The Degree of Competition in the Cyprus Banking System and the Impact of Potential Merges

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1. Introduction

The banking sector is an extremely important industry, composed of thousands of firms worldwide. Its performance affects not only other industries, but its operations may be crucial for the entire economy of a country as a whole, while at the same time, economic conditions affect the “welfare” of the banking sector.

In several countries, it has been observed that when banks stop to provide loans to their customers, land and security prices fall, the unemployment rate tends to increase and businesses start to fail (Timothy F. Bresnahan, et.al., 1991). Thus, healthy banks and healthy economies just seem to go together.

Competition has historically been a very contentious issue in the field of banking. Generally, it has been seen as a positive phenomenon for the aggregate economy of a country as well as for the banks themselves. It can be used as a driving force in order to improve productivity, service quality and to promote financial innovation by introducing more modern banking skills. Moreover, there is some evidence that the level of competition can affect the level of economic growth by increasing the availability of credit and financial services to businesses. Despite the fact that competition may result into several threats in a market, the absence of competition may cause several problems.

The banking sector in Cyprus and particularly the degree of competition of this industry is an interesting area to investigate not only for the issues mentioned but also for the specific industrial parameters surrounding the banking environment in Cyprus. Over the last decades, the economy of Cyprus has improved greatly and the World Development Report (Anon, 1997), classifies Cyprus as a “high income” state, so now more than ever, investigating the competition within the banking Industry will provide an excellent area of study with tremendous scope given the limited number of banking institutions operating in Cyprus.
The basic aim of the research is the evaluation of the degree of competition in the banking Industry in Cyprus as well as the impact of potential mergers.

The weight of competition of the Cyprus banking industry is being estimated by examining the banking sector as a whole, and by analyzing issues such as bank performance (i.e. bank profitability), bank concentration, as well as the structure of institutions. Some events that may have an impact on the level of competition and some cases that may have created several changes on the degree of concentration, such as the collapse of the Cyprus Stock Exchange in 1999-2000, as well as a substantial merger that took place in the Cyprus banking System in 2006, are also been mentioned.

Special emphasis is being given to the changes and to the differences within the industry with respect to the regulatory environment, the market structure etc. The cases of Monopolistic and Oligopolistic conditions are also being investigated with regard to their implications to Cyprus banking.

By taking into account that the banking System of Cyprus is composed by a few firms, the theory of the contestable market, which is related with the pressure of competition even when a system is under monopolistic conditions, is also be analyzed.

The objectives are classified in the following manner:

- To analyze the degree of competition in the banking Industry of Cyprus.
- To examine the market structure and the market concentration.
- To examine profitability and in the market of Cyprus.
- To examine the sectors which are related to the competition (Price wise, service wise, etc).
- To forecast and carry out hypothesis about future trends in the Cyprus banking system.
- To examine the theory of the contestable market in the Cyprus banking sector.
➢ To make scenarios about possible merges in the banking system of the island and to examine whether it is possible for them to be implemented according to the US Justice Department Law.
➢ To make conclusions and provide empirical findings.
The study consists of four (4) chapters:

**Chapter 1:** Introduction

**Chapter 2:** Cyprus Economy and the banking Sector
Prior to the literature review, it was essential to describe the Cyprus’s economic growth since the economy of a country has a huge impact on competition. Thus, the growth of the economy of Cyprus in terms of the financial sector and some description of the banking system are briefly described.

**Chapter 3:** Literature review. The chapter provides an overview of the competition in several countries in order to explain and to point out the importance and the effect of competition in the banking industry. At the last part of the chapter, the four hypotheses, which are based on the theory of development, are been stated.

**Chapter 4:** Research design – Empirical Analysis - Conclusions : This chapter primarily analyses the research model and the sample of study. Furthermore, the calculations of the HHi as well as the scenarios for potential models and the empirical analysis are been concluded. Some main conclusions are also being presented.
2. Cyprus Economy and the Banking Sector

2.1 Cyprus Economy and the Financial Sector

Over the last decades, the economy of Cyprus has improved significantly and specifically the financial sector represents the key factor of that improvement. So now more than ever, the banking industry of the island seems to gain a great share in the economy of Cyprus.

Cyprus is regarded as one of the most attractive business and financial centres worldwide. Its strategic geographic location, the highly educated labor force, the sophisticated program of government planning, the system of tax incentives and the double tax treaties, are all reasons that contribute to the improvement of the economic performance of the island.

In particular, in the period between 2000 and 2005, a remarkable increase of the real GDP has been noticed by an average of 3,6% per annum. In comparison with the EU average, the annual average of the real GDP can be characterized as relatively high. This was accomplished under almost full employment conditions, relatively low inflation and a stable and strong currency.

In the year 2005 Cyprus’ per capita GDP reached approximately 83% of the EU-25 average and for the year 2006 has climbed to 90% of the EU-27. During 2006 the economy of Cyprus continued to grow with a satisfactory level of growth, showing a record of successful economic performance. According to the annual report of the Economic and Commercial Affairs Office in Cyprus, the positive shift of the economy of the island is mainly due to the increased rate presented in the sectors of private consumption and investments.

Among these factors, one may believe that the success of Cyprus in the economic sphere is also due to the persistence of the strong macroeconomic policies of the Government, the existence of a dynamic and flexible entrepreneurial community as well as a highly educated labor force.

The incorporation of Cyprus within the system of the European Exchange Rate Mechanism, ERM (as part of the European Monetary System), and the island’s expected integration within the Eurozone on the 1st of
January 2008, with Euro becoming the official currency on the island, also contribute to the growth and stability of the economy and the financial system.

Cyprus is considered to have a modern economy with dynamic services compromising mostly by industrial and agricultural sectors and advanced physical and social infrastructure. It has an important tourist industry and an active enterprising sector. Moreover, in the past few years, the economy of Cyprus has presented a tendency of focusing its economic activity within the sector of services. This tendency of service contribution still continues to date.

According to a bulletin from the Central Bank of Cyprus (in 2006), the contribution of the GDP of the country in the primary sector reached 3.3% in 2006, in the secondary sector 18.6% and in the tertiary sector, which includes trade, while financing services and other, reached 78.1%. In particular, the banking sector plays a significant role in the growth of the tertiary sector, since it resulted to an increase of 8.9%.

According to the data presented in Table 1, the Gross Domestic Product of Cyprus shows a steady increase and interestingly enough, with rhythms greater than those of other fellow member countries of the European Union. More specifically, in 2006 the Cyprus’s GDP amounted to 14 b Euros presenting an impressive rate of growth of 3.8% in real prices against 2005. The data presented by the GDP index and its rate of increase, characterize the exceptional record of the Cyprus economy, hence classifying the economy of Cyprus amongst the more rapid developing economies of the countries of the European Union in 2006.

With the consideration of the above, we may conclude that the economic growth of a country depends on a number of factors. A.A. Bolbol et al. (2005) state that “any system that performs what finance should perform has to have an impact on economic growth”. This issue has been discussed in the studies which were carried out by Greenwood and Jovanovic (1990) and Bencivenga, and Smith (1991). According to their empirical findings the financial institutions can affect total factor productivity by raising it. Moreover, they can also have an effect on the marginal productivity of capital
by motivating savers to invest their money in productive assets and by funding riskier but more productive technologies. As a result, the financial development of a country plays a significant role on the income’s rate of growth.

**Table 1**: Indicators of the Cyprus Economy

<table>
<thead>
<tr>
<th>Years</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inflation Rate % change</strong></td>
<td>2,80</td>
<td>4,14</td>
<td>2,29</td>
<td>2,56</td>
<td>2,49</td>
</tr>
<tr>
<td><strong>Gross Domestic Product (At Current Prices in CP m.)</strong></td>
<td>6416,5</td>
<td>6865,9</td>
<td>7389,8</td>
<td>7861,6</td>
<td>8361,7</td>
</tr>
<tr>
<td><strong>Gross Domestic Product (Real Growth) % change</strong></td>
<td>2,0</td>
<td>1,8</td>
<td>4,2</td>
<td>3,9</td>
<td>3,8</td>
</tr>
<tr>
<td><strong>Gross Domestic Product Per Capita (CP)</strong></td>
<td>9042</td>
<td>9528</td>
<td>10026</td>
<td>10372</td>
<td>10859</td>
</tr>
<tr>
<td><strong>Gross Domestic Product Per Inhabitant (PPS)</strong></td>
<td>17800</td>
<td>18600</td>
<td>19900</td>
<td>20900</td>
<td>21700</td>
</tr>
<tr>
<td><strong>Total Public Debt m. CP</strong></td>
<td>6559,5</td>
<td>7359,4</td>
<td>7977,3</td>
<td>8489,7</td>
<td>8682,6</td>
</tr>
<tr>
<td><strong>Total Foreign Debt m. CP</strong></td>
<td>3036,3</td>
<td>3541,4</td>
<td>5505,8</td>
<td>7249,8</td>
<td>9730,3</td>
</tr>
</tbody>
</table>

**Source**: Eurostat
The following diagram presents the growth of the Gross Domestic Product of Cyprus in million of pounds.

Diagram 1: Gross Domestic Product Change.

2.2 Historical Development of Cyprus’s Banking System and Competition.

Despite the fact that Cyprus is only a small island with a population of less than 1 million, it enjoys high levels of economic activity and a well-developed banking system. During the last few years, Cyprus has managed to create a remarkable banking system with banking institutions to represent high percentages of profits. In particular, fourteen domestic banks are currently operating in Cyprus, eleven of which are commercial banks and the remaining three are specialized financial institutions (Huseyin Arasli, et al., 2004).

The Central Bank of Cyprus is responsible for regulations, supervision and the monitoring of the country’s banking system. Furthermore, an additional accountability of the Central Bank of Cyprus is to control the exchange reserves from different currencies.

The main domestic and foreign banks are the Bank of Cyprus Public Company Ltd, Alpha Bank Ltd, Co-operative Central Bank Ltd, Cyprus Popular Bank, Emporiki Bank (Cyprus Ltd), Hellenic Bank, National Bank of Greece
(Cyprus) Ltd, Société Générale (Cyprus Ltd) and Universal Bank Ltd. Arab Bank plc and National Bank of Greece SA are also operating in the island.

The Cyprus Development Bank Ltd, the Housing Finance Corporation and Mortgage Bank of Cyprus Ltd are also major financial institutions with their ownership controlled by the state. Their activities are related with the provision of medium and long-term financial services and products under dissimilar fields.

Particularly, the main activity of the Cyprus Development Bank Ltd is involved with investment banking. Moreover, it offers consulting services to companies. The Housing Finance Corporation offers long-term housing loans mostly to families with middle or low income. Finally, the Mortgage Bank of Cyprus Ltd specializes in granting medium- and long-term loans for the development of the tourist and manufacturing industries.

Today, the financial system of Cyprus is divided into three categories: the commercial banks, the co-operative sector and the offshore sector. The Bank of Cyprus, Cyprus Popular Bank and the Hellenic Bank are the three commercial/clearing banks which are currently prevailed in the Cyprus market. Domestic banks have the capability to organize and direct their actions through 481 branches that are established in every town of the island. Co-operative credit institutions carry out their services from a network of 587 branches.

The domestic banks offer a wide range of services which can be favourably compared with the European models. During the period between 1996 and 2001, the total assets of the domestic banks denoted an average annual rate of growth of 16% and in 2001 amounted to 25,5 b Euros or approximately 250% of GDP. It must also be noted, that there are a number of offshore banking units in the island that have the ability to provide and offer limited banking services to the consumers.

Moreover, it should be mentioned that Cypriot-banking staff is well qualified with excellent knowledge of the financial system. Banks are modern and they operate within a well-organized financial environment. Additionally, banks are capable enough in order to achieve their targets. Commercial
banks in Cyprus have a number of representative offices all over the world and their services can be carried out in all major currencies.

The high rate of growth, of the Cyprus economy over the last years, in combination with the effort to establish Cyprus as an international centre of financial services, resulted to the promotion and the continuous growth of the financial sector. While in the year 2000, the Cypriot financial sector contributed to 7,5% of the GDP instead of 0,9% in 1995, in the year 2006, the financial sector contributed to 16,4% of the GDP.

Regarding the deposits of the island, studies showed that the three largest banks estimate and report almost 80 per cent of the total deposits in Cyprus. Additionally, small and medium enterprises, which employ a large number of the working population (almost 75% of the population) constitute and dominate the retail banking.

Moreover, the loans represent the largest percentage of assets of the Cypriot commercial banks. At the end of 2001, the total loans of the Cypriot commercial banks amounted to 13,3 b Euros or 52% of the total assets (see Table 2). Nevertheless, the direct loans to personal borrowers are of great importance and represent a large proportion of the financial services offered to small and medium enterprises of the island.

Furthermore, in 2005, total loans contributed to 121,4% of the GDP. The total assets of the domestic banks amounted 21,9b.CP This amount was contributing the 281% of the GDP. In comparison with other countries this percentage represents one of the highest in Europe.

Until the year 1997, the bodies that were responsible for the supervision and the regulation of the banking industry were not concerned, since the industry was operating under anticompetitive conditions. In fact, the financial systems of the country, state that the regulatory system was greatly protected from competition.

Going back, after the end of the Second World War, the introduction of the Bretton Woods System by the developed world, managed to eliminate currency risk and the fluctuations in the interest rates. Consequently, price competition was eliminated, since the interest rate policy was under control. Due to the existence of exchange and capital control, the levels of
competition globally, remained stable. The above situations resulted to high interest rate margins with relatively low risk. Under these beneficial conditions, the banking system was operating on a stable line. However, at the end of 1979 the Bretton Woods System collapsed in several countries. Cyprus, among other counties was still operating under the system’s regulations. The collapse of the system generated a “widespread financial deregulation” procedure which had an effect on the growth of the interest rate, as well as on the increment of the foreign currency risks. This fact triggered competition as banking systems had to operate under more competitive conditions.
**Table 2:** Balance Sheet of the Cyprus Banking Sector (amounts in m. of Euros)

<table>
<thead>
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<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Cash and deposits in Central bank</td>
<td>788</td>
<td>1.545</td>
<td>Deposits</td>
<td>9.862</td>
<td>19.947</td>
</tr>
<tr>
<td>Deposits in domestic banks</td>
<td>33</td>
<td>325</td>
<td>Liabilities to the Central Bank</td>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td>Deposits in foreign banks</td>
<td>2.123</td>
<td>4.341</td>
<td>Deposits from domestic banks</td>
<td>36</td>
<td>335</td>
</tr>
<tr>
<td>Government securities</td>
<td>1.255</td>
<td>2.387</td>
<td>Deposits from foreign banks</td>
<td>420</td>
<td>1.044</td>
</tr>
<tr>
<td>Loans to customers</td>
<td>6.744</td>
<td>13.300</td>
<td>Loan Capital</td>
<td>412</td>
<td>1.033</td>
</tr>
<tr>
<td>Provision for bad debts</td>
<td>-335</td>
<td>-590</td>
<td>Equity capital</td>
<td>576</td>
<td>2.297</td>
</tr>
<tr>
<td>Fixed assets</td>
<td>219</td>
<td>368</td>
<td>Other liabilities</td>
<td>539</td>
<td>818</td>
</tr>
<tr>
<td>Investments</td>
<td>548</td>
<td>2.874</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other assets</td>
<td>480</td>
<td>923</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>11.856</td>
<td>25.474</td>
<td></td>
<td>11.856</td>
<td>25.474</td>
</tr>
</tbody>
</table>

Source: www.erc.ucy.ac.cy

During the period between 1996 and 2001, the total loans of the domestic banks showed an average rate of growth of 15%. The largest percentage of loans concerned personal and professional loans.

The Cypriot banking system has a history of 100 years that is characterized by a continuous growth. Specifically, the history of the Cyprus banking system began in 1963 when the Central Bank of Cyprus was established. In the late 1960s and early 1970s, monetary policy became more active until the Turkish invasion took place in 1974. After this crisis, the Cyprus banking industry was actively involved in the re-activation and the rapid improvement of the economy.
In the years between 1980 and 2000 the financial field of the Cyprus banking sector was operating under normal conditions without any pressure or threat, with the exception of some cases such as the collapse of the Cyprus Stock Exchange in 1999.

Up to and including the year 2000, not only the cost of loans but also the cost of deposits was rigidly regulated, in a similar fashion resembling regulation Q in the United States banking system, but with ceiling rates on both sides of the banking balance sheet. This situation represented an extra protection for the banks due to the fact that it afforded and preserved comfortable profit margins for all banks and effectively eliminated the potential interest rate risk. Over the years and as result of this regulatory environment, banking competition was in the form of service e.g. many new branches were opened all over the island including villages. Also, banking assets consisted mainly of secured advances and loans to customers and mortgages on property.

After the year 2000, due to pressures arising from the collapse of share prices in the Cyprus Stock Exchange some stringent measures were implemented. At the late 1990's the banking sector suffered due to several bankruptcies resulting from margin accounts provided to individuals and other stock exchange related credit extensions that turned into bad loans and most of them never been repaid. In fact, investing by borrowing funds through hire and purchase methods contributed to the Cyprus Stock Exchange crush. These perhaps illegal acts, with the substantial drop both in the index and in the investment activity, had adverse effects beyond the repayment of loans (Christodoulos Tselepos, 2004), that depressed banking profitability for years.

As a consequence of these conditions, Bank’s Liquid reserves to Capital had been affected.

As we can observe from the following Table (3), the Bank liquid reserves to bank assets had been decreased remarkably from the period between 1995 and 1996. However, situations seem to change since 1999, when bank reserves rose to 23, 76%. During the crush of the Cyprus Stock Exchange, bank reserves started to increase. Due to the bankruptcies of the borrowers, banks took their reimbursements through mortgages, where
borrowers set as guaranty for their loans. As a result, banks received their payment in most of the cases and their reserves had increased.

**Table 3: Bank Liquid Reserves to Bank Assets**

<table>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank Liquid reserves to bank assets</td>
<td>Units</td>
<td>10,89</td>
<td>8,105</td>
<td>6,619</td>
<td>6,2</td>
<td>7,781</td>
<td>7,204</td>
<td>7,487</td>
<td>11,7</td>
<td>8,101</td>
<td>7,753</td>
</tr>
<tr>
<td>Bank Liquid reserves to bank assets</td>
<td>Per/Change</td>
<td>......</td>
<td>-25,5</td>
<td>-18,3</td>
<td>-5,01</td>
<td>23,76</td>
<td>-7,41</td>
<td>3,93</td>
<td>56,8</td>
<td>-31,0</td>
<td>-4,3</td>
</tr>
</tbody>
</table>

Source: World Development Indicators database

Throughout the years, the existence of an exchange control system was getting weak. Cyprus entrance to the European Union eliminated the possibilities of the establishment of an exchange control system. Cyprus law required to follow the regulations of the European Union. As a result, the banking system of the country adopted the special status of “authorised dealers in foreign currency”. This, in association with the existence of constraints around the expansions of credit services to foreign customers or foreign currency, eliminated the financial threats that the banks were facing. However, there are some exceptions to the above regulations. Initially, the domestic banks of the island were able to offer their services, via their branches or via their subsidiaries, in countries which already had a liberalized system, such as the United Kingdom and Greece. Secondly, foreign banks that were established in Cyprus as “offshore banks” or “International Banking Units” were not authorized to consociate with the permanent residents of the island or even trade in Cyprus pounds.

Cyprus aspiration to become a member of the European Union acted as a mechanism in liberalising the country’s banking system. Starting at the beginning of 2001, the Cyprus Government attempted to liberalize interest rates while capital movements, exchange controls were completely abolished.
of the direct credit control with the accession of Cyprus into the European Union on the 1st May, 2004. (Smid and Zwart, 2002). This progress meant that Cyprus banking supervisory and regulatory regime had to be completely harmonised with the European Union requirements. Thus, in a relatively short period of time, banking supervision has been transformed in Cyprus along with the best practices dictated by the relevant EU Directives and the principles of the Basle Committee on Banking Supervision. As a result, international banks and financial institutions had been able to operate in the credit market without prior permission from Central Bank of Cyprus.

The situations concerning the banking system of Cyprus seemed to have changed since Cyprus joined the European Union in 2004. Banks in Cyprus had the opportunity to take advantage of this situation, since they had the privilege to enter the industry, based on the “economic need criterion”, a relatively undefined and general term, which effectively gave great discretionary power to the Central Bank of Cyprus to regulate the entrance to the Cypriot banking sector.

Furthermore, Cypriot Co-operative Credit and Saving Societies (CCSS) have the opportunity to earn a high number of legal benefits, a fact that ensured a competitive advantage for the institutions. The exceptions concerning the reserve ratios represent an example of the above situations. However, the effort as well as the harmonization procedures that have been made in order to adjust the CCSS’s regulations at the same levels with the new structure of the economic industry had not been completed.

Despite the changes that have already taken place in the sector, commercial banks face several threats. The major problem of the commercial banks is that they can easily lose their share in the market, as a result of the entrance of other European Banks. Consequently, competition within the banking sector is greater, since banks are forced to “protect” and defend the industry from the entrance of foreign banks.

As a result of the liberalization, fundamental changes have taken place in the Cyprus banking environment. Most banks, in their attempt to improve efficiency and performance, introduced several financial programs and a number of new services. The majority of banking organizations have taken
steps towards the improvement of the quality of their services in order to survive in a real competitive environment.

In a competitive environment, banks should have the ability to offer to customers not only service quality, but also quality on service operations. Quality provision represents a significant factor for a bank’s improvement, especially when the market is under competitive pressure schemes. Nevertheless, it can be seen as a key-role characteristic for the increase of the return rate. According to Schaeffer, Buzzel, and Heaney (1974), whose investigation concerned the effect of product quality for 57 corporations, observed a direct relation between quality of product and earnings. Direct relation is called the positive effect of one variable onto the other. For example, the better the quality of services offered by an organization the better will be the outcome in the return process.

Heskett et al. (1994) created a hypothetical ‘chain’ between quality and profit, where, they illustrate the role of quality, and its inter-relevance with operational aspects of a service organization. Heskett et al. points of view had the following procedure: “(i) profit and growth are stimulated primarily by customer loyalty; (ii) loyalty is a direct result of customer satisfaction; (iii) satisfaction is largely influenced by the value of services provided to customers; (v) value is created by satisfied, loyal and productive employees; (vi) employee satisfaction results primarily from high-quality support services and policies that enable employees to deliver results to customers.”(Heskett et al., 1994)

Furthermore, by taking into account the increased consumer needs, some alternative mediums are being used by Cyprus banks in order to provide banking and trading facilities. Also, the Cyprus banking system offers services that are based on the implementation of technology such as tele-banking, and e-banking. These services tend to reduce the cost of financial products and provide a variety of benefits to the customers.

Consequently, during the last few years, the banking system of Cyprus has extended its services beyond traditional banking. Fundamental changes have been made and banks can offer to their customers’ different services such as insurance, leasing, hire purchase finance, investment and consulting.
Therefore, we can observe that significant changes have been made to the structure of the banks as a result of competition.
3. Literature Review

3.1 Competition and Contestable Theory

Competition has historically been a very contentious issue in the field of banking. In the banking sector, the competition between the banks has been characterized as the struggle among them and their aim is their domain in the market and the increase of their market share. When a market is operating under conditions of perfect competition, neither the banks nor the customers can influence the prices of the market. More specifically, a perfectly competitive market is the one where there are many sellers and there are no barriers of entry or exit for anyone who wants to take action in the market as a seller, such as economic or legal barriers. (Panzar, J. C.et.al., 1987)

Competition may also exist even in a market which is operating under monopolistic conditions. Despite the fact that there may be a few banks within a market or only one bank, the issue of competition remains a continuous threat for them.

According to the contestable theory, a market may be obliged to act as if it is operating within a competitive environment, even though it may consists of only one bank. Under a perfectly competitive market, the pressure of competition is getting even bigger, since there are no barriers of entry or exit to or from the market. The entry and exit from such markets tends to be costless. That is one of the main reasons that the entry and the exit from the market is so simple. (J. Bratland, 2004)

For example, if a firm is operating in a free market where there are no barriers of entry or exit and it increases its prices above the marginal cost, then the competitors may enter the market in order to bring the prices into the normal value. When competitors achieve their target, they can easily exit the market. Under these conditions, the market can be characterized as a perfectly competitive market. During the years, markets such as Parcel Delivery and low cost Domestic Airlines tend to become even more contestable (William J. Baumol et.al., 1982).
P. Molyneux et al. (1996) studied competition and the phenomenon of market contestability in the Japanese commercial banking. During their research, they observed that by that time, the phenomenon of the contestable theory was limited to only a few markets such as the one of the United Kingdom. Their empirical findings showed that banks seemed to earn their revenue as if they were operating under monopolistic conditions. Furthermore, they noted that the absence of domestic institutions into the commercial banking was a consequence of incumbent domestic firms which were acting in a contestable manner. Based on this fact, they also stated that: “we recognize that for our finding of monopolistic competition to be consistent with a strict interpretation of contestable markets theory, potential competition in the Japanese commercial banking market would have needed to be such as to guarantee perfectly competitive pricing.” P. Molyneux et al. (1996)

However, if a market consists of many banks, there is no bank that can have an influence on the prices. For instance, if a bank changes its prices then this will result to a reduction of its profits, since the customers will have the chance to turn to other banks which will offer the same services at lower prices. However, for a market to operate under the terms of perfect competition, it is relatively difficult since they will always meet imperfections.

Therefore, due to the competition, the industries are striving to offer more services, produce more goods and lower their prices so that they can attract more clients and therefore increase their profits and grow even more. Competition has a positive impact on the consumers as well, since they have the ability to make choices and choose the lowest price.

In recent years, banks have grown and have expanded substantially all over the world, offering a diverse portfolio of competitive services to their customers (A.Cetorelli et al.1999). The quality of banking services is essential for success and survival in today’s global and highly competitive banking environment. (Wang et al., 2003). That is why competition is said to be a positive force in a number of banks, if not all. It can be used as a driving force in order to improve products, service quality and to promote financial innovation by introducing more modern banking skills. (H. Semih Yildirim,
George C. Philippatos, 2006). It should be mentioned that innovation is considered to be one of the main factors that emanates from competition, since it is estimated to be a substantial source of expansion, especially in the banking field. (J.Ward,)

The magnitude of competition in the financial services has grown even more, during the years, due to the fact that banks and their competitors are striving to improve their products and services. In order to achieve their target, banks are trying to reduce cost in a more effective manner. Banks, just like any other industry, are forced to adjust their supply according to the consumer’s demands, so that they do not loose any consumers from being their customers.

Furthermore, banks in order to remain competitive tend to introduce growth strategies in order to promote and provide their business activities in the local but also in the international banking market.

3.2 Factors that Affect Competition

Competition exists in every banking System in many countries and many studies have been undertaken in order to examine the competitive conditions.

The degree of competition in a market can be affected by several factors. The trends of consolidation and liberalization are some of them. The phenomenon of consolidation has a dynamic presence in the United States, since more than 6000 U.S. banks amalgamated between 1980 and 2001 while liberalization is a global factor.

Due to the pressure of competition, banks seek and aspire to merge with each other in order to become more competitive in their field by achieving improved economies of scale and scope. In most cases, the numbers of mergers increase due to government policies, for influencing the market concentration and to decrease competition in the local banking markets.

Various benefits may occur from a merger. In particular, the owners of the banks expect that the value per share is likely to rise and thus the gain will be higher, while the exposure to risk tends to be eliminated. Not only the
shareholders of the banks are likely to gain from the merger but also managers and employees will enjoy many advantages. Undoubtedly, under the protection of a dynamic group, managers and employees will enjoy job security as well as attractive salary packages.

A consolidated market tends to have the characteristics of oligopoly for the following reasons: The market is dominated and controlled by a few firms and consumers do not receive the appropriate level of service as it would be the case under conditions of perfect competition. Furthermore, loan interest rates are higher while deposit interest rates are lower. On the contrary, in a monopoly, organisations endeavour to offer worse customer service, higher credit costs and consumers can not receive any benefits.

In general, companies which are operating in a consolidated market are primarily interested in achieving higher profits rather than providing better customer service. Moreover, increased concentration, resulting from mergers and acquisitions, may decrease the degree of competition. In a sense, the Cyprus's banking sector operated under oligopolistic terms. This is based on the fact that the market is controlled by a small number of firms and the entrance to the banking organisations for several years was limited by the Central Bank of Cyprus.

A number of studies have been made in order to measure the degree of competition when a market is operating under oligopolistic conditions. T.Bresnahan and P.Reiss (1991) carried out a remarkable research that deals with the threat of a potential competitor, in the cases where the market is operating under the terms of oligopoly. Their empirical findings showed that competitive conditions may change in no time as a result of the entrance of a competitor into the industry. If a market consists of only two or three firms, then the entrance of the competitor may have significant changes on competition. On the other hand, these changes seem to be smaller when this entrance is taking place in a market which consists of five or six firms. At a first glance, this scenario appears to be similar to the conditions prevailing in the Cyprus banking today.

As far as the liberalization and the common currencies is concerned, for instance, the Euro and the US Dollar help the increasing tendency for
mergers that already exists, though, by increasing the degree of competition they promote the deregulation and the reduction of banking margins.

Beyond the “consolidation wave”, financial innovation and technological progress can cause, and have already created, fundamental changes in the field of competition. (A. W. A. Boot et al., 2005 pp 12-14) When these two instruments are used in a proper manner, a number of advantages can be identified not only for banks but for financial institutions as well. (Athanasios Hadjimanolis, et al., 1998) However, it is possible for new instruments to be based on models which are either poorly designed or not fully or properly understood by banks and/or banking supervisors. Therefore, this will result individual banks to a great loss because of the increased market volatility.

Another important factor which seems to have a significant influence on the competitiveness of banking systems is the entrance of foreign banks in the country. According to a number of researches, the entrance of foreign banks may recast the banking system in a great degree but it can also have multiple impacts.

Yildirim and G. C. Philippatos (2006) observing the structure and the functions of the recast in the banking system of Latin America, they were interested in studying the effects of the entrance of foreign banks in the domestic market and how this affected the economic recast and the levels of competition in the country. More specifically, they studied the results of the entrance of foreign banks in the local industry and how this entrance has created a more competitive and more efficient environment or if the entrance of the foreign banks as a result of the mergers, was a barrier to the competitive structure, creating market power for the banks.

The economists used the Panzar and Rosse methodology in order to study their observations. The sample of their research consisted of 11 countries of Latin America during the period between 1993 and 2000. The conclusions of their empirical evidence revealed that market concentration does not affect the degree and the level of competition in the banking system of the region. Furthermore, the participation of foreign banks deals with higher levels of competition of the banking industry of every country, due to
the efficiency of the domestic banks but at the same time it leads to the reduction of their profits and their margins.

Another recent research that deals with the entry of foreign banks in the market has been conducted by Y. C. Richard Wong and M. L. Sonia Wong (2001). After China’s entry to the World Trade Organization, the banking structure of the country has changed, since the restrictions, which were related to the activities of the foreign banks in the country, were abolished. Until 1994, banks in China operated under anticompetitive conditions. Despite the entry of foreign banks in the banking system and the fundamental changes that have been made in the financial sector, the level of competition was still at the same position. The banking system was still dominated by the four largest domestic banks of the country. However, the absence of competition has created substantial problems in the market, such as lack of efficiency. Thus, the state commercial banks in order to increase their competitiveness had to follow some specific strategies.

In particular, they tried to diversify their loan portfolio by offering new services to the consumers such as loans to small and medium size enterprises and mortgages. Therefore, they decided to decrease the number of branches that were operating in the county and employ more qualified staff with better skills and knowledge of the sector. Moreover, in their effort to improve efficiency they created new departments, where their main responsibility was to control the risk.

Regarding the impact of the participation of the foreign banks in an industry, Levine (1996) observed that the entry might be proved to be beneficial for the market in terms of financial improvement.

Another case study by Clarke et al. (2000) in Argentina, concluded that the foreign banks had a negative impact on the banks of the local industry due to competition. This may be due to the fact that the profits and the interest margins of the local banks at that time were very low. Furthermore, banks seemed to earn their revenue, as if they were operating under the conditions of a monopolistic market. Countries which have the characteristics of a monopolistic market, cannot eliminate the competition and they do not have high levels of efficiency.
Furthermore, the regulations appear to play a significant part in the levels of competition. (J.R. Barth et al., 2002) The contribution of competition depends strictly on the regulatory institutions which are responsible for the control of the competitive conditions of the sector. According to a research, (Y. C. R. Wong et al., 2001) institutions play a key role in this procedure and several changes in the financial sector may be needed in order to achieve the expected results. Thus, decisions must be taken only from banks, and institutions must only determinate the regulations.

3.3 Bank Concentration and Profitability

An important issue for the investigation of the degree of competition in the banking industry is to examine bank concentration and bank profitability. These issues have been discussed in studies by H.S. Yildirim, G.C. Philippatos (2006) and (Short, 1979). Regarding to bank concentration, it is important to mention how market concentration is actually defined within this context. Market concentration can be defined as “a function of the number of firms and their respective shares of the total production (alternatively, total capacity or total reserves) in a market” (Tirole, 1988). Market concentration is related to the concept of industrial concentration, which concerns the distribution of production within an industry, as opposed to a market. To be practically useful, a market concentration measure should be to decrease the number of firms in the market. Additionally, it should also be decreasing (or at least non-increasing) with the degree of symmetry between the firms' shares.

Market concentration represents an important function in the field of economics and it will be analysed even more in the following section. In particular, it can be used as a very useful tool because it examines the degree and the extent of market competition. Additionally, market concentration is a practical exponent of the possible competitive consequence of a merger. (Patrick Honohan, 1980)

Despite the fact that market concentration and market share data are based on historical evidence, some recent modifications or some changes
that have not been stable yet, show that the market share of a specific firm either understates or overstates the firm's future competitive significance.

Several studies have been carried out in order to measure and estimate the relationship between market concentration and prices. Bain's (1956), states that an increment in market concentration, under oligopolistic conditions, can lead to higher prices in the market. It is obvious that this will have detrimental effects on consumers, as they will not benefit financially.

According to H.S. Yildirim and G.C. Philippatos (2006, pp 10), "concentration in banking markets and bank returns does not necessary lead to a lower degree of competition." They also observed that higher degree of competition, in return, is associated with reduced bank margins and profitability but improved cost efficiency. Their findings also showed that banks seem to earn their revenues when they are operating under the conditions of monopolistic competition.

Several studies that investigate issues related to the relationship between market concentration, efficiency, and profitability, have been carried out. A broad study produced by Berger and Hannan (1989), interrelated with market concentration and efficiency, showed that non-competitive behavior affects profitability in a positive way. However, Demirguc-Kunt, et al. (2003) carried out a subversive study onto the same correlation. The results of the research indicate that bank concentration does not have a positive relation with efficiency. This statement represents an exception in the case of highly-income countries whose financial systems work with more developed and organized manners. (Demirguc-Kunt, Laeven, and Levine, 2003).

Furthermore, empirical studies showed that there is a competitive banking behaviour even where the industry is purportedly concentrated, and unexpected monopoly behaviour for certain segments of banks with presumed weak market power. For example, Shaffer (1989, 1993) found results consistent with perfect competition in the US and Canadian market, respectively, despite being relatively concentrated.

Examining the influence of market concentration, Liz Laderman (2002) conducted a study in the US. In conducting the results in this particular study, the HHi was used as it is considered to be the most acceptable method for
measuring market concentration. It was observed that concentration played a significant role in the particular banking market since through concentration the banking sector was reduced by half.

Additionally, E. Mamatzakis et al. (2005) carried out a research on the South Eastern European banking sector to analyse the degree of concentration and competition. Their research design was based on the Panzar and Rozze method. After the empirical analysis, the results disclosed that the banking sector acts under monopolistic conditions. These results indicate that the banking system of the investigated area is being controlled by the largest bank of the industry and it is difficult to be affected by a bank’s entrance.

As far as the relationship between competition and profitability is concerned, there is some evidence that competition does not always deliver earnings to the banks. E. Mamatzakis et al. (2005) state that while competition usually reduces the cost, in some cases it doesn’t. However, it can reduce not only the market power but also it can provide undesirable reduction in revenues. These facts may cause a huge damage to a bank’s future.

The profitability growth of a banking institution is undoubtedly related to its structure. In fact, banking structure represents one of the most significant factors for the profitability growth, since it presents the fastening of the banking industry. (P. Coccorese, 2003) In consequence, a few changes in its structure can provide fundamental changes in the field of banking and it can lead to the expansion of competition as well. In such an industry, expansions’ and reductions’ regimes cannot easily take place because such facts, could affect the economy as a whole and not only the banking sector. The changes concerning the banking structure affect significantly the local economy because banks hold the most of the money-measured assets i.e. money, debentures, shares etc.

The impact of the market structure on competition has also concerned a number of researchers. Bikker and Haaf (2001) investigated the impact of market structure on competition. During their research they have noted that concentration affects positively competitiveness in a banking system and it
has a direct impact on it. However, Claessens and Laeven (2003) derived a qualitative research, by using a sample of 50 countries, and found that market structure is not necessarily related to the degree of competition in a country. They also concluded that, there are some other important issues that are important for competition such as contestability, and therefore, market openness.

The structure of the banking sector can be affected by several factors. Gloria Pasadilla and Melanie Milo (2005) found out that one of the major factors is the easing of restrictions on domestic bank entry and branching. This led to the rapid growth of banking offices across all types of banks, commercial, thrift and rural banks. Nevertheless, according to their study banking structure is mostly affected by liberalization and consolidation. In particular, during the last decades, liberalization seems to have a great impact on the banking competition. Therefore, a number of empirical studies have been carried out in order to examine and analyze the effects of that impact and the final results given from that correlation.

The size of a bank is another factor that can have a direct impact on the market structure and therefore on the level of competition. In particular, studies have shown that the size of a bank has a great effect on the degree of competition of every country. Larger banks tend to experience low levels of competition and are more monopolistically competitive, while smaller banks are highly competitive and show high levels of competition.

Many models have been developed in order to assess and measure the degree of competition. Panzar – Rosse (PR) represents one of the most common methods and it is considered to be one of the most appropriate one for estimating the extent of competition in the banking industry. In particular, the PR test is based on reduced-form revenue equations of the sample firms. Based on the premise that banks will occupy different pricing strategies in response to changes of input costs depending on the market structure, PR developed a so-called “H-statistic” which is the sum of the elasticities of the reduced-form revenues with respect to input prices. (H. Semih Yildirim, George C. Philippatos, 2006)
Shaffer was the first who used this approach in 1981, in order to investigate the competitiveness of New York’s banking market. The results showed that banks were not behaving in the same manner as they were operating. More specifically, the banks were operating neither under monopolistic conditions nor under perfectly competitive conditions. Therefore, the researchers concluded that the pressure of competition did not really exist.

H. Gischer and M Stiele used the P–R method to follow a line of investigation for German saving banks in 1993. This method is utilized, when the purpose of the research is to estimate the competitive structure. Their sample consisted of annual data taken from approximately 400 credit institutions between 1993 and 2002. The analyzed data showed that the prevailed monopolistic competition regime was disjointed from either monopoly or perfect competition.

Moreover the empirical results showed that banks need to cooperate and not only to provide services either to individual customers or to small and middle–size enterprises. This assumes a great deal of effort for the competitive environment. On the one hand, colossal banks with massive earnings don’t show anticipation by taking measures for their performance. On the other hand, smaller institutions appear to gain additional market power, during the last few years. This effect deals mainly with the familiar and friendlier environment offered by smaller banks in contrast to the faceless services offered by larger institutions.

3.4 The Effects of Market Concentration and Consolidation.

The main feature of consolidation is the change of control, which takes place through a transfer of ownership (Ajadi and Pujals, 2004). For example, in an economic market that is dominated by four members that possess the equivalent market share of 25%, and two of which are incorporated automatically, the share changes to 25%-25%-50%. This outlines that the larger company, that is to say the one that has 50% of the market share, can
be more influential than the other two. The incorporated henceforth company can face the competition more effectively and can grow rapidly because of the fact that it now has more capital which may be used for investment purposes. One of the most important advantages of a merger is that the particular large Bank can attract a larger percentage of consumers that would consequently enable it to convert the market from oligopolistic competitive to monopolistic competitive.

In the case of the US and in order to avoid the above situation, the Federal Reserve and the Department of Justice imposed certain barriers. These include limits associated with the size of a bank in order to protect it. More specifically, in order to control merger consequences in the market, the US Department of Justice published some special guidelines. According to the rules, firms are allowed to operate highly concentrated markets only if a minimum level of competition rule is satisfied.

In cases where banks with significantly strong financial power are controlling an important part of the market share, the pressure of competition will be eliminated. As a result, a number of changes will take place within the banking sector. The absence of competition, will force banks to increase the prices of their services, while on the other hand, when a market consists of several banks with the same amount of market share, then the market will be competitive. Therefore, the Department of Justice, allows amalgamations to take place only in the cases where this can not have a negative effect not only on the banking sector but on the economy as a whole.

According to European statistical studies, a significant factor that assisted the amalgamation of banks around the world was the existence of Economic and Monetary Union which commenced in the early 1990's and peaked in the early 2000. As time goes by, the rate of growth of amalgamations occurring in the banking sector is more intense and is extended beyond the borders of the EU and the boundaries of globalisation.

In conclusion, the countries that do not have significant increases in mergers indicate that they have adequate developed but also economically independent organisms. Mergers are usually realised and sought by small banking institutions with a view to increase their market share and boost
their economic growth. Mergers occur with an ultimate goal of increasing market share. This enables the organisations to have greater influence over the decisions and options available to the consumers.

The market share that a bank has, also allows it to play an important role in the local society. Depending on its position in the market, a bank can influence the price of its products as well as the prices of the whole market and consequently changing the degree of competition. For example, if a bank decreases its interest rates for a short period of time, it is likely that the anticipated profits will be reduced, given that the number of customers remains the same. In the long term however, it is more likely that the reduced interest rates will attract more customers to enter in loan agreements as the monthly loan repayments will be lower. This leads to the conclusion that the profits and the share of a particular bank will have an upturn course. When banks from different countries enter in an agreement to merge, this enables those organisations to share ideas and opinions on corporate strategies and plan implementation.

The Table 4 below shows the recorded number of banks in 8 countries from 1990 up to 1999. According to the statistics, it can be observed that a large number of mergers occurred in the largest countries. From 1990 until 1999 the number of institutions in all cases was reduced. The case of Sweden is remarkable since the number of the banks operating in the Swedish market in 1990 was reduced from 498 to 126 by 1998.
Table 4: Number of Banks Through Years

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</tr>
</thead>
<tbody>
<tr>
<td>France</td>
<td>1,981</td>
<td>1,823</td>
<td>1,701</td>
<td>1,635</td>
<td>1,618</td>
<td>1,453</td>
<td>1,404</td>
<td>1,288</td>
<td>1,242</td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>4,719</td>
<td>4,460</td>
<td>4,200</td>
<td>4,038</td>
<td>3,872</td>
<td>3,784</td>
<td>3,674</td>
<td>3,577</td>
<td>3,403</td>
<td>3,167</td>
</tr>
<tr>
<td>Italy</td>
<td>379</td>
<td>368</td>
<td>351</td>
<td>335</td>
<td>284</td>
<td>271</td>
<td>264</td>
<td>255</td>
<td>248</td>
<td>239</td>
</tr>
<tr>
<td>Netherlands</td>
<td>180</td>
<td>173</td>
<td>177</td>
<td>175</td>
<td>173</td>
<td>174</td>
<td>172</td>
<td>169</td>
<td>162</td>
<td>169</td>
</tr>
<tr>
<td>Spain</td>
<td>327</td>
<td>323</td>
<td>319</td>
<td>316</td>
<td>316</td>
<td>318</td>
<td>313</td>
<td>307</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sweden</td>
<td>498</td>
<td>450</td>
<td>108</td>
<td>109</td>
<td>112</td>
<td>116</td>
<td>124</td>
<td>124</td>
<td>126</td>
<td></td>
</tr>
<tr>
<td>Switzerland</td>
<td>457</td>
<td>444</td>
<td>434</td>
<td>419</td>
<td>393</td>
<td>382</td>
<td>370</td>
<td>360</td>
<td></td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>507</td>
<td>491</td>
<td>469</td>
<td>462</td>
<td>458</td>
<td>484</td>
<td>467</td>
<td>468</td>
<td>448</td>
<td>418</td>
</tr>
</tbody>
</table>
3.5. The Amalgamation Between Popular Bank Cyprus, Marfin and Egnatia Bank and its Impact on Competition.

As it has been mentioned above, the trend of consolidation between banks is an important issue in the field of banking. A specific merger that took place in 2006 in Cyprus represents an interesting case, given that the banking system of Cyprus is consisted of a small number of banks.

In particular, in 2006 a merger between Popular Bank Cyprus, Marfin and Egnatia Bank occurred in Cyprus. The Central Bank of Cyprus approved the take over of 100% of Marfin and Egnatia by Laiki Bank and their establishment as one group, as part of an agreement that amounts to 3, 1 b. Euros, rendering the group the second biggest banking organisation in Greece and Cyprus, with capitalisation of 4,2 b. Euros and at the same time, the new group will have mutual funds of 3,3 b. Euros.

The subject of competition triggered a debate within the Cyprus banking system before the merger of the Laiki bank and Marfin popular bank. In order for the merger to take place, it had to be authorised and approved by the Cyprus Competition Committee. The Competition Committee approved the concentration of the financial institutions in question, since it considers that this does not cause serious concerns over the possibility of restraining considerably the competition in the related markets.

The business strategy of the company aims to the creation of a bigger banking organisation with a powerful presence in Greece and Cyprus and a wider international presence. Marfin Popular Bank, through its subsidiaries and its branches, offers its financial services all over the world. Since it has commenced its operations, it has been a pioneer as far as the new technologies are concerned and at the same time, it has been one of the first banks which had recognized the value of technology in the financial services sector. From that time on, technology has been used for the promotion of new services, for the optimization of the customer services and for the increase of the efficiency level.

Moreover, now more than ever, the Popular Bank Group, will have the ability to attract new customers by introducing new competitive products with
a higher quality and a new range of services. Moreover, this amalgamation can have positive effects on the bank’s performance by increasing the goodwill of the Group.

The amalgamation also resulted to an increase of the Group’s market share in Cyprus. Particularly, in May 2005 the advances reached to 17,19%, whereas a year later, they have increased and reached 17.52%. In addition to this, the deposits of the year 2005 reached 19.42% whereas in May 2006 reached 20.63%.

The following table presents a summary of some data from the balance sheet of the Bank. It can be concluded that the profits of the bank have increased after the amalgamation, since it succeeded to have a significant increase in its profits in the mid 2006. The financial group has increased its profits to 137% from 14, 9 m. CP to 35.3 m. CP

**Table 5: Profitability Analysis.**

<table>
<thead>
<tr>
<th>PROFITABILITY ANALYSIS</th>
<th>1&lt;sup&gt;st&lt;/sup&gt; Half 2006</th>
<th>1&lt;sup&gt;st&lt;/sup&gt; Half 2005</th>
<th>Annual % Δ</th>
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<tbody>
<tr>
<td>IN CYP m</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating Income</td>
<td>104,6</td>
<td>86,6</td>
<td>+21%</td>
</tr>
<tr>
<td>Operating Expenses</td>
<td>(52,3)</td>
<td>(52,6)</td>
<td>-1%</td>
</tr>
<tr>
<td>Profit before provisions</td>
<td>52,3</td>
<td>34,0</td>
<td>+54%</td>
</tr>
<tr>
<td>Provisions</td>
<td>(13,6)</td>
<td>(17,8)</td>
<td>-24%</td>
</tr>
<tr>
<td>Share of profit from associates</td>
<td>0,4</td>
<td>0,5</td>
<td></td>
</tr>
<tr>
<td>Profit Before Tax</td>
<td>39,1</td>
<td>16,7</td>
<td>+134%</td>
</tr>
<tr>
<td>Tax</td>
<td>(3,8)</td>
<td>(1,8)</td>
<td>+108%</td>
</tr>
<tr>
<td>Profit After Tax</td>
<td>35,3</td>
<td>14,9</td>
<td>+137%</td>
</tr>
<tr>
<td>Net Interest Margin</td>
<td>2,93%</td>
<td>3,06%</td>
<td></td>
</tr>
<tr>
<td>Cost to Income Ratio</td>
<td>50,0%</td>
<td>60,7%</td>
<td></td>
</tr>
</tbody>
</table>

Source: www.laiki.com
The following diagram shows the banks profits after the amalgamation.

Diagram 2: Profits After Amalgamation

![Profits of Marfins’ Popular Bank](image)

3.6 Efficiency and Competition

The impact of competition regarding the efficiency depends on a number of factors.

In a study by A. Athanassopoulos et al. (1997) that examined in terms of efficiency the Cypriot banking system with its Co-operative Institutions and the British banking system, using financial ratios and econometric analysis. The results of the research showed that, the Cypriot banking sector seems to have a disadvantage in terms of efficiency against the Co-operative Institutions and the British banks and as it was stated, “it produces” loans of a given value with higher cost.

As far as the efficiency cost is concerned, efficiency represents an important factor in a competitive environment as well. Cost efficiency can be defined as “the ratio between the minimum cost at which it is possible to attain a given volume of production and the cost actually incurred”. (Panos Pasiardis et al. 2003)

During 1997, Berger and Humphrey investigated the phenomenon of cost efficiency among several countries. Their main aim was to examine cost
efficiency and the existing differences among countries. They have noticed that cost efficiency could be differentiated. In addition, cost efficiency can be affected by numerous of factors such as the different and dissimilar regulatory environment in every market, the intensity and the degree of competition and the specialized methods used in output session as well as the quality of products inserted into the process of production.

Additionally, cost efficiency represents an essential motivation for banks to form mergers. (Ping-wen Lin, 2003) According to researches, amalgamations have a direct impact on cost efficiency and this comprises an extra benefit in the competitive market. According to Peter S. Rose (1999, p.679), staff savings have occurred after some mega-mergers in the United States. Following a merger, banks usually lay off a substantial percentage of their staff due to their attempt to eliminate the additional branches and the departments. As an example, Fleet Nostral Financial Group and the Bank of New England, due to the layoffs, earned approximately 150 to 200 m. dollars annually after their merger.

It can be concluded that the level and the degree of competition in a banking industry, is determined and at the same time is depended on many different factors. The economic growth of a country, market concentration, the structure of institutions and other factors, directly affect the degree of competition. Moreover, mergers and acquisitions as well as the entry of foreign banks into the banking system, have a great impact on the level of antagonism in every banking system.

The following diagram outlines the direct and the indirect relations, which are related with the degree of competition and the impact of mergers and acquisitions as they have been analyzed in the literature review section.
Diagram 3: Direct and Indirect Relations on the Degree of Competition
Based on the above literature review and by using the Herfindahl index (HHI), this study examines the following hypothesis:

- **Hypothesis 1:** Mergers are related or not with the degree of competition.
- **Hypothesis 2:** Banks profitability is indirectly related with the degree of competition in the banking sector.
- **Hypothesis 3:** Market Structure is related or not with the degree of competition.

Based on the hypothesis of the study, the following diagram describes the most important direct and indirect relationships going to be examined through the empirical analysis.

**Diagram 4: Direct and Indirect Relationships of Competition**
4. Empirical Analysis

4.1. Data

This specified research studies the banking sector of the Republic of Cyprus. The primary source of data is the financial statements of the banks, which are exposed in the Investor Relations section in their websites. Some data, such as the information about the bank's market share, was collected after a personal contact with the Directors of each bank, since they weren't available in any other way. The sample consisted of the five (5) largest banking organizations established in the island. The majority of them, (Bank of Cyprus, Hellenic Bank, Marfin Popular Bank, Universal bank), are domestic banks listed in the Cyprus Stock Exchange. The fifth one is Alpha Bank and is a foreign organization established in Greece. This does not prevent it from having a rapid growth in the Cypriot market. Also, empirical data was extracted from the financial statements of these banks published during the years 2000-2006.

In the following part, some major information concerning the banks mentioned above is being presented.

Bank of Cyprus: The Bank of Cyprus Group offers a wide range of financial goods and banking services in the Mediterranean region (Cyprus and Greece), in Europe (the United Kingdom), in Australia and the Channel Islands. Its services consist of finance, leasing, factoring, brokerage, capital management, general and life insurance both in Cyprus and in Greece, as well as investment banking services in Cyprus.

Popular Bank of Cyprus: The Popular Bank of Cyprus represents one of the biggest banks of the Cyprus banking system. In 2006 the Popular Bank of Cyprus amalgamated with Marfin Financial Group and Egnatia Bank Group. The amalgamation brought out a number of benefits for the Popular Bank of Cyprus, or Marfin Popular Bank, such as its new name. Marfin Popular Bank evolved to an important financial institution, with a leading competitive advantage.

Hellenic Bank: Is one of the most important financial institutions of Cyprus, with a network, which exceeds the number of 80 and 25 branches in
Cyprus and Greece respectively. In addition to this, its human resource capital exceeds the number of 1700 employees both in Cyprus and abroad. The Hellenic Bank has also expanded in South Africa and Russia.

**Universal Bank:** In 1996 an acquisition took place where the Universal Life Insurance Company Limited "Universal Life", the biggest life assurance company in Cyprus, acquired 30% of Universal Bank. This acquisition constituted a significant factor for the dynamic growth of the bank in the financial sector.

**Alpha bank:** Alpha bank has a leading presence in Greece. Alpha bank operates over 652 branches in Cyprus, New York, London and Southeastern Europe. The strategy of the group has as a scope to produce an even more competitive group and to increase the efficiency.

Some main information and features of the banks are being presented in the following table.

Except from the already mentioned banks, several banks are also operating in the banking system of the country. In particular, in the year 2006, their market share, as one group, contributed to 28.8% of the total market share. This market share represents a number of foreign banks that are operating in the island as well as domestic institutions with no any significant market share. The market share of other banks it is small that is not collected and it is ignored without any significant impact on your results.
Table 6: Main Characteristics of Each Bank

<table>
<thead>
<tr>
<th></th>
<th>Bank of Cyprus</th>
<th>Marfin Popular Bank</th>
<th>Hellenic Bank</th>
<th>Universal Bank</th>
<th>Alpha bank</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of employees</strong></td>
<td>3,335</td>
<td>3,457</td>
<td>1426</td>
<td>764</td>
<td>2,537</td>
</tr>
<tr>
<td><strong>Number of branches (in CP)</strong></td>
<td>144</td>
<td>114</td>
<td>80</td>
<td>18</td>
<td>15</td>
</tr>
<tr>
<td><strong>Number of branches (in other countries)</strong></td>
<td>139</td>
<td>195</td>
<td>25</td>
<td>26</td>
<td>652</td>
</tr>
<tr>
<td><strong>Market share in deposits</strong></td>
<td>30,1%</td>
<td>21,03%</td>
<td>14%</td>
<td>1%</td>
<td>6,5%</td>
</tr>
<tr>
<td><strong>Market share in loans</strong></td>
<td>27,8%</td>
<td>18,2%</td>
<td>14%</td>
<td>1%</td>
<td>10,2%</td>
</tr>
<tr>
<td><strong>Profit after tax in m.CP (2006)</strong></td>
<td>183</td>
<td>87,929</td>
<td>90,2</td>
<td>93,4</td>
<td>24,6</td>
</tr>
</tbody>
</table>
4.2 Research Design

4.2.1. HHi Analysis

Many models have been developed in order to measure the degree of competition. In this section, we estimate market concentration using the HHi. The HHi, is a commonly used measure of industrial concentration, and is calculated by squaring and summing the share of an industry’s size accounted for by every firm in the industry. A reduction in the HHi indicates an increase in the degree of competition in the market and a decrease in the pricing power. In contrast, when the index increases, a decrease in the degree of competition should be noticed.

The precise method is based on the market shares held by the respective banks. For example, if we take the possibility of merger between two banks with market share 80% and 20%, then the HHi is going to be $80^2 + 20^2$, or 6800.

Using US Regulations, if the HHi is below 1000 then the market is characterized as “unconcentrated”, between 1000 and 1800 as “moderately concentrated” and in the cases where the HHi is above 1800 then the market is considered to be “highly concentrated” (Liz Laderman, 2002, pp 2 -3).

**Table 6 : Interpreting the HHi**

<table>
<thead>
<tr>
<th>Conditions of competition</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HHi&lt;1000</td>
<td>Unconcentrated</td>
</tr>
<tr>
<td>1000&lt;HHi&lt;1800</td>
<td>Moderately concentrated</td>
</tr>
<tr>
<td>HHi&gt;1800</td>
<td>Highly concentrated</td>
</tr>
</tbody>
</table>

In order to calculate the HHi between 1998 and 2006 the market share of each bank is needed. The following data have been taken from the annual report of every bank. The most recent data was available in their web pages. The rest has been collected by studying the annual reports that were available in the head office of each bank.
**Table 7:** Market Share of Each bank

<table>
<thead>
<tr>
<th>Bank</th>
<th>Period</th>
<th>Bank of Cyprus</th>
<th>Marfin Popular Bank</th>
<th>Hellenic bank</th>
<th>Alpha bank (Foreign Bank)</th>
<th>Universal Bank</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bank</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Period</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1998</td>
<td></td>
<td>35%</td>
<td>26,25%</td>
<td>8,6%</td>
<td>4,13%</td>
<td>0,37%</td>
</tr>
<tr>
<td>1999</td>
<td></td>
<td>38%</td>
<td>25,82%</td>
<td>9,2%</td>
<td>6,23%</td>
<td>0,43%</td>
</tr>
<tr>
<td>2000</td>
<td></td>
<td>40%</td>
<td>24,88%</td>
<td>8,9%</td>
<td>6,34%</td>
<td>0,51%</td>
</tr>
<tr>
<td>2001</td>
<td></td>
<td>42%</td>
<td>24,58%</td>
<td>9,7%</td>
<td>6,27%</td>
<td>0,47%</td>
</tr>
<tr>
<td>2001</td>
<td></td>
<td>40%</td>
<td>23,88%</td>
<td>10,1%</td>
<td>6,57%</td>
<td>0,52%</td>
</tr>
<tr>
<td>2003</td>
<td></td>
<td>40%</td>
<td>22,86%</td>
<td>11,2%</td>
<td>5,62%</td>
<td>0,58%</td>
</tr>
<tr>
<td>2004</td>
<td></td>
<td>40%</td>
<td>22,84%</td>
<td>12,5%</td>
<td>6,02%</td>
<td>0,65%</td>
</tr>
<tr>
<td>2005</td>
<td></td>
<td>41%</td>
<td>22,92%</td>
<td>13,6%</td>
<td>6,02%</td>
<td>0,67%</td>
</tr>
<tr>
<td>2006</td>
<td></td>
<td>30,1%</td>
<td>23,25%</td>
<td>14%</td>
<td>6,48%</td>
<td>0,77%</td>
</tr>
</tbody>
</table>

**Diagram 5:** Market Share of Cyprus Banking Industry

[Market Share of Cyprus' Banking Industry Diagram]
Table 8: HHi Calculations and Results

<table>
<thead>
<tr>
<th>Years</th>
<th>HHi Calculations</th>
<th>HHi Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td>$35^2 + 26,25^2 + 8,6^2 + 4,13^2 + 0,37^2$</td>
<td>3374,08</td>
</tr>
<tr>
<td>1999</td>
<td>$38^2 + 25,82^2 + 9,2^2 + 6,23^2 + 0,43^2$</td>
<td>2234,31</td>
</tr>
<tr>
<td>2000</td>
<td>$40^2 + 24,88^2 + 8,9^2 + 6,34^2 + 0,51^2$</td>
<td>2338,68</td>
</tr>
<tr>
<td>2001</td>
<td>$42^2 + 24,58^2 + 9,7^2 + 6,27^2 + 0,47^2$</td>
<td>2501,80</td>
</tr>
<tr>
<td>2002</td>
<td>$40^2 + 23,88^2 + 10,1^2 + 6,57^2 + 0,52^2$</td>
<td>2315,70</td>
</tr>
<tr>
<td>2003</td>
<td>$40^2 + 22,86^2 + 11,2^2 + 5,62^2 + 0,58^2$</td>
<td>2279,95</td>
</tr>
<tr>
<td>2004</td>
<td>$40^2 + 22,84^2 + 12,5^2 + 6,02^2 + 0,65^2$</td>
<td>2314,57</td>
</tr>
<tr>
<td>2005</td>
<td>$41^2 + 22,92^2 + 13,6^2 + 6,02^2 + 0,67^2$</td>
<td>2427,97</td>
</tr>
<tr>
<td>2006</td>
<td>$30,1^2 + 23,25^2 + 14^2 + 6,48^2 + 0,77^2$</td>
<td>1685,15</td>
</tr>
</tbody>
</table>

The calculations above are presented in the following diagram.

**Diagram 6: HHi value through years**
Additionally, at the following table the following the percentage changes are shown.

**Table 9: Percentage Changes of the HHi**

<table>
<thead>
<tr>
<th>Years</th>
<th>HHi Value</th>
<th>Percentage Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td>3374,08</td>
<td></td>
</tr>
<tr>
<td>1999</td>
<td>2234,31</td>
<td>-33,78%</td>
</tr>
<tr>
<td>2000</td>
<td>2338,68</td>
<td>4,67%</td>
</tr>
<tr>
<td>2001</td>
<td>2501,80</td>
<td>6,97%</td>
</tr>
<tr>
<td>2002</td>
<td>2315,70</td>
<td>-7,44%</td>
</tr>
<tr>
<td>2003</td>
<td>2279,95</td>
<td>-1,54%</td>
</tr>
<tr>
<td>2004</td>
<td>2314,57</td>
<td>1,52%</td>
</tr>
<tr>
<td>2005</td>
<td>2427,97</td>
<td>4,90%</td>
</tr>
<tr>
<td>2006</td>
<td>1685,15</td>
<td>-30,59%</td>
</tr>
</tbody>
</table>

**4.2.2 Scenarios for Potential Mergers**

Mergers and acquisitions have become even more prevalent in the last few years. Therefore, similar scenarios of possible future mergers between the 5 banks, which represent the sample of the study, will be examined.

Due to the fact that a possible merger can generate several concerns, which are related with the increase of competition in an industry and with damages to the welfare of the market, the Justice Department uses the HHi in order to evaluate if a merger is going to be allowed.

Firstly, it will examine whether the banks with higher market share in Cyprus are able to form a merger, according to the Justice Department and then several combinations and possible scenarios will be examined. As it was mentioned before, the market share of every bank for the year 2006 will be needed for the calculations. Thus they are compendiously presented in the following table.
Table 10: Market Share of Each Bank in 2006

<table>
<thead>
<tr>
<th>BANKS</th>
<th>MARKET SHARE</th>
<th>HHi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank of Cyprus</td>
<td>30.1%</td>
<td>51,13²+14²+0,77²+6,48²=2852,86</td>
</tr>
<tr>
<td>Marfin Popular Bank</td>
<td>21.03%</td>
<td></td>
</tr>
</tbody>
</table>

If a market is characterized as “moderately concentrated” and an amalgamation provides an increase in the value of the HH index of more than 100 points, then substantial competitive concerns are generated. Additionally, if the market is highly concentrated then an increase of 50 points can cause the same concerns to the market.

The Bank of Cyprus and Marfin Popular Bank have the higher market share in the Cyprus banking market. Therefore, it is very interesting to examine the results after the scenario for a future merger between these two banks.

After the above calculation, the possible merger provides a value of 2852, 86. This result indicates that a possible amalgamation between these two banks in the “moderately concentrated” industry of Cyprus, definitely, is going to provide several threats and concerns in the sector, since the index has increased up to 100 points.
The scenario for a possible merger between Bank of Cyprus and the Hellenic banks leads to the same results. The merger is not going to provide any benefits however, is going to create several changes to the system.

<table>
<thead>
<tr>
<th>BANKS</th>
<th>MARKET SHARE</th>
<th>HHi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank of Cyprus</td>
<td>30,1%</td>
<td>$44,1^2+21,03^2+0,77^2+6,48^2=2429,65$</td>
</tr>
<tr>
<td>Hellenic bank</td>
<td>14,%</td>
<td></td>
</tr>
</tbody>
</table>

Alpha bank is a foreign bank with a relatively low market share in the Cyprus banking Industry. In contrast to the above scenarios, a possible merger among these two banks will provide a lower divergence. However, the difference between the value of the HHi which in 2006 was 1685, 15 shows that the HHi has increased by more than 100 points.

<table>
<thead>
<tr>
<th>BANKS</th>
<th>MARKET SHARE</th>
<th>HHi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank of Cyprus</td>
<td>30,1%</td>
<td>$36,58^2+21,03^2+0,77^2+14^2=1976,95$</td>
</tr>
<tr>
<td>Alpha bank (Foreign Bank)</td>
<td>6,48%</td>
<td></td>
</tr>
</tbody>
</table>

Universal Bank has the lowest market share in the industry. The above results lead to the conclusion that the hypothesis for a possible merger can take place in the Cyprus banking industry. The HHi is lower than the real one.
The combination between Marfin Popular Bank and Alpha bank has a HHi of 1859.40. This number implies that if this merger happens, according to the Justice Department, the merger is not going to be authorised.

<table>
<thead>
<tr>
<th>BANKS</th>
<th>MARKET SHARE</th>
<th>HHi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marfin Popular Bank</td>
<td>21,03%</td>
<td>27,51² + 14² + 0,77² + 30,1² = 1859,40</td>
</tr>
<tr>
<td>Alpha bank (Foreign Bank)</td>
<td>6,48%</td>
<td></td>
</tr>
</tbody>
</table>

The HHi of this amalgamation has a value of 1768.30. As a result, a possible amalgamation between them is going to provide an increase in the levels of competition.

<table>
<thead>
<tr>
<th>BANKS</th>
<th>MARKET SHARE</th>
<th>HHi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hellenic bank</td>
<td>14,%</td>
<td>20,48² + 0,77² + 21,03² + 30,1² = 1768,30</td>
</tr>
<tr>
<td>Alpha bank (Foreign Bank)</td>
<td>6,48%</td>
<td></td>
</tr>
</tbody>
</table>

This amalgamation has the lowest HHi (1597,12). This result indicates that a possible merger is not going to present any threats in terms of competition.
4.2.3. Profitability and Competition analysis

With regard to the second hypothesis, which is related with the relationship between profitability, and the degree of competition, we are going to use some diagrams in order to compare the total revenues of each bank with the value of the HHi.
The above diagrams lead us to some significant conclusions, regarding to the relationship among competition and profitability. It can be observed that the change into the degree of competition does not provide any significant difference to the total revenue through years. However, in all cases the total revenues were increased whether the degree of competition was degreased in a significant manner.
4.3 Result Analysis and Interpretation

The HHi analysis indicates that the degree of competition in the Cyprus banking system is not stable but competition and market concentration are being modified over the years. It is clear that over the sample period the competitive behaviour in the sector has changed. In fact, the Cyprus’s banking industry was under high concentration in 1998. In other words, the degree of competition in the sector was low and almost non-existent. The HHi changed remarkably in 1999. In 1998 the HHi was 3374.08 whereas in 1999 the index fell to 2234.31. The contrast among these two periods leads to the assumption that the crash which took place in 1999 may be the major reason for that change. This crash had also provided a significant change into the market structure of the country. In consequence we can not reject the hypothesis that the market structure affects directly the competition, since it is clear that this change into the market structure transform the level of competition in the country.

It can be concluded that within the years between 2000 and 2005 the market can be considered as a “highly concentrated market”. Even though the value of the index has not changed dramatically over the period, its value varies within the same levels.

However, a remarkable decrease has been noted between 2005 and 2006. In 2005 the index has a value of 2427.97 whereas in 2006 the value dropped to 1685.15. As it was discussed in the chapter above, the amalgamation between Popular Bank Cyprus, Marfin and Egnatia Bank took place at that period. Based on this statement and according to the literature review, the merger had a direct impact on the degree of competition, since it lead to a significant reduction of the index.

The value of the index in 2006 indicated that the conditions within the banking industry had changed. As opposed to previous years, the system can now be characterized as “moderately concentrated”.

In a system which is described as “moderately concentrated” it can be seen that the degree of competition is not very high. Moreover, it indicates that the system is operating under oligopolistic conditions. The degree of
competition can provide the industry with several benefits, which have already been analyzed in previous sections.

The effects of the merger between Popular Bank Cyprus, Marfin and Egnatia Bank were essential and as it has been noticed, they had a direct impact on the concentration and degree of competition. From that occurrence, the importance of mergers and acquisitions on the degree of competition are getting even stronger.

The scenarios for possible mergers among several combinations lead to significant conclusions. First of all, it must be noted that a large percentage of the scenarios provide an increment of the HH index up to 100 points. This means that a possible merger between them is likely to have a negative impact on the system, since a significant percentage of the market share will be controlled from only one bank. Nonetheless, the possibility for a merger between Bank of Cyprus and Universal bank and the case of Alpha bank with universal bank are the two exceptions. According to the regulations of the Department of Justice, a potential merger between these banks can take place in the Cyprus banking system.

In any case however, we cannot reject the hypothesis which states that the mergers are affected by the level of competition. According to the theoretical review which was analyzed above, the mergers that took place resulted in an increase in the level of competition. However, in the Cyprus case, the level of competition has been decreased. Nevertheless, we must take into account that the specific merger took place recently, in the year 2006, therefore there it is possible that the facts will change within the next couple of years.

With regard to the relationship between profitability and competition it can be concluded that we can reject the hypothesis that the degree of competition might have a direct affect on the profitability of the bank, since the revenues seems to be higher when the level of competition is low.
4.4. Conclusions

In this research, we have presented an empirical analysis of the competitive behavior of the Cyprus banking system, using a wide-used method. Furthermore, we have expanded our research by making some predictions concerning possible mergers among the banks which have already been established in the banking industry.

The banking system which is already operating in the island of Cyprus seems to protect both the consumers, as well as the banking institutions. Banks are operating under oligopolistic conditions due to the fact that the banking system is controlled by a relatively small number of banks, whereas the market share among the largest banks does not indicate any significant differences. The fact that the banking system of the country is being controlled by the largest bank of the industry indicates that it is difficult to be affected by a bank’s entrance. Hence, there is so much strive among banks in Cyprus to increase their size, especially to be the largest in the industry, without equal strive for efficiency.

The results of the empirical analysis show some evidence that the level of competition within the banking industry underwent some major changes throughout the last few decades. More specifically, we can observe that there has been a great difference in the level of competition during the period between 1998 and 2006 due to some significant changes that have been made not only in the banking system itself but in the economy of the country as a whole.

Among the most important changes that were made, was the entrance of the Republic of Cyprus into the European Union in the year 2004, the collapse of the Cyprus Stock Exchange in 1999 as well as the mergers that took place as they were described in the previous chapters.

In addition to this, following the predictions concerning some major mergers, we can observe that the majority of them were possible to occur. Despite of this, the merger among the two large banking institutions is likely to result to an important competitive threat. However, mergers among the
most dynamic institutions, are likely to result to an increase in the bank’s revenue, as it was the case which we have previously discussed.

In general terms, the level of competition can be affected by a number of factors, but it can also have a major effect to the economy of a country. The “wave of mergers” is one of the most important factors which took place over the last few years, because it causes significant changes to the structure of an institution, while at the same time, it has a direct impact on its competitiveness.

The sample data of the research was taken by the largest banking institutions which are currently operating in the island. Therefore, we can conclude that the results are compatible with the existing conditions of the Cyprus banking system. Despite of this, in order to have more specific results, we could have expanded our sample of study by taking into account all the institutions which are operating in the banking industry. Furthermore, the Panzar and Rosse method which has been used into a numerous of studies, could have been used in the current study for further research on competition. As it can be seen at the diagram several elements are rotate around the field of competition and the impact of mergers. For further analysis all the mentioned factors need to be investigated.
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