Ralf Banken

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Summary

Border-crossing investments, mergers and acquisitions of multinational corporations are not a feature of entrepreneurship in the modern globalized world only. As early as in the late 19th century, foreign investments and co-operations with firms abroad were of great importance for the economic development of Western Europe. International business activities in the coal-mining sector and iron and steel industries have been the object of several historical studies. Most of them, however, examined bilateral relations, for example the investments of mining corporations from the Saar and Ruhr in Lorraine after the war of 1870/71. In the present paper, previous research will be expanded by choosing a larger spatial reference and a new level of the enterprise, namely, the region. The mutual investments and mergers in all important mining regions in France, Belgium, Luxembourg, the Netherlands and Germany will be examined and thus the real degree of their mutual integration will be clarified.

In conclusion, the paper will discuss the causes of the growth of supra-regional business integration since the 1890s. Essentially, mutual delivery agreements, the geographical proximity of the mining regions, and considerably improving means of transportation made increasing business integration possible. At the same time, competition among enterprises and mining regions intensified since 1890/1895 due to progressing business concentration and the cartelization of several markets within
the region. Both the competition for a secure and efficient production of raw materials and initial products as well as for reliable sales of semi-finished products at stable prices advanced the mutual integration of businesses. Only after 1905, the purely economic reasons for supra-regional investments and integration in the Western European mining regions became more and more mixed with the demands of national policies. However, these could only impede, but not stop, the accelerating process of business integration before WW I.
1. Introduction

In major business, investments and mergers of major corporations across national borders are no new phenomenon of today's globalized world with its multinationals. Rather, even before the First World War, foreign investments and mergers with firms abroad were significant features of the economic development of Western Europe.\(^1\) Border-crossing enterprise in the coal mining and the iron and steel sectors has been the object of a number of historical studies before.\(^2\) German historians focused especially on the analysis of investments made by mining corporations from the Saar and Ruhr in Lorraine after 1870.\(^3\) French historiography, however, went farther and examined in detail all investments of French and German mining corporations between 1870 and 1914 in the context of the German-French political relations.\(^4\) In this article, I want to broaden the previous discussion by choosing a larger area of reference and a new level of enterprise, namely the regional one. For if one examines not only the foreign investments of the mining industry between France and Germany before 1914 and the co-operation between the Ruhr and the *minette* regions, but also analyses the investments and mergers in all important West European mining regions of the time, then by the choice of this larger area of reference and a regional approach, the true extent of mutual integration becomes clear. Apart from the investments made by corporations from the Ruhr and Saar in the *minette* regions of Lorraine, .

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Ruhr enterprises also placed investments in the mining regions of Belgium, Northern France, and Germany. Enterprises from the Saar region, from Luxembourg and the German as well as French part of Lorraine again made investments in the Ruhr region or around Aachen, and also in Belgian and Dutch coal mining areas. Finally, companies from the region around Aachen or from Belgium were also active in Lorraine and Northern France. In what follows, this integration and co-operation between the German centres of heavy industry in the Ruhr, Saar, and Aachen regions, the French regions Nord and Pas de Calais, the Belgian regions of Charleroi, Centre, Borinage (Mons), Liège and Campine, the Dutch coal mining area of Southern Limburg, and finally the minette region of Lorraine and Luxembourg will be described. In this analysis, integration of enterprises is understood both as direct investments made by companies from other regions and mergers, strategic shareholding, or joint ventures between companies of the coal and steel sector. In the conclusion, the question of the causes of increasing trans-regional delivery agreements, direct investments, mergers, and joint ventures will be addressed.

2. Trans-regional corporate investments until 1890

Although trans-regional co-operation and integration of the West European coal and steel regions increased considerably from about 1895 until the First World War, corporate relations and delivery agreements had been in existence for a long time. As early as in the 1840s, French and Belgian private capital poured into the developing coal and iron industries in the major regions of the Ruhr, the Saar, and around Aachen, for example into the construction of the Phönix iron corporation, the Burbach ironworks, and several coal mining companies in the Ruhr region during the 1840s and 1850s. A common feature of these early foreign capital investments was that only in very few cases the companies were directly submitted to a facility in the home countries of the investors or were connected via shares to such a facility. This substantial transfer

5 The integration of enterprises from the German, French, Belgian, Dutch, and Luxembourgeois coal, iron and steel regions (collieries, iron ore mines, blast furnace works, steelworks, rolling mills) were examined on the basis of data collected by the author with special regard to the regional co-operation and integration. The database is still provisional and will be further completed. In this article, I will not attempt to describe the totality of corporate integration in the regions examined. This will be the task of a later study. Rather, I will point out the fundamental features of the development by citing exemplary cases. For the sake of brevity, this article does not deal with the numerous relations between West European enterprises and the coal, iron, and steel industry of Britain, Scandinavia, and Southern, Central, and East Europe.


7 The Burbach ironworks was one of the few examples. Since 1872, it owned a blast furnace works in the Luxembourgeois
of capital, technology, and modern business organization was an important contribution to the
growth of the German coal and iron regions from 1840 on.\footnote{R. Fremdling, Technologischer Wandel und internationaler Handel im 18. und 19. Jahrhundert. Die Eisenindustrie in Groβbritannien, Belgien, Frankreich und Deutschland. Berlin 1986, p. 372-377; Seeling, p. 146; M. A. V. Devos, Kapitalverflechtung in der Montanindustrie zwischen dem westlichen Deutschland und Belgien von etwa 1830 bis 1914. Bonn 1986, p. 310-320. Alfred Reckendrees from the University of Cologne is working on a study on the emergence of the factory system and economic learning processes that includes an evaluation of the transfer of Belgian capital and technology into the Aachen region before 1850.} However, because parts of this capital were withdrawn, in the long run only a few of these enterprises remained in foreign
possession. German capital took over numerous collieries from Belgian and French companies in
the Ruhr, such as the Société Anonyme Belge-Rhénane de la Ruhr in 1873, or the Société
remained fully in the possession of foreign shareholders until World War I.\footnote{For example, the Burbach ironworks in the Saar region. Cf. Banken Take-Off-Phase und Hochindustrialisierung, p. 302-337; Devos, p. 207-219.}

Before 1890, capital flowed the other way as well, from Germany into other European countries.
As early as in the late 1840s, German iron manufacturers constructed ironworks in the \textit{minette}
region of Lorraine, if however on a clearly smaller scale than Belgian or French companies.
These were the ironworks of the brothers Puricelli at Novéant, of \textit{Karcher & Westermann} at Ars-
remained low, however, and connections with German facilities were also not established.

On the whole, the investments made by coal and iron enterprises in foreign mining regions before
1890 had little significance if compared to later ones. In all countries, only very few companies
owned facilities in more than one region. And even where foreign investments were made, they
were mostly limited to the purchase and operation of ore mines, as in the case of the \textit{Gutehoffnung} ironworks, the \textit{Rheinische Stahlwerke} steelworks, and the \textit{Phönix AG} for mining
and iron smelting in Lorraine.\footnote{Cf. D. Döring, Die deutschen schwerindustriellen Interessen in Lothringen bis 1914. Diss. Frankfurt am Main 1971, p. 100-101.} Among the few corporations that had established trans-regional
companies that had established trans-regional connections before 1890, the best-known and most significant were the \textit{Saareisenwerke} (Saar ironworks) which erected their blast furnaces in the \textit{minette} region from 1870 on.\footnote{The Burbach ironworks at first erected its blast furnace works at Esch in 1871, in co-operation with the Luxembourgeois firm. In 1881, Dillingen followed with the branch facility at Redingen. The blast furnace works at Ückingen owned by the Neunkirchner
Wendel family, which operated, apart from their parent facilities in Lorraine, a cokery, a colliery, and an ironworks in the Saar region. Further examples were the Phönix AG with ironworks in the Ruhr region and around Aachen, and a few Belgian iron manufacturers who invested in the minette region of Lorraine, for example the Société des Aciéries d’Angleur at Deutsch-Oth 1881 and the company La Providence in Rehon 1867.

3. The delivery relations of the West European mining and iron regions, 1850-1890

Apart from the direct investments, before 1850 there existed also delivery connections between the different coal and iron regions. Since the 1840s, the Saar ironworks processed pig iron from Luxembourg as well as minette iron ore from Lorraine, but also iron ore and pig iron from the mid-Rhine region and from the Eifel. The ironworks of the de Wendel family in Lorraine and other companies stoked their puddling furnaces and their coke furnaces at Hayange und Moyeuvre with coal and coke from the Saar region even before 1820. Delivery agreements existed between other regions as well. In the Ruhr region, before 1850 iron ore from the Lahn-Dill area and pig iron from the Siegerland were processed, and Belgian pig iron was used both in the Ruhr and in the region of Aachen. The coming of the railway led to a considerable intensification of delivery connections between the coal and iron regions between 1850 and 1890. After 1870, the iron works in the minette region used mainly coke from the Ruhr in their blast ironworks started production in 1890, and the Carlshütte ironworks of the Völklinger ironworks in 1898. Cf. Banken, Take-Off-Phase und Hochindustrialisierung, p. 302-337 und 337-446.

The economic engagement of the de Wendel family at the Saar began with the erection of the Stiring blast furnace and puddling works between 1846 and 1848, which was followed by the operation of a cokery at Hirschbach-Dudweiler in 1852 and of a colliery at Kleinrosseln/Petite-Rosselle in 1856. R. Banken, Die Industrialisierung der Saarregion. Die Frühindustrialisierung, Stuttgart 2000, p. 263-264; Banken Take-Off-Phase und Hochindustrialisierung, p. 302-337.


furnaces, and less and less coke from the Saar. In the late 19th century, coke from the Ruhr was also used at least partly for smelting iron at the Saar, in Belgium, and in Northern France. The *minette* iron ore in turn was the basis for the production of pig iron by the iron industry at the Saar and in Belgium. In parts, it was also used in the blast furnaces of the Ruhr and in Northern France. All these regions received not only iron ore, but also considerable amounts of pig iron from the *minette* region. Apart from deliveries of coal and coke from the Ruhr and of ore and pig iron from the *minette* as the two most important raw materials and semi-finished products, the delivery of high-quality ore from smaller mining areas like the Siegerland and the Lahn-Dill region into the Ruhr, deliveries of coke and pig iron from Britain, and the far more substantial flows of iron ore from Sweden and Spain into numerous mining regions of the European continent were until 1914 a continuous phenomenon that was determined by economic development and technical and tariff factors. On the whole, these deliveries intensified from 1870 on, and after 1890 led more and more frequently to trans-regional corporate relations and cooperation within the West European mining and steel industry.

4. Trans-regional direct investments in the West European mining and iron regions, 1890-1914

Until 1895, not only the national, but also the regional border-crossing investments in coal mining and the iron industry were limited. From 1890 on, a wave of investments abroad and of mergers spanning countries and regions set in that lasted until 1914. These mines and works were to the greater part erected and operated by firms of the iron and steel industry. The purchases of iron mines and iron concessions in the *minette* region of Lorraine and Luxembourg by the

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24 Apart from shipments of British pig iron to Germany from the 1830s to the 1870s – afterwards, most imports of pig iron went only to smaller foundries –, the Rombach ironworks AG founded a cokery at the Belgian North sea coast in Zeebrügge and operated it with British coal. Furthermore, the Eastern French ironworks Société des Aciéries de Longwy, Marc Raty & Cie. (Saulnes), de Saintignon & Cie. (Longwy), and Senelle-Maubeuge decided to erect a cokery at the mouth of the river Schelde, that was to secure the supply of the plants in the French part of the *minette* region with British and German coal. On the imports of iron from Britain cf. Fremdling, Technologischer Wandel, p. 215-234 and 307-352; and Feldenkirchen, p. 58-64. On Rombach and the *minette* ironworks: O. V., Rombacher Hüttenwerke. in: Stahl und Eisen 14 1911, p. 2080-2081; M. Ungeheuer Bedeutung der französischen Kohlenindustrie und die Kohlenfrage in Frankreich. in: Technik und Wirtschaft 8 1915 8. H., S.305-321 und 352-369, hier S.367.


corporations from the Ruhr and Saar are known. Only iron companies from the Saar and from Belgium also built up pig iron works in this region before 1890. Starting in 1890, and increasingly after 1900, a rush for mining concessions in the minette region (which until 1914 was divided among four states\textsuperscript{27}) set in that this time, however, more often resulted in the erection or take-over of blast furnace works or the construction of steel and rolling mills. Not only the Ruhr corporations, which are the best-known examples, participated in these transactions, but also iron companies from the Aachen region\textsuperscript{28}, from the Belgian mining regions\textsuperscript{29}, and companies from Northern and Central France.\textsuperscript{30} These transactions took diverse forms: apart from a loose trans-regional co-operation\textsuperscript{31}, the construction of completely new blast furnaces and steelworks\textsuperscript{32}, or the expansion of blast furnaces by steel works\textsuperscript{33}, mergers\textsuperscript{34} or shared interest agreements\textsuperscript{35} were the most significant forms.

\textsuperscript{27} Before the First World War, the minette region stretched across four countries: the Southern part of Luxembourg and a small South-Eastern corner of the Belgian province of Luxembourg, and the Eastern part of German Lorraine. In the French part, the minette region was divided into the Longwy and Briey basin and the Nancy basin. In spite of the national borders, the minette region is regarded as a coherent economic region. On the concept of regional economic history cf. Banken, Frühindustrialisierung, p. 14-43; on the Luxembourgeois and Lotharingian parts of the minette region: van de Kerkholt, p. 225-275.


\textsuperscript{30} Schneider & Cie., for example, together with de Wendel founded a Gilchrist-Thomas steelworks at Le Creuzot. The Cie. des Forges de Châtillon, Commeny et Neuves-Maisons, which owned works at at Montlucon, Commeny, and Sainte-Colombe-sur-Seine, furthermore erected an integrated steelworks at Neuves-Maisons (Département Meurthe-et-Moselle) in 1903. The company La Marine from St. Etienne constructed an integrated steelworks at Homécourt in 1901. Moreover, many iron ore mines and ore concessions were possessed by iron-making enterprises from within France. For example, the shares of Mines de Joudreville from Paris were owned by the Société des Hauts-Fourneaux de la Chiers and by Société de Commeny Fourchambault-Decazeville. Cf. R. Sédillot, La Maison de Wendel de Mil Sept Cent Quatre à nos Jours. Paris 1958, S 237-241; C. Beaud, Schneider, de Wendel et les Brevets Thomas. Le Tournant Technique de la Sidérurgique Francaise (1879-1880). in: Cahiers d’Histoire XX 1975, p. 363-378; M. Ungeheuer, Die Eisenindustrie des Centre, der Hauptsitz der französischen Kriegsindustrie. in: Technik und Wirtschaft 10. Jg. 1917, S.401-412, hier 404 und 406; O. V. Die Industrie im besetzten Frankreich. München 1916, p. 28; R. Bühler, DieRoheisenkartelle in Frankreich. Ihre Entstehung, Entwicklung und Bedeutung von 1876 bis 1934. Zürich 1934, p. 6-10.


\textsuperscript{33} The transformation of blast furnace works into integrated steelworks was initiated by Gelsenkirchener Bergwerks AG with its blast furnace works at Esch in Luxembourg. The situation was similar with the Rombach ironworks owned by Carl Spaeter, to which a
In the Ruhr region, mining and steel corporations from other regions purchased mostly collieries. For example, in 1914 the Gebr. Stumm GmbH from Neunkirchen, that owned the ironworks at Dillingen, Rudolf Böcking GmbH, owner of the Halberg ironworks, and Les Petits de Francois de Wendel & Cie. all owned working collieries in the Ruhr. Furthermore, after 1899 they and the firms Aachener Hütten-Aktien-Verein, Röchlingsche Eisen- und Stahlwerke GmbH, S. A. des Aciéries de Micheville, and Société Anonyme des Hauts-Fourneaux et Fonderies de Pont-à-Mousson had purchased large coalfields that had not been opened yet, for instance on the left bank of the lower Rhine near the town of Moers. The Moers coalfields then had not been developed yet, but mining operations started in parts before the First World War. However, hardly any coal and iron company from outside the Ruhr invested in the iron and steel industry of the region.

After 1900, the Saar mining region attracted only a few investors from other regions. The main reason for that was extended state ownership of the coal mines. In the Lorraine part of the region, the two Ruhr industrialists Thyssen and Stinnes took over the mining firm Saar- und Mosel-Bergbau AG in 1900. The firm had been operated by French and Belgian capital owners and was

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34 Apart from the merger of Luxemburger Bergwerksgesellschaft and Saarbrücker Eisenhüttengesellschaft with the family-owned enterprise Metz & Co from Luxembourg, and with Eisenhütten-Aktien-Verein Düdelingen that resulted in the establishment of Arbed in 1911, and the merger between St. Ingberter Eisenwerk owned by the Krämer brothers and Rümelinger and Öttinger Hochofengesellschaft from the minette region in 1905, further examples are the merger Hütten-Aktien-Verein Rothe Erde from Aachen with the Luxemburger Hochofen-Gesellschaft Esch in 1890 and the purchase of S. A. des Hauts Fourneaux, Mines et Usines d’Audun-le-Tiche in 1901. The latter was taken over in 1905 by the Ruhr corporation Gelsenkirchener Bergswerk AG. Cf. Banken Take-Off-Phase und Hochindustrialisierung, p. 302-337; Niewelstein, p. 180-184; Wiel, p. 250.


36 In 1901, Gebr. Stumm together with Halberger Hütte purchased the Ruhr colliery „Minister Achenbach“ near Dortmund. Apart from that, the two firms owned in combination with Dillinger Hüttenwerke further coal fields near Lünen since 1900, where mining started later. Banken Take-Off-Phase und Hochindustrialisierung, p. 302-337.

37 The family-owned corporation de Wendel started mining operations at its colliery „Heinrich Robert“ near Hamm in Westphalia in 1902, and further owned in combination with several other French iron-making firms (Aciéries de Micheville, Pont-à-Mousson) a larger share of the coal concession „Friedrich Heinrich“ near Karp-Linfort, which was opened since 1907. Sédillot, p. 250; Devos, p. 138; Wiel, p. 175; Gebhardt, p. 188-189 and 327-329; Poidevin Les Relations Économiques, p. 230-232 and 537.


expanded considerably by Thyssen and Stinnes until 1910. The merger of Luxemburger Bergwerks- und Saarbrücker Eisenhütten-AG with Le Gallais-Metz & Co. and S. A. des Hauts Fourneaux et Forges de Dudelange into Société Anonyme des Aciéries Réunies de Burbach-Eich-Dudelange, short Arbed, confirmed and institutionalized the close co-operation of these firms from different regions.

In the old Belgian mining regions (Bourinage, Charleroi, Centre, Liège), investments of corporations from abroad occurred rather seldom. We know, however, about Thyssen's gradual take-over of the Belgian iron company Société Métallurgique de Sambre et Moselle, S. A. that started in 1903, and the merger of S. A. des Hauts Fourneaux d’Athus in the Belgian minette region with Société de Grivegnée from Liège. More frequent were take-overs of Belgian companies by corporations from different Belgian coal and iron regions. Especially the major steel corporations, as S. A. John Cockerill at Liège or Société Anonyme d’Ougrée-Marihaye, acquired coal mining firms and iron companies.

Especially Belgian firms invested in the Northern French mining region in the departments Nord and Pas de Calais, but also firms from the French part of the minette region of Lorraine and from central France. After 1900, the demand for coal of the Eastern French iron industry around Longwy and Briey before the First World War led to numerous trial boring and the discovery of six new coalfields in the coal basin of Northern France. Several companies were founded for the purpose of exploiting these coal deposits. The Compagnie des Mines de Gouy-Servins was founded by the Société de Recherches de Fresnicourt, which in turn was owned mainly by a number of ironworks from the East of France, such as Pont-à-Mousson or Aciéries de Longwy. Another company was the Société des Mines de Vimy et Fresnoy, which had been established by Aciéries de France and the ironworks of Chatillon-Commentry. In 1911, the Compagnie des Mines de Fresnicourt was established in order to exploit the mining concessions at Fresnicourt and Ablain-St.-Nazaire. The shares of this company were held by Aciéries de Longwy, Compagnie des Forges et Aciéries de la Marine et d’Homécourt, Senelle-Maubeuge, Garcy, de Wendel and de Saintignon. Furthermore, the Compagnie de St.-Nazaire was founded by the iron-making firms Aciéries du Nord et de l’Est, Denain-et-Anzin, Micheville, and Pont-à-Mousson. Furthermore, the Northern French coal mining company Société des Mines de
Longwy and Briey led to frequent trial boring drilling and the discovery of six new coalfields. These were exploited by two French companies owned mainly by several iron companies from Eastern France, such as Pont-à-Mousson or Société des Aciéries de Longwy.\textsuperscript{47}

In this integration process, the resources of the smaller mining regions became interesting for the trans-regional companies, too. It can be clearly recognized that the region around Aachen, whose growth after its rapid development between 1830 and 1855 had considerably slowed down in comparison to the other West German mining regions, became the target of investors from without after 1900. In 1913, for example, Arbed factually took over the management of Eschweiler Bergwerksverein by way of an interest agreement.\textsuperscript{48}

Arbed not only controlled its capacities for iron production, but could also make use of its coal mining capacities in the Aachen region for its own interests, thus becoming more independent from the expensive Ruhr and Saar coke. Yet also the de Wendel corporation\textsuperscript{49}, the Röchling family in combination with the French company Acéries de Longwy\textsuperscript{50}, and the French iron companies Michevielle, Pont-à-Mousson, and Compagnie des Forges et Aciéries de la Marine et d’Homécourt\textsuperscript{51} invested in new collieries in the Aachen region. Finally, Aachener Hüttenverein merged with Gelsenkirchener Bergwerks AG in 1905.\textsuperscript{52}

In a similar way as in the region of Aachen, the major corporations took over furnaces, ironworks and collieries in other smaller regions, for example in the Siegerland\textsuperscript{53}, in the area of Düsseklorf\textsuperscript{54}, in the Eifel mountains\textsuperscript{55}, or in the Lahn-Dill-area.\textsuperscript{56} Furthermore, several major

\textsuperscript{47} O. V. Industrie im besetzten Frankreich, p. 1-23.

\textsuperscript{48} In 1911, Arbed concluded an agreement of interest with Eschweiler Bergwerks Verein that submitted the complete management of the Eschweiler plants to Arbed. Thus, apart from its own plants, Arbed controlled not only ironworks at Eschweiler and Cologne-Ehrenfeld, but also several collieries near Aachen. Cf. Arbed (Hg.), Aciéries Réunis de Burbach-Eich-Dudelange. Un Demi Siècle d’Histoire Industrielle, Luxemburg 1964, p. 48; O. Stegmann, Der Eschweiler Bergwerksverein in seiner neuesten Entwicklung. Aachen 1927, p. 7-10 und 17-21; M. Ungeheuer Bedeutung der französischen Kohlenindustrie, S.367.

\textsuperscript{49} Banken Take-Off-Phase und Hochindustrialisierung, p. 302-337.

\textsuperscript{50} Banken Take-Off-Phase und Hochindustrialisierung, p. 302-337.

\textsuperscript{51} Together, the three French enterprises purchased a coal field from Eschweiler Bergwerksverein in 1910, and one year later founded the colliery Gewerkschaft Carolus Magnus near Aachen. Poidevin Les Relations Économiques, p. 538-540.

\textsuperscript{52} Wiel, p. 250; Devos, p. 122.

\textsuperscript{53} For example, Phönix purchased the ore mines at Bautenberg and Heinrichsglück in the Siegerland region in 1910. R. Utsch, Die Entwicklung und volkswirtschaftliche Bedeutung des Erzbergbaues und der Eisenindustrie im Siegerland. Nachdruck Göttingen 1913; Kreutzti, p. 112.

\textsuperscript{54} The Thyssen corporation, e. g., in 1906 purchased the steelworks Oberbiker Stahlwerk AG near Düsseldorf, and Phönix
mining and steel corporations invested in the exploitation of newfound deposits of raw materials. Examples are the collieries of the de Wendels in Dutch Limburg, or the colliery Gewerkschaft Carolus Magnus that was erected near Aachen by French iron companies in 1911. The newfound coal deposits in the Belgian district of Campine, too, were developed by the investments of external corporations, among them Micheville, Homécourt, and Pont-à-Mousson, that owned shares in Belgian collieries. The same was true for the aforementioned coalfields on the left bank of the Lower Rhine near Moers, which were bought by Belgian and French investors in 1906, or for iron ore mines in Normandy that were bought for a projected blast furnace and steel plant of Thyssen.

On the whole, the extent of investments in the individual regions after 1890 depended on the availability and the quality of raw materials, and on the property rights determined by the proprietary order and market structures of the targeted region. The Saar region is a good example for the latter aspect: there, investments in or take-overs of collieries were possible only to a limited extent because the existing owners, the Prussian state being the most prominent among them, owned more than 90 per cent of the exploitable coal fields in the German part of the region and were not willing to sell them. External companies therefore were hardly able to make investments in Prussian or Bavarian state mining at the Saar. In the parts of the minette region that lay in Belgium, Germany, or Luxembourg, the mining concessions for iron ore had been

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56 Shortly before the First World War, Belgian steel corporation Ougree-Marhaye acquired shares in Gewerkschaft Quint, which operated an ironworks at the Moselle. Cf. Landesstelle Belgien Hauptindustrien, p. 222.

57 Although many iron and steel corporations from the Ruhr acquired iron ore mines in the Lahn-Dill area long before 1890, competition for a secure supply of iron ore led to purchases of ore mines in this region after 1890, too. Thyssen’s iron-making firm Aktiengesellschaft für Hüttenbetrieb at Duisburg, for example, purchased mines in Nassau and Wied from Konkordiahütte vorm. Gebr. Lossen AG at Bendorf in 1907. Krupp, in turn, in 1906/07 bought Fürstlich-Solms-Braunfelssche iron ore mines, the mine „Einigkeit“ and some more mines in the territories of Hesse and Waldeck. Feldenkirchen, p. 335; Vorstand des deutschen Metallarbeiter-Verbandes Die Schwereisenindustrie, p. 194-195.

58 The first shaft of the mine „Oranje Nassau“ was sunk in 1893, and since 1908 was in the possession of the de Wendel corporation. Cf. W. Disko, Die Entwicklung des holländischen Steinkohlensektors in der Nachkriegszeit und ihre Auswirkungen auf den rheinisch-westfälischen Steinkohlenbergbau. Diss. Emsdetten 1937, p. 6-7 und 10-13; Stediliot, p. 250-251.

59 Siehe Anmerkung 51.

59 E. g., the French iron-making firms Micheville, Homécourt and Pont-à-Mousson jointly owned the two collieries at Beringen and Eisden, whereas the Schneider-Le Creuzot corporation held a share of 40% in the mining company Winterslag. Arbed was the leading shareholder in the coal mining company Zolder. Landesstelle Belgien Hauptindustrien, p. 44-54.

60 Poidevin Les Relations Économique, p. 229 und Gebhardt, p. 188-193.

almost completely granted to iron manufacturers by 1890, and only a few concessions were exchanged or bought after that date. It was different in the French part of the minette region, where numerous and large mining concessions were granted after 1890. New collieries could be erected or bought as well in the until then undeveloped Northern part of the Ruhr region, that is the zone around the river Lippe and on the left bank of the Rhine near Moers, in parts of the Aachen region, and also on the newfound coal fields in the Dutch region of Limburg and the Belgian district of Campine. Otherwise, company take-overs or mergers with mining and steel companies were important means for expansion into different regions, as can be illustrated by Thyssen’s move into Sambre et Moselle.62 If the erection of new facilities or the acquisition of firms and pants were not possible, then the only ways left were a take-over or co-operation, e. g. in the form of joint ventures. What is more, the size of the regions, their growth, and the financial capacities of the resident companies determined the direction the investments or take-overs would take. Since the corporations from the Ruhr were significantly larger than their competitors in other regions, and the Ruhr region itself stood out from all other continental iron and coal regions in terms of sheer size and financial capacity, Ruhr companies made more frequent and more massive investments into other regions than their competitors. On the other hand, the most frequent and most substantial external investments went into Lorraine's and Luxembourg’s share of the minette region because this region offered the greatest growth and the best prospects before 1914 and, as was said above, its proprietary structures were comparably favourable for new investments and for company take-overs.

5. Causes of the growing integration of West European coal and iron regions

The economic causes for the increase of trans-regional investments and corporate combinations after 1900 were manifold. The most important reason for enterprises to engage in activities outside their home regions was their attempt to secure their own supply of low-priced raw materials and semi-finished products. The growing demand for coking coal, coke, iron ore, pig iron, and semi-finished steel products in the course of the dynamic and prolonged boom from 1895 on met increasingly consolidated and cartelized structures with high prices in all countries on the supply side of the market for raw materials and semi-finished products. Through the design of most cartels, blast furnace and steel works were able to obtain their fuel for a markedly

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cheaper price from annexed collieries.\textsuperscript{63} The purchase of iron works provided major mining corporations with a secure customer base for better prices, too.\textsuperscript{64} For ironworks, the acquisition of an own source of pig iron ensured a constant supply at a low and predictable price. The ironworks at St. Ingbert in the Saar region, which were owned by the brothers Krämer, faced a serious solvency crisis in 1901, because at that time the price for finished iron products had considerably dropped while the firm was bound to a high price for pig iron by older contracts with the pig iron cartel of Lorraine.\textsuperscript{65} As a consequence of this crisis, in 1905 the \textit{Kraemer AG} merged with the \textit{Rümelinger und Öttinger} blast furnace works from the \textit{minette} region and formed a new integrated company, the \textit{Rümelinger und St. Ingberter Hochöfen und Stahlwerk AG}. Vertical concentration in the iron and steel industry was a feature not only of the Ruhr region, but could be observed in other coal and iron regions, too. The policy of the Rhenish-Westphalian coal syndicate and of the cartels in other regions and countries, such as the Belgian coke syndicate\textsuperscript{66} or the pig iron cartel of Lorraine and Luxembourg and its equivalents in France, the “Comptoir Métallurgique de Longwy”\textsuperscript{67}, supported the affiliation of production capacities. The first result of the vertical take-overs was a concentration within the region's coal and steel sector, that was followed by trans-regional take-overs and concentration.

Trans-regional corporate integration followed the delivery relations that had intensified since the 1870s and created the aforementioned division of labour between the regions. One precondition for this division of labour was that the transport costs between the regions sank considerably between 1870 and 1900 due to enlarged freight cars and more powerful trains, which also led to fiercer competition between the areas.\textsuperscript{68} The construction of new railway lines that shortened routes between the regions, and the construction of new channels contributed to the reduction of transport costs.\textsuperscript{69} One consequence was that the transport of raw materials and semi-finished products between the areas, and so their use in more distant regions became more profitable. On

\textsuperscript{63} Reckendrees, p. 59-85
\textsuperscript{64} Reckendrees, p. 59-85.
\textsuperscript{65} In the early 1890s, \textit{Aachener Hütten-Aktien-Vereinas} well got into a solveny crisis, because the company could not fetch sufficient prices for its too ample stocks of raw materials and because of long-term delivery contracts during a critical phase of the economy. As a consequence, \textit{Aachener Hütten-Aktien-Vereina} acquired iron ore mines in 1892, just as \textit{St. Ingbert} did later. Cf. Nievelstein, p. 180-184; Feldmann, p. 171-175, 213-218, 229 und 326; Banken Take-Off-Phase und Hochindustrialisierung, p. 467-486.
\textsuperscript{68} Banken Take-Off-Phase und Hochindustrialisierung, p. 337-446.
\textsuperscript{69} Banken Take-Off-Phase und Hochindustrialisierung, p. 337-446.
the other hand, the individual coal and iron sites expanded their sales into areas that before had been barred by the high costs for transport of bulk goods. On the whole, competition between regions and enterprises increased both in the market for supplies and in the sales market. For example, after 1870 the Saar region gradually lost parts of its undisputed sales area for coal to expanding competitors from the Ruhr, from Belgium and from Northern France, which from that time on were able to compete because of sinking freight tariffs.

Apart from transport costs, the technical innovations in the iron and steel industry influenced the relations of individual regions. Diverse improvements (Gilchrist-Thomas process, production in one heat, utilization of the furnace and cokery gases, improved coke output etc.) reduced the coal consumption of the plants. Whereas around 1860, 1.3 to 1.9 tons of coke were needed for the production of one ton of pig iron at the Saar, that ratio sank to 0.9 to 1.3 tons of coke until 1913. Therefore, it became more lucrative to send the coke to the iron ore.\(^\text{70}\) The competitive position of iron-makers in the regions where iron ore was found improved in comparison to those in coal mining regions. The latter ones therefore placed more investments in the iron ore regions, especially in the largest one, namely the minette area of Luxembourg and Lorraine. The capital now went not only into the possession and exploitation of iron ore deposits, but also into blast furnaces and steel mills. For similar reasons, not only the Ruhr corporations placed investments in Luxembourg and Lorraine, but also firms from Luxembourg and Lorraine themselves and from the Saar, Belgium, other French regions, and from the Aachen area.

After coal and steel corporations with production facilities in several regions had been established on a greater scale since 1890, delivery relations between formerly independent firms were organized no longer via the market, but within the corporations. Accordingly, the division of labour between the regions that had emerged out of delivery relations from 1870 on was transferred to the corporate level. This was most conspicuous with corporations possessing large-scale plants at the Ruhr and in the minette region. Around 1914, some of these corporations cannot be unambiguously ascribed to one region only. The Stinnes corporation Deutsch-Luxemburgische Bergwerks- und Hütten AG is the best example.\(^\text{71}\) Not only did it own plants at its two centres, the Ruhr region (Dannenbaum colliery; Dortmunder Union colliery, blast furnaces, and steelworks; Friedrich-Wilhelms-Hütte at Mülheim with blast furnaces, foundry, and

\(^{70}\) Banken Take-Off-Phase und Hochindustrialisierung, p. 337-446.

\(^{71}\) Feldmann, p. 60-373
mechanical engineering plant) and the minette region (at Differdange; Rumelange iron ore mines, blast furnaces, steelworks), but was an active enterprise at the Saar, too (St. Ingbert steelworks, Saar-et-Moselle colliery). A clear-cut division of labour was installed between the German and the Luxembourg-Lorraine works until 1914. Pig iron and steel bars were produced in Lorraine, rails at the Ruhr, and wire at the Saar. At the same time, coal from the company-owned collieries at the Ruhr and the Saar, and pig iron semi-finished steel products from Lorraine were used to supply the processing steelworks and rolling mills at the Ruhr and the Saar. Although a centre of activities can be clearly identified for other trans-regional enterprises, for example the corporation of the de Wendel family, they also controlled facilities in all West European coal and iron regions.\footnote{On the outbreak of the First World War, the family-owned corporation de Wendel owned, apart from its iron ore mines in the Lotharingian minette region (Hayange, Moyeuvre, Joeuf), also plants at the Saar (a colliery at Klein-Rosseln with its cokery Kokerei at Hirschbach), in the Ruhr region (colliery „Heinrich Robert” near Hamm including a cokery, shares in the colliery „Friedrich Heinrich” near Moers), in the Aachen region (mining concession for the coal field „Glückauf”), in Belgium (colliery Six-Bonner), in Northern France (shares in the collieries „La Clarence” and „de Crespin”), and in the Netherlands (colliery „d’Orange-Nassau”). Sédillot, p. 250-251 und 281.}

6. Conclusion

The integration of enterprises between the West European mining regions examined here rested mainly on mutual delivery agreements, the proximity of regions, and improving transportation. The competition between individual enterprises and mining regions increased independently from Franco-German political relations after 1890/95 due to the concentration process and cartelization. Both the competition for a secure and affordable supply with raw materials and semi-finished products and for secure sales at acceptable prices worked to further mutual cooperation and integration. However, this result, namely the emphasis of autonomously economic causes for the integration of West European coal and steel enterprises and regions, is not to completely reject the results of previous research on the significance of the Franco-German relations for the coal and steel industry of the two countries in the decade before World War I. Rather, national policies and the development of economic relations as described in the work of Poidevin amplified, penetrated, and overlay this process that was originally induced by economic impulses. Of course, apart from fears of a purely economic nature, such as the anxiety for insecure and expensive supplies of coal, iron ore, and pig iron via the market, political persuasions existed in the corporations. After 1905, the political bias became more pronounced.
int the enterprises, and on the German side led to the demands for annexation in World War I. For the corporations believed that their supply could only be secured through their direct control over mineral deposits and facilities in their possession on the territory of their own state. Nevertheless, the origin of this process cannot be found in the fact that enterprises no longer left the supply of their plants to the forces of the market, which had been partially suspended by the cartels. Rather, they sought direct corporate control through ownership. Otherwise, it can hardly be explained why, independently from the stages of political conflict, companies from the Saar also placed investments in the Ruhr and in the Aachen region, or why Belgian companies directed their capital into the minette region and Northern France. The extensive trans-regional integration and its causes can only be elucidated by an additional examination on the regional level of the West European mining and steel industry. 

73 The latter point is analyzed by Stefanie van de Kerkhof: S. van de Kerkhof, Von der Friedens- zur Kriegswirtschaft. Unternehmensstrategien der deutschen Eisen- und Stahlindustrie vom Kaiserreich bis zum Ende des Ersten Weltkrieges. Essen 2006.