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Is the current German de-industrialization similar to the British case of the 1870-1914 period? Similarities and Differences

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Abstract :

Globalization is a phenomenon, which has different influence on national economies. Thus, some national economies have benefited (i.e. winners), while others have experienced a harmful outcome (i.e. losers). However, globalization is not a new phenomenon. The first truly globalised economy existed in the era of the second industrial revolution (1870-1914) with the increase of global trade and FDI, rise of big businesses, labor mobility due to immigration, innovation with the creation of new industries etc. At that early stage Germany was a winner and Britain was a loser. However, nowadays, the opposite trend is occurring. Nowadays Britain is one of the winners of the new globalization wave, whereas Germany is considered at best a problematic case (if not a loser). Focusing mainly on industry we provide a comparative assessment.

Keywords: Industrialization, industrial clusters

JEL Classification: F2, N13, N14

1. Introduction

The aim of this paper is to explain the current industrial decline of the German economy. In this context the term "industrial decline" needs clarification. We use it in the sense that an economy which historically used to produce most of its wealth by the activities of the secondary sector of the economy –which was also characterized by high international standards of competitiveness- nowadays, experiences an economic transformation. The contribution of the secondary sector to annual wealth is declining and the economy becomes more tertiary oriented.

Furthermore, we have to state that we focus our attention is two branches of German industry. We differentiate between "big businesses" (i.e. large industries) as well as Small and Medium size companies (SMEs). The main

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argument of the paper can be summarized as follows: The German industry is currently facing similar, if not identical, problems with those of British industry in the late nineteenth, early twentieth centuries. Thus just like Britain, which failed to adapt, to the new environment and eventually was a looser of the second industrial revolution, Germany is facing a similar problem nowadays. However, it is still unclear, if German industry and business will have the same fortune that time, economic development and government policy created for British industry, i.e. decay and downfall.

The structure of the paper is as follows: In the first section, we provide a brief overview of the German economy from the years of its complete and undisputed dominance until nowadays when the prospects are mixed, if not totally bleak. In the second section we highlight the problems which German industry is facing in the current era of globalization. Section three provides an overview of British industrial decline and of its causes in the late nineteenth and early twentieth, centuries. The fourth section identifies the similarities and differences of the two cases. Finally we summarize our findings in the conclusion.

2. A brief historical overview of the German Economy

Traditionally the German economic development started in 1871 after the re-unification of the various German states and principalities. Until the outbreak of World War I in 1914, Germany had become the most heavily industrialized country in Europe bypassing the UK, and was second, if not equal, to the USA in terms of industrial base and technological standards. According to one source, the country in 1913 was producing the 90% of global production of dyes, the 30% of global production of pharmaceuticals, 35% of global production of electrical goods, 27% of chemicals, 29% of machinery and 17% of internal combustion engines.[2]

During World War I the industrial mobilization was concentrated mainly on heavy industry. This should produce the necessary quantities of iron, steel, pig-iron which would be transformed to all kinds of ammunition (weapons, artillery, shells, etc.). The chemical industry had also a pivotal role to play since it would produce fertilizers as well as explosives. Thus World War I was associated with immense industrial innovation.[3]

After World War I and in spite the economic decline of the early 1920s, which was illustrated in 1923, with the hyperinflation, the country remained the biggest

[2] See: Fear Jeffrey: "German Capitalism" in the volume: Th. Mc Craw (ed.): "Creating Modern Capitalism", Harvard University Press 1997, pages 135-182.

[3] See: I.D. Salavrakos: "The German Economic Industrial Mobilization in World War I (1914-1918)", in the volume: N.C. J. Pappas (ed.): "Antiquity and Modernity. A Celebration of European History and Heritage in the Olympic Year 2004", Athens Institute for Education and Research (ATINER), 2004, pages: 165-178. See also: 1) G. Hardach: "Der Erste Weltkrieg 1914-1918", Deutscher Tachenbuch Verlag, 1973, 2) G.D. Feldman: "Army, Industry and Labor in Germany 1914-1918", Berg second edition, Oxford, 1992, 3) G.D. Feldman: "The Great Disorder. Politics, Economics and Society in the German inflation 1914-1924", Oxford University Press, 1997, 4) N. Ferguson: "Paper and Iron: Hamburg Business and German Politics, 1897-1927", Cambridge University Press, 1995.

economy of Europe. Then the 1929-1933 period followed, when the economic gains from recovery were perished and economic disintegration was again present due to the big crash of the US economy, which created a global economic decline. However the country remained the biggest economy of Europe and entered the Second World War with more machine tools in the secondary sector than those of the US. Actually the most impressive achievement is that even in 1945 there was no shortage of machine tools in the German industry in spite the allied strategic bombing campaign.[4]

After the Second World War and in spite of the defeat, the country quickly recovered and by the 1970s the (West) German economy was the second largest in the capitalist world and again it was the biggest economy in Europe. This was the period of the export oriented "Wirtschaftswunder" (=economic miracle). For reasons of comparison the economy of the former East German state (GDR) was the second largest in the socialist block behind the USSR.[5]

This situation of economic dominance received the first blow in the 1980s. During the first years of this decade Japan, for the first time surpassed Germany in terms of GNP. Thus Japan became the second largest capitalist economy behind the US, but Germany was still enjoying the status of number one economy in Europe.

The unification of the country in 1990 created a huge economic shock. Suddenly, the developed West German economy was united with the problematic economy of former East Germany. This evolution "perished" the non-competitive industrial base of the GDR and lead to unemployment and decrease of living standards in each states and this evolution forced West Germany to "pump" in huge amounts of capital.[6]

The burden of internal problems was just on side of the coin. The other side is associated with external economic pressure from the international environment (globalization / competition from low-cost producers like China / India).

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[4] For the interwar economic evolution of Germany see: Gustav Stopler: "The German Economy 1870 to the Present", New York, 1967, pages: 73-157. For the Second World War evolution see data in: Alan Milward: "War, Economy and Society 1939-1945", Allen Lane, 1977, page 334. For an overall analysis of the German industrial policy during World War II see: Werner Abelshauser: "Germany: guns, butter, and economic miracles", in the volume: M. Harrison (ed.): "The Economics of World War II. Six Great Powers in International Comparison", Cambridge University Press, 1998, pages: 122-176.

[5] For the (West) German economy see: 1) Gerhard Kante: "The German Challenge. Model Germany for Europe?", Nea Synora, Athens, 1981 (Greek edition), 2) Jeffrey Fear: "German Capitalism", in the volume: Thomas McCrew (ed.): "Creating Modern Capitalim", Harvard, 1997, pages: 135-182. For the economy of former East Germany see: Jeffrey Kopstein: "The Politics of Economic Decline in East Germany, 1945-1989", University of North Carolina, 1997.

[6] The first signs of recovery in former GDR started in 1992. It is typical that productivity in 1991 in the former GDR was equal to the 31% of West German productivity, whereas in 1995 it reached the 54.2% of the West German. See analytically: "Facts about Germany", 1996. See also: F. Fitzroy & M Funke : "Skills, Wages and Employment in Eastern and Western Germany", Discussion Paper No.33, Humbolt-Universitat zu Berlin, Wirtschaftswissenshaftliche Fakultat, Berlin, Deutschland, 1994.

Thus in the middle of 1990s the German economic debate is focused in the "Standortdebatte" problem, i.e. the location debate. In the current globalised environment companies are facing increased competition but on the other hand, they possess more freedom, to choose production locations where they can benefit from low labour costs, low taxes or other advantages. Two other aspects are essential: the German welfare state has been criticized as well. The rigidity of the economy and of the labour force, the high wages, the low number of working hours, the high unemployment as well as other social benefits, the high company taxation (Unternehmenssteur) and the excess government regulation / involvement in the economy were considered essential barriers to future economic growth.

In 2003 German GDP amounted to 2,130 billion Euros (around 25% of the overall GDP of the EU). However after the unification Germany's annual average real growth was just 1.5%. Furthermore, the country has been confronted with a consistent high unemployment. The most problematic years were 2001 and 2003. In 2001 the growth rate of the economy was zero and the budget deficit was 2.7% of GDP (close to the 3% limit required by the Maastricht Treaty). In 2001 the insolvency rate was 14% (32,000 enterprises and businesses). By 2003 unemployment had reached 4,5m workers and the country's top companies such as Siemens and banks such as Commerzbank and Dresdner Bank were announcing further redundancies. Between 1999-2003 the country's growth was just 1.3% compared to Ireland (7.6%), Luxembourg (4.1%), Spain (3%).[7]

However during this period there were also positive signs. To illustrate, between 1995-2001 the German industry increased its share in EU car industry from 48,2% to 52,6%. In engineering from 42,3% to 44,4% in the field of manufacturing office machines and IT from 24,9% to 29,7%. In the car industry Germany is first in Europe and third in the globe behind the USA and Japan. In the electronics industry (main investments) in 2002 the US had 32% of 127 projects followed by Germany 17% and Japan 10%. In terms of exporting electrical products the German firms are fourth in the world behind US, Japanese and Chinese enterprises. In the chemical industry Germany is third behind the US and Japan. The chemical industry constitutes the 26% of total EU production followed by France (16%), Italy (13%), UK (11%), Belgium (7%), Spain (7%). In shipbuilding Germany is the second largest commercial shipbuilder in the EU just behind Italy and ranks sixth world wide. The 2003 commercial shipbuilding order book of Germany totals 1.84 million GRT or more than 50 times that of the UK. Germany is the largest EU military export shipbuilder and among the largest and technologically advanced producers in machine tools, iron, steel, cement and its banking industry is also one of the biggest of the globe.

The statistical data for 2004 placed Germany in terms of GDP ranking in the fifth place in the world ($2,271 billion). The structure was as follows: Agriculture: 1%, Industry: 31% and Tertiary sector: 68%. The growth rate was 1,6%, GDP per capita was $27,600, inflation 1,1% and unemployment 10,5%. The public debt was 66% of GDP, whereas the deficit was above the limit of

[7] See: Statistiches Bundesamt, http://www.destatis.de/basis/d/insoltab1.htm and Sinn, H.W. (2003): "Ist Deutschland noch zu retten? ", Econ, Germany, page 69.

Maastricht (-3.7% of GDP).[8] After 2004 healthier growth rates were observed mainly due to the further export boom.

3. Main structural problems of current German business and industry

It is obvious that the current picture of the German economy is mixed. It is a picture of both success, (which illustrates the economic tradition of the past), as well as failure (which illustrates the future challenges).

The strength of the economy is mainly the outcome of its entrepreneurs and businesses. The German economy is characterized by the presence of big businesses which became legends of success in various industries of the international economy, such as: automobiles [Daimler-Benz, Bayerische Motorenwerke AG (BMW), Volkswagen], chemicals [Baddische Annilin und Soda Fabrik (BASF), Bayer, Hoechst] electronics [Bosch, Siemens, Grundig] banks [Deutsche Bank, Dresdner Bank, Disconto-Gessellschaft], mechanical engineering [Krupp-Thyssen], energy [E.ON, RWE (Rheinisch Westfälische Elektrizitätswerk AG)]. These big businesses from the early years have created new managerial structures (M-form enterprises) and achieved economies of scale and scope.[9]

However in the current globalised environment the German big businesses face two immense strategic problems. The first problem is the location of German FDI. In earlier years (i.e. 1988), West German FDI was mainly in Europe (52% with 41% in other EEC countries), 40% was in Americas (with 28% in the US), and only 6% was in Asia (with just 2% in Japan).[10] In late 1990s 60% of German FDI (compared with 44% in 1985) was increasingly in Europe, particularly in Belgium-Luxembourg and the Netherlands. However, an increased trend / movement towards Eastern Europe were occurring. Regions such as North America had a slightly decreased trend 27% (from 33% of 1985). Latin America was also down (from 9% in 1985 to 5%). During that time only 5% of FDI was invested in Asian markets with Japan being the main receiver with 30%, Singapore (12%).[11] Thus in 1995 more than 50% of German FDI was in the EU

[8] See data from the following sites: http://www.uni-kiel.de/ifw/konfer/kkg/2005/kkg71_deu.htm and http://www.answers.com/topic/economy-of-germany

[9] For the development as well as characteristics of big business in Germany see: 1) Youssef Cassis: "Big Business. The European Experience in the Twentieth Century", Oxford University Press, 1999, pages: 24-27, 46-54, 78-101 (for comparative analysis with French and British companies), 2) Wilfried Feldenkirchen: "Germany: The Invention of Interventionism", in the volume: J. Foreman-Peck & G. Federico (eds.): "European Industrial Policy. The Twentieth Century Experience", Oxford University Press, 1999, pages 98-123, 3) A.D. Chandler: "Scale and Scope. The Dynamics of Industrial Capitalism", Harvard University Press, 1990, pages: 393-592. For selected case studies see also: Lothar Gall & Gerald D. Feldman & Harold James & Carl Ludwig Holtfrerich & Hans E. Büschgen: "The Deutsche Bank 1870-1995", Weidenfeld & Nicolson, London, 1995 and Werner Abelshauser & Wolfgang von Hippel & Jeffrey Allan Johnson & Raymond G. Stokes: "German Industry and Global Enterprise: BASF: The History of A Company", Cambridge University Press, 2004.

[10] See: http://reference.allrefer.com/country-guide-study/germany/germany119.html

[11] See: Dicken P. (2003): "Global Shift", Sage Publications, fourth edition, page 67.

and more than 20% in the USA. In the countries of East Asia Germany was not very active.

At the end of 1999 German FDI was 392 billion Euros (four times higher the level of 1989) and 84% was located in industrial countries. The UK had absorbed 40 billion, France 23 billion, Netherlands 21 billion. Low cost producers had absorbed modest amounts. To illustrate, China had absorbed only 4 billion, Mexico 5 billion, Brazil 7 billion. Thus German FDI was heavily concentrated in high labour cost countries. This has been a prime problem of German industry especially for the big businesses since the 50 largest industrial investors accounted for more than half (230 billion Euros) of the total FDI. The hundred biggest investors made up no less than two-thirds of aggregate FDI.[12] During 1999-2002, outward German FDI, increased further. At the end of 2002 the stock of German FDI abroad was 651 billion Euros Still the industrialized countries had absorbed the biggest share: Western Europe: 45%, US:37%, Eastern Europe: 7%, China: less than 1% (although German companies were the biggest EU investors in Chinese economy in 2002). Thus the first problem of German business is the wrong location. Massive investments have been made (and obviously the exit barriers are high) in locations which do not possess any more competitive advantages. In India as well as China German firms are underrepresented and it will take years to benefit in massive scale from the advantages of emerging markets.

The second problem which German big business faces is that they are practically operating in declining industries. The Germans are still leaders but in wrong economic activities. Cars, chemicals, machine tools and electronics were the industries of the second industrial revolution (i.e. the late nineteenth and twentieth centuries). The 21st century and the new globalised environment is a completely different phenomenon with different economic characteristics, consumer needs, and competitive challenges. Micro-electronics, semiconductors, artificial intelligence, environmentally clean and friendly products, ICT business as well as infrastructure, e-commerce (B-B / B-C / C-B), are the future infant industries as well as products. Gradually but steadily, technology is making the capital intensive industries of the era of industrial revolution declining. German firms have invested millions in traditional these industries (cars, chemicals, electronics, machinery) and in high cost locations facing nowadays enormous exit barriers. Furthermore the problem becomes bigger if we consider that these declining industries can nowadays assemble if not produce their products, in the low labor cost countries of South East Asia (Tigers) as well as in the new emerging economies of China and India.

The second important industrial characteristic is associated with the presence of a large number of SMEs which are also very successful in the domestic as well as international economy. These "Mittelstand" SMEs are the backbone of the economy. Their number is around 3.3 million and their employment rate lies at 70% of the total labour force. Almost 2/3 of all German

[12] See: "Structure of German firms, International Capital links at end-1999", Deutsche Bunbesbank Monthly Report, April 2001.

SMEs is 75% owned by the manager or the head of the company. Thus the old family firm (U-firm) where ownership and control is not separated is still present in the German economy. The minimum annual turnover of such company was around 125,000 Euros (2004 data). However under the current globalised economy these Mittelstand SMEs face severe economic pressure which made many of them insolvent or even forced them to engage in international production and thus move to Eastern European countries which by 2004 entered the EU (mainly Czech Republic, Hungary, and Poland).[13]

However, just like the case of big business, SMEs face difficulties as well (i.e. competitive pressures). The most interesting point is that they try facing them with wrong economic strategies. Although an overall cost reduction or cost focus strategy is associated with economic benefit, the most essential strategy for economic success in the 21st century, (i.e. innovation / clusters) is not the primary focus of German SMEs. At this point perhaps even the Italian case is more successful, since the small companies of Emilia Romana region of Italy have created and sustained international competitive advantages via clusters.

Clusters are groups of complementary, competing, and interdependent industries that drive wealth creation in a region, primarily through export of goods and services. An industry cluster is different from the classic definition of industry sectors because it represents the entire value chain of a broadly-defined industry from suppliers to end products, including supporting services and specialised infrastructure. Clusters are industries that are connected by the flow of goods and services, which are stronger than the flow linking them to the rest of the economy, and by geographic concentration of the related industries. By looking at clusters, it is easier to understand the regional economy. In addition it helps identify the areas of the economy, in which a region has a comparative advantage. In this way, it is possible to develop long and short term strategies for the growth of the regional economy.

When there is a positive economic environment and this is associated with cluster development stimulation, the regional economy benefits. In the academic literature, these formations are also referred to as "industrial districts", "industrial clusters", "innovative milieux" and "regional innovative systems".(Rabellotti, 1997);(Brenner 2000). These definitions however should not be used interchangeably. The "milieu" can be broadly defined as a geographical entity open to the outside world but possessing its own know-how rules and connections. It contains specific human and material resources and interacts permanently with it surroundings. The milieu fosters the formation of innovation networks through provision of relevant skills and an implicit contractual framework. In this way regional productive systems do not develop or change only under the influence of the firms, but also under the influence of the environment which enables a group of economic actors to develop projects together.

[13] See: See: Statistiches Bundesamt, http://www.destatis.de/basis/d/insoltab1.htm and Sinn, H.W. (2003): "Ist Deutschland noch zu retten? ", Econ, Germany, page 411.

Michael Porter, the most cited proponent of the cluster approach, defines clusters as follows:

National industrial clusters are formed by firms and industries linked through vertical (buyer/ supplier) or horizontal (common customers, technology etc.) relationships and with the main players located in a single nation/state. Geographic concentration of rivals, customers and suppliers in a region will promote innovation and competitiveness in a cluster. Porter (1990)

Eight years later he complemented the definition:

Clusters are geographic concentrations of interconnected companies and institutions (formal organisations) in a particular field Porter (1998)

Other definitions include:

"Networks of production of strongly interdependent firms (including specialist suppliers) linked to each other in a value adding production chain. In some cases, clusters also encompass strategic alliances with universities, research institutes, knowledge-intensive business services, bridging institutions (brokers, consultants) and customers" (Roelandt & den Hertog, 1999)

Whatever is the proper definition one issue is of immense importance. Although historically clusters existed in German principalities even before the unification of 1871, today's clusters are more complex than those of the past. The modern ones, in which SMEs belong, are associated with innovation and this is something that is not the case of German Mittelstand, which is not well developed.

Until now we have identified two key problems of German industry. In the case of big business this is associated with declining industries and it is located in high cost places, which are not as attractive as they used to be. The second problem that of SMEs is their limited ability to innovate, develop new products or production techniques.

However, there is third a hidden problem in German industry, that of managerial /entrepreneurial culture. German managers are famous for their emphasis in final products of high quality, preference in excellent and well educated labour force, distribution systems and punctuality, vertical integration, social consensus between managers and workers. German banks are well known for their ability to finance high risk investments, strong entrepreneurial innovation and R&D (a trait found almost exclusively in the case of big business). Furthermore, the role of the state was always essential. Direct government intervention assisted the development of business across industries both in the domestic economy as well as the on the sphere of the international economy. All these are excellent traits of a capitalist system which refers to the era of industrial revolution. They are not however the traits of twenty-first century capitalism. This new capitalism is more and more a mixture of Asian values and practices (since

the epicenter of economic activity shifts to Asia) and of Anglo-Saxon values. These values are not fully understood in Germany and some other continental European countries (France, Greece). Therefore, the entrepreneurial mentality creates a barrier to both economic co-operation as well as business growth.

In these three microeconomic oriented problems we have to add government policy. For many years government intervention was strong, creating a protectionist environment and even in certain periods like the interwar years promoting cartels and oligopolies instead of perfectly competitive market structures. The rigidities of the labor market (minimum wage, high benefits, inability to have redundancies) have added to the problems. These phenomena are not new in the international economy. On the contrary similar problems existed in the late nineteenth century Britain. Therefore we now turn our attention to the evolution of British industrial policies and challenges during the 1870-1980 periods.

4a. British industrial policy: A brief analysis of British industrial decay

One of the main traits of the British economy during the 1840-914, period is the following of liberal policies which minimized government intervention and promoted free trade in the economy. This is partially attributed to the fact that Britain did not practically face any threat from other industrial or industrializing nations. Thus in 1913 the average tariff rate was 13% for Germany, 44% for the USA, 84% for Russia, more than 20% for France however Britain had zero tariffs on imported goods.[14] In addition Britain wanted to promote competition and free trade since its economy was considered at the time the "engine" from both demand side (it was a huge market for products),as well as the supply side (the colonies were an abundant source of raw materials as well as cheap labour). A final trait of the British economy of the era was the relatively low public debt. Thus, during 1887-1913, there was a debt increase of just 5% and by 1913 debt was just 27.6% of GNP. Debt repayments absorbed just 10% of government spending at the time.[15]

However turning our attention exclusively to the developments of the secondary sector we can briefly provide the following evolution:

In 1851 in London's Hyde Park the Great Exhibition is taking place, where products from 14,000 enterprises from all over the world are presented. This was the best signal of British industrial might in the middle of the 19th century.[16] At that time Britain was the most developed industrial country. The country had an annual growth rate of 1.8% during the 1780-1801 period and it

[14] See: Botticelli P.: "British capitalism and the three industrial revolutions", in Mc Craw Th. (eds): "Creating Modern Capitalism", pages 51-93 and see also: Paul Bairoch: "European Trade Policy 1815-1914", in the volume: Peter Mathias & Sidney Pollard (eds.): "The Cambridge Economic History of Europe", vol. VIII: The Industrial Economies: The Development of Economic and Social Policies, Cambridge, 1989, page 139.

[15] See: Hew Strachan: "The First World War" (Vol. I: To Arms), Oxford University Press, 2001, page 817.

[16] See: Botticelli P.: "British capitalism and the three industrial revolutions", in Mc Craw Th. (ed.): "Creating Modern Capitalism", pages 51-93.

was 2.7% during the 1801-1831 period.[17] Coal and textiles are the two primary industries which drive industrial expansion.[18] In 1860 Britain is consuming the 27% of global energy production and produces the 49% of global cotton production and the 53% of global iron production.[19] This dominant picture will gradually change since, at the period of 1840-1870 the average annual industrial production had a 3% growth rate whereas, during 1875-1894 the average growth rate was just 1.5%.[20] In spite of the smaller growth rate industrial production during the 1870-1913 will increase by 250%.[21] In 1880 British industrial production was 22.9% of global production; however by 1913 it was just 13.6%. Furthermore, whereas in 1880 Britain controlled 23.2% of global trade, by 1911-1913 this was just 14.1%.[22] Furthermore by 1913, British industrial production was just one third of total European production, whereas in 1880 British industrial production was bigger from the combined production of all European countries.[23]

Worse for Britain, was its inability to compete with the US and Germany in heavy industry which was the rising industry of that time. To illustrate, during the 1905-1909 period just 11 enterprises per annum were bankrupt in the textile sector. However the number for metals was 390 enterprises.[24] In all the leading and new industries of the era (electrical goods, pharmaceuticals, telecommunications, chemical industry, machinery, car manufacturing, steel industry) British firms are behind their German and American counterparts. What was left for Britain was a dominant position in traditional industries of consumer goods (textiles, printing & publishing, food & beverages, shipping, brewery, tobacco, banking and finance). This is a similar situation with the one which the German firms are facing nowadays (i.e. the British were at the time good in the declining industries, not the emerging ones). Coal; was the only exception of this rule.[25]

Another essential trait was British FDI abroad at the time. British overseas investments soar from £300m. in 1850 to almost £4 billion by 1913. During the years 1910-1913, almost four fifths of the credits from British banks are invested abroad. In 1913 total outward British investments (both direct and portfolio) were £3,8 billion. From that amount £1.8 billion (47,3%) was invested in the various locations of the British Empire, £750 (19,7%) million were invested in the USA. A similar amount was invested in Latin America and just £200 m. in Europe

[17] See: Botticelli P.: "British capitalism and the three industrial revolutions", in Mc Craw Th. (eds): "Creating Modern Capitalism", pages 51-93 and especially page 52.
[18] To illustrate, in 1700 coal production was 3m. tons, in 1800 15m, in 1830 30m. in 1870 110m. The production of textiles per company was increased by 13 times between 1792-1850 period.
[19] See: B. Kremmidas: "Introduction in the economic history of Europe, 16th -20th century", Athens, Gnosi editions, 1989, page 276 (in Greek).
[20] See: P. Kennedy: "The Rise and Fall of the Great Powers", Fontana Press 1988, page 293.
[21] See: R. Cameron: "A Concise Economic History of the World", Oxford University Press, Oxford, third edition 1997, page 224.
[22] See: P. Kennedy: "The Rise and Fall of the Great Powers", Fontana Press 1988, page 294.
[23] See: R. Cameron: "A Concise Economic History of the World", Oxford University Press, Oxford, third edition 1997, page 224.
[24] See: Eric Hobsbawm: "Industry and Empire", Penguin Books, fourth edition, 1999, page 165.
[25] See: S.N.Broadberry: "The Productivity Race. British Manufacturing in international perspective, 1850-1990", Cambridge University Press, 2005, pages: 157-209.

(5,2%), from those half were channelled in Russia.[26] Pollard (1985, 1989) has argued that British overseas FDI during the late nineteenth century was harmful for the performance and modernization of British industry since it diverted resources which could have been invested domestically overseas.[27]

It is obvious that during the 1870-1914 period Britain failed to develop the new industries of the era as successfully as the Germans and also had a huge FDI activity in regions (locations) which could not create or sustain competitive advantages.

Finally a managerial / entrepreneurial cultural problem occurred in the British case of the era. This is associated with the absence of M-form (multidivisional enterprises) which at the time emerged in the US and Germany. Contrary to this phenomenon the British enterprises were predominantly family firms with complete absence of any distinction between owners and managers.

The above traits can be regarded as general. They refer to the macroeconomic evolution of the two economies and act in the current framework as case study examples. However a more detailed analysis is needed following the case study methodology. Thus in the next section we refer to microeconomic evolution at the level of the enterprise or at the level of industry. There we shall see that there is limited similarity between the case of Britain and Germany. Specifically we shall see that whereas for the British case we can observe a total industrial failure for the German case we can observe the first signs of industrial crisis. We can also observe signs of industrial re-birth.

4b. British Industrial failure in late nineteenth / early twentieth centuries versus German Industrial crisis in the late twentieth / early twenty-first centuries: Will history repeat itself?

In order to cement our argument we shall provide evidence of industrial entrepreneurial failure of the two cases. This evidence is composed by case-study approaches, across industries. The cases of British failure are illustrated across different sectors. For the case of German firms the case studies illustrate a crisis situation which is not yet developed to total collapse. However signs of weakness are present in the various industries of the German secondary sector.

For the British case of the late nineteenth early twentieth centuries the case of dyes is the most characteristic. They were discovered in Britain in 1856, by a British Ph. D. student, William Perkin. The British could have used it in the textile industry in which they were leaders, but they showed no interest. Then Perkins

[26] See: Harold Rose: "London as an International Financial Centre: A Narrative History", London Business School-The City Research Project, Subject Report XIII, July 1994, page 20. According to Ferguson (1999) in 1850 British foreign investments were £200m. Between 1861-1872, foreign investments were experiencing ups and downs and a constant increase occurred once again in 1890, until 1901 when decline was again observed. During the 1902-1913 British foreign investments were again rising. See: Niall Ferguson: "The Pity of War", Penguin books, 1999, page 35.

[27] See: 1) Sidney Pollard: "Capital Exports, 1870-1914: Harmful or Beneficial?", in Economic History Review, No. 38, second series, 1985, pages: 495-498 and 2) Sidney Pollard: "Britain's Prime and Britain's Decline. The British Economy 1870-1914", Edward Arnold, 1989.

and his German supervisor Professor A. W. Hofman decided to approach the German chemical firms BASF, Bayer and Hoest. The Germans realized the potential of the new discovery and made the necessary investments which managed to reduce the production cost of dyes from 270 M per Kgr. in 1869, to just 9 M per Kgr. in 1886. By 1913 from a global production of 160,000 tons of dyes Germany was producing the 140,000 while British production was just 4,400 tons.[28] The evolution in the field of organic chemistry was not the only failure for British business. In aluminium, copper and other non-ferrous industries the British entrepreneurs failed to adopt the new electrolytic techniques which were followed by their American and German competitors. By 1914 the "British Aluminium Company" was behind the German "Aluminiumindustrie Neuhausen" as well as the US firm "Alcoa".In the case of the steel industry a similar story emerged. Both German and American manufacturers endorsed the new "Bessemer process" for steel production and soon the British could not compete either in Europe or in the American continent. By 1914 the UK was producing 7,963,000 metric tons of steel compared to 14,946,000 metric tons of Germany and 21,337,000 metric tons of the US. In the case of the electrical industry the British were again the followers. By 1914 two thirds of British electrical equipment manufacturing was made by the subsidiaries of US (GE, Westinghouse) and German (Siemens) firms. In the case of the textile industry in 1913 40% of US looms were automatic compared to 1-2% of British looms. At that year 87% of US spindles were modern (i.e. "ring-type"), whereas 81% of British spindles were literally ancient (i.e. "mule-type", a machine developed in 1770s).[29]

For the current German case (1990-2004 period) there are striking similarities. During the last fifteen years the German industry experienced essential failures in various industries which were historically associated with German success. Here we provide case-study evidence from the automobile, electrical and chemical industries.

In the case of the automobile industry the case of BMW (Bayerische Motoren Werke) is typical of the dangers which the industry is facing in the current globalised environment. In 1994 BMW acquired the 80% of the shares of the British firm Rover from British Aerospace and the additional 20% from Honda. With the above deal BMW acquired four production plants in the UK as well as the brand names "Range Rover", "Land Rover", "MG", "MINI".[30] However Rover was experiencing losses and the very strong British pound (£) was creating additional difficulties for the exports. Between 1994-2000, the German managers of the company followed different marketing strategies and situated in different market positions in an effort to create a healthy financial performance. Thus during the above period Rover became a mass-market car manufacturer, a premium manufacturer focused in the niche market of luxury cars

[28] See: Chandler A: "The Enduring Logic of Industrial Success", in Harvard Business Review, March-April 1990, pages 130-140, and R. Cameron: "A Concise Economic History of the World", Oxford 1997, page 247.
[29] See: Alfred D. Chandler: "Scale and Scope. The Dynamics of Industrial Capitalism", Belknap Press-Harvard University, 1990, pages: 239-333.
[30] See: BMW Group (2001), Stationen einer Entwicklung Brochure.

as well as an independent unit of the BMW group.[31] Finally in May 2000 BMW sold Rover. The constant financing of Rover by BMW made totally impossible the achievement of economies of scale or any cost reduction. This was the first essential blow to the company and its international business division / activities. Another setback occurred during the middle of 2003 when BMW experienced a decrease in profits due to the strong Euro compared to the USD ($). In spite of these setbacks the company undertook a massive investment policy with two main new investments one inside Germany in the Leipzig / Halle region (former East Germany) and another one in the Shenyang region in China. From 2001-2005 the global investments of the company in various factories was in the range of 5,4 billion Euros. These investments "saved" the company from the Rover disaster, as well as from the incompetent hedging policy of the 2002-2003 period.

In the case of the electrical industry the case of Grundig is extremely essential. Grundig AG, was established by Max Grundig a leading producer of radio and TV equipment in the 1960s. However, the company failed to follow the developments in the electrical industry which was transformed to microelectronics. In 1984 the company was acquired by the Dutch producer Philips. In the following years the company focused its production on high quality TV sets. However the products of the company could not compete with the new colour TV sets of Sony. In 1997 Philips decided to abandon the company and in 1998 Grundig was sold to a Bavarian consortium due to its losses. During this twenty year period (1978-1998) the workforce of the company decreased from 37,500 employees to just 5,700. In 2001 the company reported the staggering amount of 1,281 million Euro losses. In 2002 various banks decided to withdraw their funding to the company and in 2003 the company was bankrupt.

From 2004 Grundig faced a period of reconstruction and consolidation. First of all the "INDUC AG, Munich", purchased the 100% of the shares of "Grundig Business Systems" (GBS), which was not insolvent. The GBS became a market leader in the field of professional dictation systems in Germany, UK, Scandinavia and Benelux.[32]

The "Home InterMedia System" (HIS) of the former Grundig AG. was taken over by the Turkish Beko Electronik A.S. controlled by the Turkish "Koc Holding" A.S. The "Home InterMedia System" reopened the consumer electronic sections of TV sets, HiFi, Video, CD players, DVD players.[33] The Grundig US facilities was sold to "Eton Corporation" in California whereas the automotive division (Car InterMedia System= CIS) was sold to Delphi and formed the "Delphi Grundig".[34]

In May 2004 the "Grundig Intermedia GmbH" was formed again in Nuremberg (Nürnberg). In January 2005 "Vitelcom Mobile Technology S.A. Spain" and the new "Grundig Intermedia GmbH" entered a license agreement.

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[31] See: Potter N.S. (1999): "The BMW Acquisition of the Rover Group", The University of Birmingham, sited by www.business.bham.ac.uk.

[32] See: www.grundig.com/presse.grundig/index.html

[33] See: www.grundig.com/presse.grundig/index.html

[34] See: http://en.wikipedia.org/wiki/Grundig and http://www.delphigrundig.com/index.php?id=8&L=1

The new business is concentrated on consumer electronics such as CRT, Plasma and LCD-TV sets, Video, HiFi, DVD and CD players.[35] The case of Grungig is similar to that of BMW. Despite the crisis the company managed to overcome it and remain in the business even from a weaker position. The above two examples illustrate the tenacity of German business and the philosophy to overcome crises even when the managers / or owners face extremely difficult situations.

In the case of the chemical industry the example of "Hoechst" is also important. The company is one of the oldest in Germany formed in 1880 and has been one of the main participants in the IG Farben chemical conglomerate. After the Second World War the company started again its operations and entered various markets (chemicals, dyes, fibres, polymers, pharmaceutical, agricultural pesticides, animal health, cosmetics, chemical and genetic engineering). The above huge arrow of activities provided essential know-how to the company and furthermore made her an important supplier for a variety of industries from textiles to pharmaceuticals. However gradually but steadily from 1987-1997 the company decided to concentrate on three core businesses (pharmaceuticals, agrochemicals and industrial chemicals) abandoning all other markets and activities. Furthermore, it was decided that the company should strengthen its position in certain important markets (Asia, Europe and North America) and pull out from regions which was not the major supplier. Thus the company sold all its assets which were related to paints, plastics, industrial gases and organic chemicals. During the same period the company enhanced its position in the pharmaceutical industry via acquisition of various companies. To illustrate, in 1987 the "American Hoechst Corporation", acquired the US chemical "Celanese Corporation" and formed the "Hoechst Celanese Corporation". In 1993, "Hoechst" purchased the 41% of "Copley Pharmaceuticals", a generic drug company. That year Hoechst had revenues of $504 million. In 1995 "Hoechst" purchased the American pharmaceutical company "Marion Merrell Dow Inc." for $7,1 billion. Thus "Hoechst" became the world's second largest drug manufacturer behind the British firm Glaxo, with sales of $10,6 billion. This is an impressive achievement but it was accomplished after the sacrifice of all other activities which were developed across time and with the sale of all its shares in companies like "Uhde", "Riedel-de Häen", "Herberts" etc. In 1999 Hoechst and the French company Rhone-Poulenc S.A. merged and formed "Aventis". In the new company almost 98% of the shares of Hoechst AG were held by "Aventis" and the remaining 2% by institutional shareholders. The role of Hoechst was marginalized and this was demonstrated by the headquarters of the new company which was in Strasbourg, France.

At that same year another merger occurred in the industry between the companies "Sanofi" and "Synthelabo". In 2004 these two big groups formed the "Sanofi-Aventis" company. The new company is the third largest in the pharmaceutical industry behind "Pfizer" and "GlaxoSmithKline", but has surpassed "Merck" as well as "AstraZeneca".

[35] See: www.grundig.com/presse.grundig/index.html

The case studies in spite of their limitations demonstrate that the German business and industry has entered a period of crisis which can lead to failure if not faced correctly. The story of BMW demonstrates how FDI can lead to crisis and also demonstrates the importance of hedging strategies in order to face currency (foreign exchange risk). BMW was able to recover thanks to its immense investments made in other plants all around the globe.

The story of Grundig in spite of its re-birth demonstrates the inability of the firm to move to micro-electronics and to compete with the Japanese high technology industries (Hitachi, Matsushita, Toshiba, NEC, Mitsubishi Electronics, Fujitsu, Sony, Sanyo Electronics, Sharp) that have increased their industrial plants during the critical 1975-1994 period from 285 in 1974 to 689 in 1994. The industrial plants inside Japan were increased by 70% (from 211 to 354). However the industrial plants outside Japan increased by 450% (from 74 to 335). Form those 335 80 were located in North America, 64 in the EU and 163 in East Asia. The remaining was in Latin America and Africa.[36] Thus the Japanese story demonstrates that assembly plants were quickly shifted to low cost countries. This was not the case for Grundig and other electrical industries which suffered from the competition of Chinese, US and Japanese firms.

The story of "Hoechst" demonstrates the constant German industrial decline. The company at the beginning had to sacrifice most of its activities and concentrate in one core business. Later it had to merge with a French company in order to survive and later merge again with another conglomerate. It was obvious that the company could not compete even when it gathered all its strength in the segment of pharmaceuticals and abandoned all other activities.

These crises which in the cases of Grundig and of Hoechst can be regarded as essential if not complete failures occurred in two industries (electronics and chemical) in which the Germans hold traditional competitive advantages. However the two firms perished (one via merger the other was bankrupt and was reconstituted).

Finally, the difference of entrepreneurial mentality between the Germans and the current dominant Anglo-Saxon rationale is best illustrated in the case of Vodafone-Mannesmann take over. In 1999 the British mobile telephone operator Vodafone Group PLC acquired the American firm "AirTouch Communications" for $60,3 billion, and formed the "Vodafone- AirTouch PLC". In the year 2000 the new company acquired the Spanish telephone operator "Airtel SA" for $14,8 billion as well as the whole German Mannesmann group for the astronomical amount of $202,8 billion. In order to recoup part of the sum paid for the German conglomerate, the British management started to sell various assets of Mannesmann like paintings by Picasso and Nolde, sculptures as well as wood panels and antiques. The German side re-acted accusing the British for lack of culture and inability to understand or respect the company's history. The above illustrates not only the difference of business thinking and ethics but also the

[36] See: Masahisa Fujita & Ryoichi Ishii: "Global Location Behaviour and Organisational Dynamics of Japanese Electronics Firms and their Impact on Regional Economies", in the volume: A. Chandler & P. Hagstrom & O. Solvell (eds.): "The Dynamic Firm. The Role of Technology, Strategy, Organization and Regions", Oxford, 1998, pages: 343-383.

inability of the German side to continue to control one of the bigger brand-names of German industry.[37]

5. Conclusion

From the above we can observe striking similarities between the two cases. The current German business has characteristics similar to those of UK in the late nineteenth, early twentieth centuries. Currently German firms fail to develop and sustain competitive advantages based on new products and technologies of the twenty-first century. The majority of German outward FDI is concentrated in geographical regions which also face industrial decline. Finally German managers in spite of their previous successful entrepreneurial culture seem unable to adjust to the new highly complex and volatile competitive environment of the twenty-first century. On the other hand we must always remember that German entrepreneurs had historically to face extremely unfavourable conditions of war, reparations, and hyperinflation, war again, competition, shortage of raw materials, etc. In spite of these external harmful factors they were able to create and sustain competitive advantages. From the case studies it was evident that German businesses which traditionally hold essential competitive advantages across different industries nowadays collapse or face crises either from internal weaknesses or external threats.

Therefore it remains to be seen if during the twenty-first century the German case will have the similar fate with that of post Victorian Britain. If another glorious chapter of industrial evolution and performance will terminate and if new forces will prevail, or if once again the German industry will adjust to new circumstances and sustain its glorious dominant position.

[37] For the case of Vodafone-Mannesmann see: G. A. Petrochilos: "Managerial Economics. A European Text", Palgrave, Macmillan, 2004, pages: 387-388.

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