is different from that in the US. The existence of deep liquidity buffers to reduce funding costs and allow for global cross-border flows into the European market is an issue that the European Union needs to continue to focus on.

European banks were hit hard by the global financial crisis of 2007-2009 and by the subsequent European (sovereign) debt crisis. The problem of non-performing loans, over a longer period of time, prolonged the zombie ("ever-greening") loans. In contrast, US banks have been addressing this problem since early 2008-2010, building up large loan loss provisions and making significant write-downs on their loan portfolios, respectively (de Haan and Kakes, 2020, pp. 197-211) and (Schildbach, 2017).

Regarding China, according to the authors Li et al. (2012) it has been hit hard by the global recession generated by the financial crisis, suffering a significant drop in exports, stock market and real estate market. These effects on the economy have been only partially offset by the huge stimulus program for the Chinese economy. Although growth remained well above the international average, the downturn was as strong as in the US.

Regarding the pandemic crisis, according to (ECB, 2021), European banks have absorbed well the economic shock, as a result of both the regulatory reforms put in place in the wake of the global financial crisis and the achievements on single supervision within the banking union. At the US level, the improved outlook resulting from the large fiscal stimulus prompted banks to release provisions in the fourth quarter of 2020. This differs from banks under European banking supervision, which continued to build provisions in the fourth quarter, albeit at a slower pace than in the first two quarters of 2020. Loan impairments for US banks were significantly higher for the full year 2020.

China's overall economic response to the pandemic crisis, according to (Borst, 2020), has been relatively muted compared to major fiscal and monetary responses in the US and Europe. While the Federal Reserve has taken unprecedented actions to support banks, financial markets, small borrowers, the measures taken by China's central bank have been more gradual. The Chinese authorities appear to be balancing the need to support the economy against the risks of exacerbating China's high debt levels and economic imbalances.

Research methodology

The study aims to contribute to the formulation of support for addressing strategic issues, reflected in two questions: what are the influential factors for the European and US financial-banking groups, respectively the European and US banking systems, that have weathered the global financial crisis and the pandemic crisis differently? What are the elements that contributed to the rapid and consistent rise of Chinese financial-banking groups, between 2007-2020?

The comparative analysis was carried out at the level of the most relevant financial-banking groups in Europe, US and China. The source of the data is The Banker and the World Bank's databases, with records extracted for a 14-years period, from 2007 to 2020. From an economic perspective, the selected banks/banking groups play a prominent role in the global economy, which was an important argument for the selection. Top global 500 and 1000 banks were analysed within the research process.

The methodology consisted in a comparative analysis of a number of indicators relevant to financial and banking activity. The study included the five largest banks in Europe, the four largest banks in China and the five largest banks in North America – USA. The relevant indicators selected are: Tier 1 capital, profitability, measured by return on assets (ROA) and volume of assets. The analysed banks are included in Table 3.

Table 3. *List of banks on which the study was based*

Rank	European Banks	Chines Banks	US Banks
1	BNP Paribas	Industrial and Commercial Bank of China	JPMorgan Chase
2	HSBC Holdings	China Construction Bank	Bank of America
3	Crédit Agricole Group	Bank of China	Wells Fargo & Co
4	Banco Santander	Agricultural Bank of China	Citigroup
5	Barclays	Bank of Communications	Morgan Stanley
6	Société Générale	China Development Bank	Charles Schwab
7	Groupe BPCE	Postal Savings Bank of China	Goldman Sachs
8	Deutsche Bank	Industrial Bank Co Ltd	US Bancorp
9	Intesa Sanpaolo	China CITIC Bank Corp	PNC Financial Services Group Inc.
10	Lloyds Banking Group	China Merchant Bank	Capital One Financial Corp

Source: authors' processing.

Results and discussions

The global financial crisis of 2008 changed the global economic and financial landscape. The US government stepped in with a $700 billion bailout package to prevent the failure of banking institutions, considered "too big to fail". While some of these institutions, such as Lehman Brothers and Bear Stearns have been allowed to fail, the government prevented the collapse of other large banks.

Strategic decision support a strategic vision. America's largest investment bank, JP Morgan Chase, received a $30 billion loan from the Federal Reserve in 2008 to buy Bear Stearns, paying $10 per share for the ailing investment bank. In 2020 JP Morgan Chase was the largest bank, with $3 trillion in terms of assets.

Investment banks Morgan Stanley and Goldman Sachs, after the financial crisis context, change the strategy to diversify the sources of funding but also risks. In 2020 Morgan Stanley offered a variety of banking services, in addition to investment banking and recorded relevant revenues, of $48.2 billion.

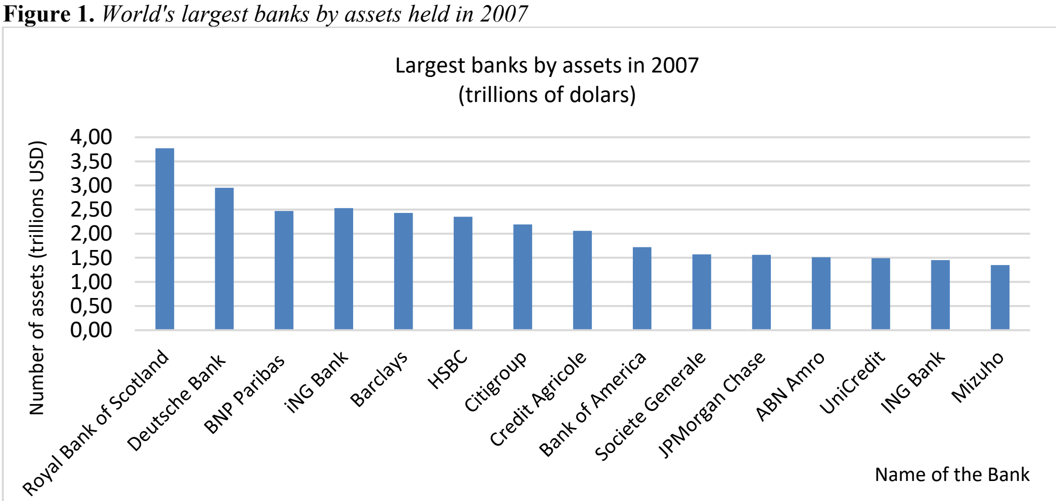
Bank of America also received the government bailout package, including more than $100 billion in guarantees, in order to buy failed financial companies Countrywide Financial and Merrill Lynch. It had to take losses related to those companies, including bearing the legal fees associated with Countrywide's questionable mortgage lending practices. (Too Big to Fail Banks: Where Are They Now?, 2021)

US, Chinese and European banks – comparative analysis

Before the financial crisis, the ranking for the world’s biggest banks in terms of assets included banking organisations from UK, Europe, US and Japan.

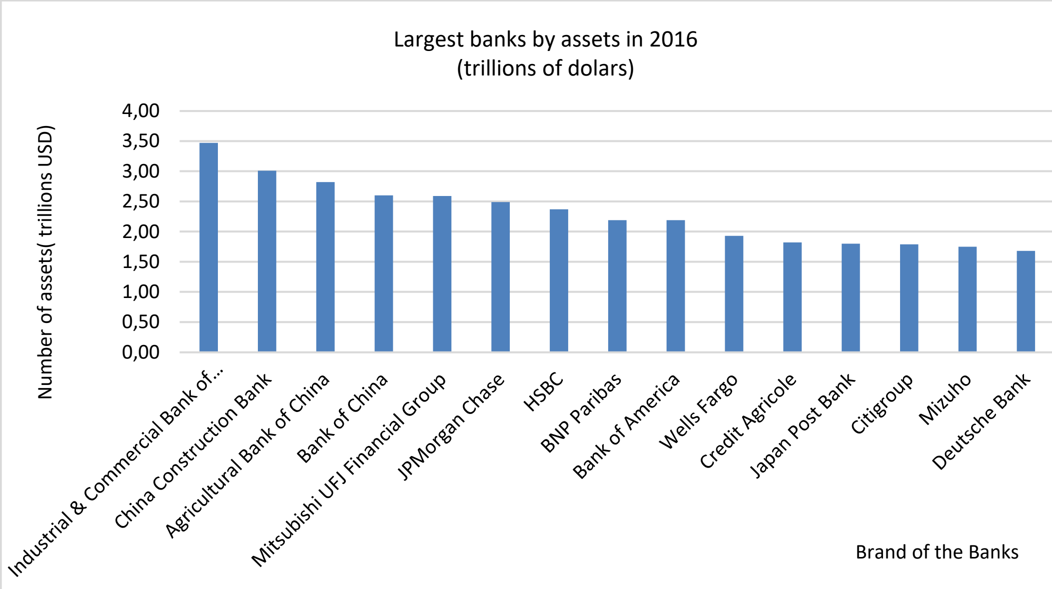
In 2016 and 2020, before the pandemic, the global ranking changed significantly.

Figure 1. *World's largest banks by assets held in 2007*



Source: authors' own calculations based on the Banker data.

Figure 2. *World's largest banks by number of assets held in 2016*



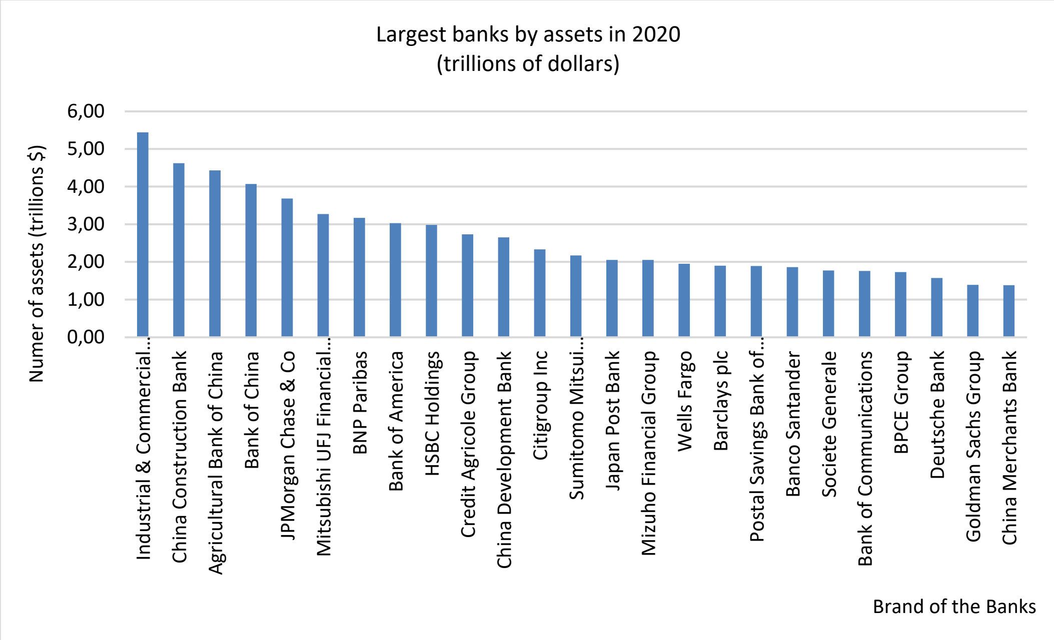
Source: authors' own calculations, based on the Banker data.

Since 2015, Chinese investment banks have overtaken US and European investment banks in the Asia-Pacific market, and the Chinese banking system has become the largest in the world, with 2020 assets of USD 53tr. By comparison, the US banking system stood at USD 19tr in the same period. The Chinese banking is mainly a domestic system, while the US banking system has a considerable share of cross-border activities. Cross-border claims of US banks were 4.35 billion USD in 2020 or 22.8% of total assets, while cross-border claims of Chinese banks amounted to 2.66 bn. USD or 4.7% of total assets.

As can be seen from Figure 1 and Figure 2, Chinese banks overtook European banks at the end of 2016 becoming the world's largest banking organisations, by assets, a sign of both the country's growing influence in global finance and its reliance on debt to drive economic growth, within the post financial crisis context. This development has been fuelled by a strategic increase in bank lending since 2008, when the government launched aggressive monetary and fiscal stimulus, constantly intervened in the capital markets to maintain financial stability, investment flows and direct lending, as the authors (Subacchi, 2021) point out, to mitigate the impact of the global crisis.

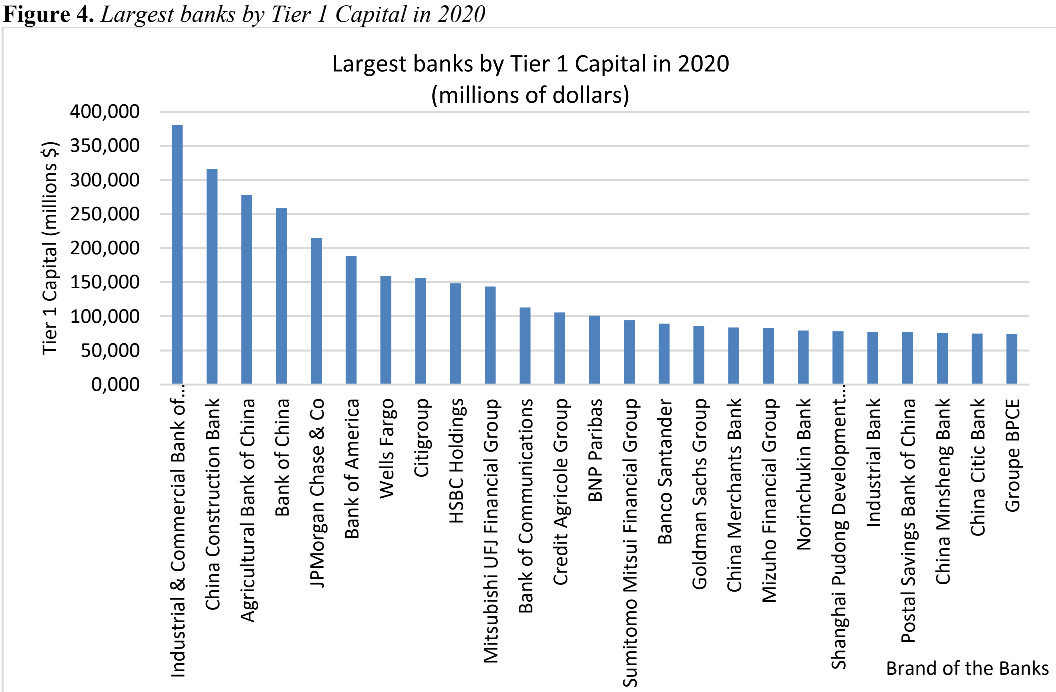
The stimulus package for Chinese banks included a two-year fiscal program that involved spending about $586 billion, a figure equivalent to nearly 7% of China's 2008 GDP. In terms of bank asset size, Chinese bank assets reached $33 billion at the end of 2016, compared to $31 billion for Euro area banks and $16 billion for US banks.

Figure 3. *Largest bank by assets in 2020*



Source: Authors' own calculations, based on The Banker data.

Figure 4. *Largest banks by Tier 1 Capital in 2020*



Source: Author's calculations, based on The Banker.

Figure 3 and Figure 4, reflect that related to the assets and Tier 1 capital size, ICBC, China Construction Bank, Agricultural Bank of China and Bank of China occupied the top four positions, for fourth years in a row. ICBC managed to maintain the first position as the world's largest bank for 8 consecutive years, recording a combined asset value of $14.821 billion in 2020, up by 7.52% compared to the ranking in 2019. The banks included in the top of global rankings had substantial increases in Tier 1 capital, between 10% and 14%, as well as moderate increases in pre-tax profit.

Chinese banks were seven of the twenty ranked global banking groups in 2020. A total of 143 Chinese and 184 US banks were part of the top 1000 world's largest banks, in 2020.

Chinese banks had a high degree of exposure on corporates, with 55.67% of gross outstanding loans to the corporate segment, totalling $17,905.6 billion, spread across the 143 banks in this ranking. US banks had a lower exposure of $8,052.9 billion of gross loan value on corporate, spread across the 184 banks included in the ranking, representing 47.51% of the total exposure.

The analysis reveals that US banks are more cost and capital efficient, compared to the Chinese counterparts. Chinese banks were holding 24.64% of total global assets and 28.46% of global pre-tax profits, compared to US banking organisations, holding 13.55% of total global assets and 21.86% of pre-tax profits. At the aggregate level, return on assets (ROA) was 1.11% for US banks while for Chinese banks was 0.87%. Comparatively, JP Morgan earned pre-tax profits of $44.5 billion in 2020, representing a 9.19% increase from 2019, outperforming Chinese counterparts, such as Bank of China and Agricultural Bank of China. Both Chinese banks were ahead of JP Morgan in terms of Tier 1 capital. JPMorgan managed to perform the best, out of the 20 banks, in terms of return on equity (ROE), registering 13.93% in 2020, and in terms of return on assets (ROA), registering 1.36% in 2020.

At the European level, for Europe's largest bank HSBC, 2020 was a particularly difficult year, with its pre-tax profits falling by a third year-on-year, to $7.3 billion, representing goodwill impairment as the cause of the losses.

French banks made the largest share of European banks' profits for the fifth consecutive year, but their pre-tax profits fell slightly by 1.96%. BNP Paribas, Groupe BPCE and Credit Mutuel recorded small increases in pre-tax profits of 9.11%, 2.2% and 2% respectively. The country's largest bank, Credit Agricole, recorded a year-on-year fall in profits of 8.65% and Societe Generale also recorded a year-on-year fall in profits of 16.74%.

The German banking industry remains fragmented, with the top four banks (Deutsche Bank AG, Commerzbank AG, KfW Group, DZ Bank Group) accounting for 31% of total market assets, compared to the European average of 50%. Between 2010 and 2019, German banks' revenues fell by around 8%, from €129 billion to €119 billion, registering also a decline in market share and revenue levels, in favour of foreign banks. The revenue level of German banks decreased from around 70% in 2010 to 60% in 2019. They still dominate retail banking (including private banking) with a market share of 80%, keeping only a minority share in the investment banking, wealth and asset management market, with shares between around 20% and 45%.

In case of Spanish banks, profits declined in the wake of the pandemic crisis, falling for BBVA by 7% year-on-year to USD 1.14 billion in 2020, for Sabadell profits fell by 77% in 2020 to USD 57 million and for Caixabank the decline in profits represented 19%. In terms of the consolidated net profit of Spanish deposit-taking institutions, the aggregate result was negative, approximately -8 billion euros. This translated into a return on assets (ROA) of -0.21% and a return on equity (ROE) of -3.1%.

Japanese banks increased their profits by 4%, taking the country from 6th to 5th place, according to The Banker's world's 1000 best banks. This was due to a 443% increase in Mizuho Financial Group's profits, despite declines at the other two top Japanese banks, Mitsubishi UFJ and Sumitomo Mitsui. In the main rankings based on Tier 1 capital, a key measure of banking strength, Mitsubishi UFJ retained its position as the 10th largest bank in the world, with $144 billion in capital. Sumitomo Mitsui ranked 14th with $94 billion and Mizuho ranked 18th with $83 billion. Together, the three banks account for 46% of total Japanese bank capital.

The analysis liaise the banking organisations evolution with the specific developments in the economy of the countries, areas considered.

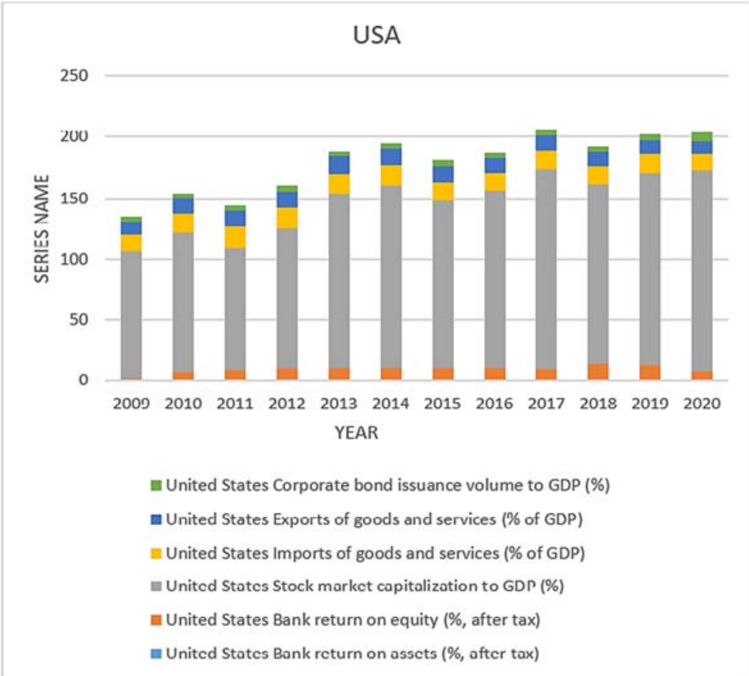
As reflected by the Figure 5, over the transition period between the two global crisis, financial and pandemic crisis, the period 2007-2020, China's economic growth was based on a mix of exports and international trade, domestic market capitalization, corporate bond issuance and infrastructure stimulus.

Figure 5. *Evolution and economic indicators – China*

Source: authors' own calculations, based on World Bank data.

In case of the US banking market, according to Figure 6, economic growth was based on corporate bond issuance, market capitalization, export and import of goods and services.

Figure 6. *Evolution of US economic growth indicators*

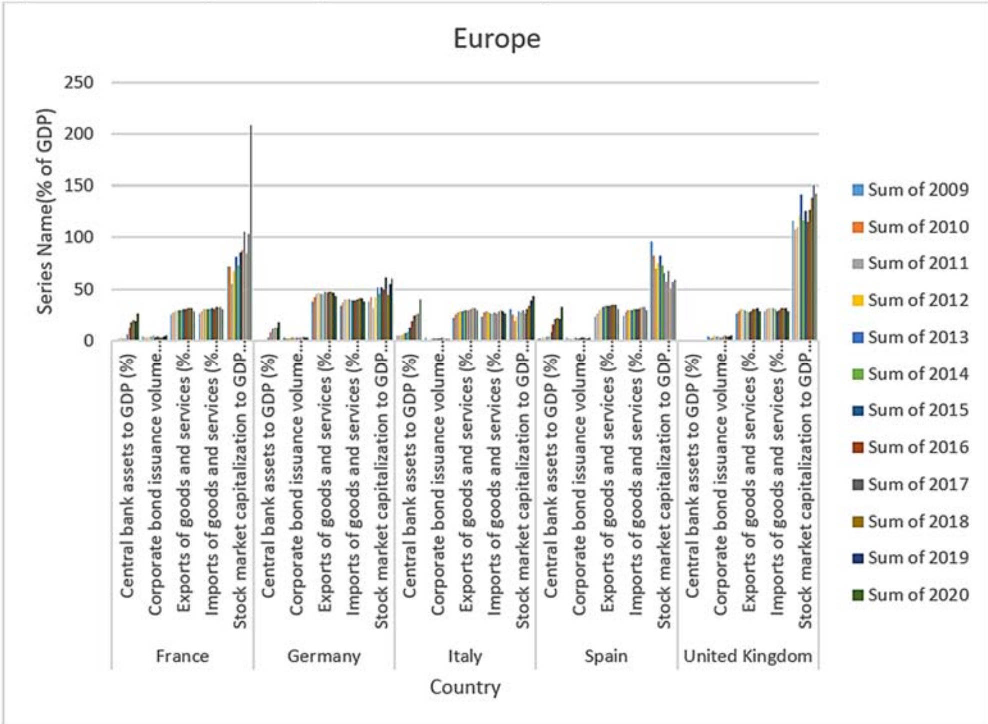


Source: authors' own calculations, based on World Bank data.

For Europe, especially the Euro area, between 70% and 80% of corporate funding is provided via the banking organisations. The percentage for SMEs funding via banks is considerable different in Europe, representing around 85%, compared to US, representing 35%[(3)].

Considering the same period, between the two global crisis, in Europe, for the five selected countries, the analysis emphasize a fragmented market, focused on specific areas, such as export, import and market capitalization.

Figure 7. *Evolution of economic growth indicators European countries*



Source: authors' own calculations, based on World Bank data.

Banks, performance and strategic interests

The European banking sector, based on the financial governance developed within the post financial crisis context, contributed to the support of the European economy, during the pandemic crisis. Capitalisation, liquidity, governmental guarantees, cooperation between authorities, represented key points for the banking support of the European economy. The Single Resolution Board (SRB), through improved loss absorbency and the massive placement of the Minimum Requirement for Eligible Capital and Liabilities (MREL), contributed to the increase in resilience of the banking sector, during the pandemic crisis. The low profitability of the European banks remained a vulnerability, in terms of future economic growth and support for the European strategic interests.

The research reflect that, over the period 2014-2020, US banks managed to maintain a higher ROE than European banks (average 8.5% vs. 5%). The gap in profitability, between US and European banks, based on net fee and commission income, net trading gains and differences in impairments and provisions, may also reflect a competitiveness gap.

Policy debate at the European level reflect other relevant issues that need to be approached and solved. Overbanking capacity in Europe, resolution for the small and mid sized banks, fragmentation of the European banking market, the relationship between resolution, liquidation and insolvency provisions at the country level represent top concerns.

The diversity of banking business models in Europe may be considered a strength, as it enhances resilience and the ability to meet diverse customer requirements. Within the US banking market diversity is similar, compared to the European banking market.

As the Bearing Point study reflects (Hofele and Steiner, 2022), there is a specific difference within the European and US regulatory frameworks, enabling the US banks to be more profitable and competitive. The ROE of European banks could be 340 basis points higher if they were instead subject to the US capital regime, and the cost-to-income ratio could be 260 basis points lower. Balancing the regulatory differences may represent an opportunity for the European banking system. Other relevant research consider it is a challenge, due to the European Central Bank's interest policy rate, because in periods of substantial inflation, the ECB charges negative rates and purchases assets. The authors consider it is necessary to return to a more conventional monetary policy (Andrès and Truchet, 2022).

The diversity of banking business models in the European and US banking markets, as well as the attraction of new investors by Chinese banks, implies the need for strategic collaboration between large banks and large corporates to achieve long-term sustainability, digitization and cyber risk objectives.

Table 4. *Largest companies by market capitalisation in 2022*

American Companies	European Companies	Chinese Companies
Apple	LVMH	Tencent
Microsoft Corporation	Nestle AG	Kweichow Moutai
Alphabet	Roche Holding AG	Alibaba
Amazon	ASML Holding	CATL
Facebook	Prosus	Ping An Insurance
Tesla Inc.	L'oreal	China Mobile
Berkshire Hathaway	Accenture	PetroChina
Nvidia Corporation	Novo Nordisk A/S	Meituan
Visa Inc.	Novartis AG	China Life Insurance Company
ExxonMobil	Royal Dutch Shell	China Railway Engineering Corporation

Source: Authors' processing, based on companiesmarketcap.com data

As a result of the pandemic crisis, and the increased pressure from the non-financial sector, business models of banks need to be adapted to the digitization process which creates new opportunities but also risks. The increased speed of innovation and greater interconnectedness between intermediaries and banking sectors have contributed to the broadening of the traditional definition of cyber and operational risk, leading the industry and banking supervisors to consider cyber risk as one of their specific top priorities.

Other factors that may drive changes in business models, shifting the profit of banking organisations to other sectors of the economy, are represented by the correlation between digitalisation, decarbonisation, automation, post-pandemic structural changes and geopolitical changes. These changes imply important investments and financing needs, not in a traditional approach, as they imply higher risks and medium to long-term investments. According to (Dinu, 2021) geography and behaviour, of all the relevant actors of the economy, matter. Knowledge and competition represent key drivers towards a more inclusive society, Europe being a frontrunner.

In accordance with Table 4, the major US, European and Chinese banks have developed and deepened strategic relationships with major players in IT and automotive industry, to support the medium and long term goals of sustainability and digitalisation.

The European, US and Chinese banks are investing in the digitalisation processes, cooperating and also competing with technological global players (Apple, Microsoft, and Google), developing and integrating new alternative and innovative payment solutions. The largest banks in Europe, US and China, are funding the automotive manufacturers, chip companies and renewable energy producers, to support the transformation of the economy in accordance with the sustainability objectives.

From a strategic point of view, European, U.S. and Chinese banks are promoting relationship management between Big Tech and automotive, oil and renewable energy companies, as a catalyzer for medium and long-term investments in sustainability, leading to the reduction of the carbon footprint, in accordance with the global agenda.

The research formulates an answer to Question 1. For Europe, the main factors influencing a difficult recovery within the post financial crisis context include market fragmentation, strategic reorientation of large banks towards domestic markets, regulatory changes and challenges. The US economy has been growing relatively steadily since 2010, while in Europe output has suffered a double-dip recession, from which it has only managed to recover since 2013.

In addition, the greater need for EU banks to raise capital ratios to more prudent levels and the stronger deleveraging has put them at a competitive disadvantage, compared to their US counterparts. There was a clear trend for banks in Europe to shrink their activities by refocusing on domestic markets. This was driven mainly by commercial considerations, such as a rethinking of the broad, undifferentiated expansionary strategy that many banks pursued in the era of cheap, unlimited credit without major capital constraints. Regulatory changes was the other main reason for European banks to refocus on their home markets. Regulation has increasingly evolved to require banks to operate independently, separately capitalised subsidiaries in host countries with their own liquidity holdings.

The European banking market become more fragmented, despite the strategic approach to deepen EU's single market for financial services. National authorities in all European countries have come up with distinct requirements, in an effort to protect the national financial system from potential instability, reduce the risks to their taxpayers. The US banks were not affected by fragmentation because their home market maintains a uniform (albeit unconsolidated) regulatory framework and they are also under much less pressure to withdraw from foreign markets (in general, US banks have never been nearly as active cross-border as their European counterparts).

Regarding the Question 2, the research emphasize specific elements that have contributed to the rapid rise of Chinese financial-banking groups. Large-scale capital investments were financed as a result of high foreign exchange reserves. Investment in major infrastructure projects, under specific programs, such as the Belt and Road, major investment in agriculture and rural industry, rapidly increase in productivity, subsequently leading to significant growth in foreign trade, are the most relevant factors, during the analysed period.

Conclusions

The research analysed the main indicators for top banking organisations, part of the European, US and Chinese banking sectors. The strategic interests of the three global actors reflects a strong connection between baking organisations, performance, governmental support programs, strategic decisions and expansion of corporate companies.

The study analysed the effects of the 2008 financial crisis and the impact of the pandemic crisis in 2020, on the volume of assets, Tier 1 capital size for the largest banks, and profitability, as measured by the indicators return on assets (ROA) and return on equity (ROE).

The analysis shows that in international banking, between 2007 and 2020, the rapid and steady development of profitability played a key role for US banks, due to the strong connection between banks and capital markets and the strong development of investment banking activities. The Chinese banking system, via the largest banking organisations, focused on supporting the international trade, strategic infrastructure programs and exports. Defining strategic interests and objectives, developing and using specific financing mechanisms, programs and instruments, enabled the US and Chinese banking organisations to support their economies and build competitive advantages.

Although in 2007 the largest European banking organisations were in the top ranking as the most profitable banks, the financial and pandemic crises changed dramatically this situation.

During the financial and pandemic crises, European banks were primarily affected by the fragmentation of banking markets, different approach on banking regulations, for each national countries, low net trading growth.

Cross-border banking in Europe, mergers and acquisitions between the European banks may support the consolidation of the banking sector. A new architecture to integrate European strategic interests, to provide economic competitiveness to the European companies, needs to be supported by strong European banking organisations.

As a result of the changes in bank rankings, following the global and pandemic financial crisis, US and European banks need to diversify their markets, business models, connect more deeply with the strategic interests of US and European companies, build competitive advantages, accommodate digitalization and sustainable projects financing. SME financing represent a strategic opportunity, both for banking and capital markets, to mix debt and equity, to connect the interests of the banks with the interests of the investors.

From the perspective of future research approaches, the micro-level analysis of major US, European and Chinese banks/groups of banks, on the implementation of the transition towards a green economy and the evolution of the global competitiveness-sustainability relationship represent topics of great interest, both scientific research and empirical area.

Notes

(1) List of economic crises – Wikipedia, 2022, pp. 1-3.
(2) https://www.oecd.org/finance/Chinas-Belt-and-Road-Initiative-in-the-global-trade-investment-and-finance-landscape.pdf
(3) https://www.caixabankresearch.com/en/sector-analysis/banking/banking-sector-and-capital-markets-union-creates-strength
(4) https://top1000worldbanks.com/2020/
(5) https://databank.worldbank.org/source/global-financial-development
(6) https://databank.worldbank.org/source/world-development-indicators

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