
Finance, Industry and Globalisation in the Early Modern Period: the Example of the Metallic Business of the House of Fugger

JEANNETTE GRAULAU

In the early XXth century the German economic historian Richard Ehrenberg wrote a monumental history of the Fugger family of Augsburg and what he called «the age of the Fugger»¹. Other studies appeared to shed light on the Fugger banking activities with the Spanish and Portuguese empires, the role of the Fugger in the spice trade of Lisbon and Antwerp, and their importance in the history of banking in Europe². This literature establishes a connection between

¹ RICHARD EHRENBURG, *Capital & Finance in the Age of the Fugger. A Study of the Fugger and their Connections*, New York, Harcourt, Brace and Company, 1923. It is still today the most influential work in the English language about the Fugger. Ehrenberg's work draws upon primary and secondary sources and includes the works of GÖTZ FREIHERR VON PÖLTNIZ, *Jakob Fugger, Vol. I Kaiser, Kirche, und Kapital im oberdeutschen Renaissance, Vol. II Quellen und Erläuterungen*, Tübingen, J.C.B. Mohr, 1949 & 1952. Von Pölnitz wrote other important books about the Fugger: ID., *Anton Fugger, Vol. I 1453-1535*, Tübingen, J.C.B. Mohr, 1958, and *Fugger und Hanse: Ein hundertjähriges Ringen um Ostsee und Nordsee*, Tübingen, J.C.B. Mohr, 1953); ID., *Die Fugger*, Frankfurt am Main, Heinrich Scheffler, 1960. For a general introduction to the life of Jacob Fugger, see JACOB STRIEDER, *Jacob Fugger The Rich Merchant and Banker of Augsburg, 1459-1525*, Archon Books, 1966. Works on the life of Jacob Fugger in the English language also include the following: JOHN T. FLYNN, *Men of Wealth: The Story of Twelve Significant Fortunes From the Renaissance to the Present Day*, New York, Simon and Schuster, 1941; and FRANZ HERRE, *The Age of the Fugger*, Augsburg, 1985.

² CARLOS ÁLVAREZ NOGAL, *Los Banqueros de Felipe IV y los Metales Preciosos Americanos*, Madrid, Imprenta del Banco de España, 1997; ANTONIO DOMÍNGUEZ ORTÍZ, *Política y Hacienda de Felipe IV*, Madrid, Editorial de Derecho Financiero, 1960; RAMÓN CARANDE, *Carlos V y sus Banqueros*, Madrid, Revista de Occidente, 1945; HERMAN KELLENBENZ, *Los Fugger en España y Portugal hasta 1560*, Junta de Castilla y León, Consejería de Educación y Cultura, 2000; "The Gold Mining

the Fugger House in different localities of Central Europe and certain mining industries and activities in those regions and it provides specific 'snapshots' of the Fugger's business with Sigismund, archduke of Tyrol ; it also explores operations in Hungary and Poland during the early decades of expansion of Portugal and Spain to the West. The present paper assesses the extent and significance of the Fugger's metallic business, mainly in the XVIth century, and it does so by gathering together material in a wide range of secondary sources. Its aim, thereby, is to present the reader with a *mise au point* of present-day historical thought regarding this family whose role in the international metallic industry was of central importance in the late medieval and early modern periods. Several questions will be considered. Why did the Fugger firm invest in mining? How did the Fugger become financiers of the metal trade? Did the geographic and geological challenges of mining give birth to the accumulation of mining capital by the firm? Was investment facilitated by the technical questions posed by miners and public authorities, as Braunstein argues?³ Or was it simply what Sombart called «the greed of gold», the «love of money», that explains the origins of mining financiers such as the Fugger?⁴ The argument of the paper is that mining became a source of capital to be invested domestically and abroad for the Fugger House. Mining and the metal trade allowed the firm to accumulate profits by creating interests. How did the Fugger firm absorb silver, copper and mercury

Activities of the Fugger and the Cementation Privilege of Kremnitz", in IAN BLANCHARD, ANTHONY GOODMAN, JENNIFER NEWMAN, *Industry and Finance in Early Modern History*, Stuttgart, Franz Steiner Verlag, 1992; Ed., *Precious Metals in the Age of Expansion*, Stuttgart, Franz Steiner Verlag, 1981; K. S. MATHEW, *Indo-Portuguese Trade and the Fugger of Germany*, New Delhi, Manohar, 1999; HARRY MISKIMIN, *Cash, Credit and Crisis in Europe, 1300-1600*, London, Variorum Reprints, 1989. See also the series of papers presented in the Institute for European Cultural History of the University of Augsburg in 1993 and published by JOHANNES BURKHARDT (ed.), *Augsburger Handelshäuser im Wandel des historischen Urteils*, Berlin, Akademie Verlag, 1996. For the Fugger and the question of balance-of-payments, see JOHN DAY, *The Great Bullion Famine of the Fifteenth Century*, «Past and Present», May 1978, No. 79, pp. 3-54; and JOHN MUNRO, *South German Silver, European Textiles, and Venetian Trade with the Levant and Ottoman Empire, c.1370 to c.1720: A non-mercantilist approach to the balance of payments problems*, Working Paper No.26, Institute for Policy Analysis, University of Toronto.

³ BRAUNSTEIN, op. cit.

⁴ WERNER SOMBART, *The Quintessence of Capitalism, A Study of the History and Psychology of the Modern Business Man*, New York, Howard Fertig, 1967, p. 29.

produced in the Tyrol, Schwaz, Hungary, Slovakia and Almaden? What were the risks and failures of the Fugger's mining ventures?

THE METALLIC BUSINESS OF THE FUGGER IN CENTRAL EUROPE

The initial stage of the metallic business started in the mining regions of the Alpine-Carpathian arc. At its heart were the great mining districts of Saxony, Tyrol and Bohemia, which were favored by nature with abundant silver and copper ores⁵. The north of the Carpathian Mountains, with its large distribution of ore-bearing beds and numerous outcrops particularly in the Upper Silesian region⁶, also attracted Fugger investments. To the south, the Slovak Ore Mountains, stretching along the border of Slovakia and Poland, provided the basis for an important partnership between the Fugger firm and a family of Polish engineers under the name of Thurzo. A 'peripheral' mining region of continental Europe was located in the Iberian peninsula in Almaden (Spain). It would become very prominent in the mature stage of the metallic business of the Fugger, for it contained abundant deposits of mercury and cinnabarim (vermilion), the most common ore of mercury.

The first mining business of the Fugger firm was established not in the Ore Mountains of Central Europe, but in Augsburg by Jacob I (1409-1469), also known as Jacob the Elder. Jacob took charge of the Fugger House in the early fifteenth century. He married Barbara, the daughter of Ulrich Bäsinger, and through this marriage started a very important connection with the mining industry of southern Germany. Ulrich Bäsinger was a 'skilled goldsmith', Master of the Mint of Augsburg and a silver dealer⁷. Indeed, Jacob's first metallic contract was a loan to Bäsinger for financing 75 percent of a debt of 24,000 florins⁸. How much of this amount Jacob recovered is unclear⁹. It is clear,

⁵ MARY SOMERVILLE, *Physical Geography*, Philadelphia, Blanchard and Lea, 1854, p. 174.

⁶ STANISLAW CZAJA, *Mining and Hydrological Transformations in Upper Silesia from the Fifteenth to the Nineteenth Century*, «The Geographical Journal», March 2001, Vol. 167, No. 1, pp. 57-71.

⁷ MARTHA SCHAD, *Die Frauen Des Hauses Fugger von der Lillie*, Tübingen, J.C.B. Mohr, 1989.

⁸ The florin or gold gulden was the main money of account in Augsburg, Antwerp and Nuremberg. It served as a link money, in a fixed ratio of exchange, with other currencies in circulation including locally minted coins (i.e., *pfennig* and *stuiver* in Antwerp, and the *kreutzer*, *taler* and *mark* in Augsburg). One florin was worth in Augsburg 20 schillingen or 240 pfennige, or 60 kreutzer; and 30 silver schilling or 240 pfennig in Nuremberg.

⁹ EHRENBURG, op. cit., p. 66.

however, that he gained connections with the Mint of Augsburg. All we know is that by the time of his death in 1469 he was ranked seventh among the wealthy men of Augsburg. It was with his son, Jacob II, best known as Jacob the Rich (1459-1525/6?)¹⁰ that the Fugger firm started to build a global chain of mining investments and operations. Jacob II was immortalized in the famous woodcut attributed to Nuremberg Master Albrecht Dürer. Known as the *Regierer*, the patriarch of the firm, he used what von Pölnitz called «political finance» to globalize the firm's investments in mining¹¹.

There were two catalysts that put Jacob at the center of a metal-debt finance circuit connecting Tyrol-Hungary-Slovakia: first, the business of the firm in Tyrol, and second the credit business with emperor Maximilian I and his successor Charles V. Historians have provided evidence of the firm's initial metallic contracts under Jacob II and his nephew, Anton. Ehrenberg, for example, says that in 1487 the Fugger House, under Jacob II, signed a series of silver and copper contracts with archduke Sigismund of Tyrol. Strieder only says that Fugger advanced loans to the duke in return for «the right to take over that share of the minerals which passed to the dukes by virtue of the mining royalties», until the debt and the interest had been paid in full¹². He also says that the first of these loans was done in conjunction with the Genoese banking family of Antonio de Cavallis. Peter Kalus, using Slovakian and Hungarian sources, offers more details about the Fugger's metallic business in Tyrol. It started in the decade of 1480s, as a «modest amount of credit» for ore mining in Salzburg given to «an unspecified miner». This transaction «displaced a small group of individual Jewish entrepreneurs in the region»¹³. Then came the rich silver mines of Schwaz in Tyrol. By the 1480s there was an important center for production of oil close to Tyrol, near the mines of Primör. The oil industry was dominated by Venetian entrepreneurs who also enjoyed rights over unspecified mines in the region.

A political conflict over the jurisdiction of this industry and of mining provided the catalyst for the Fugger to move into Tyrol. The archduke Sigismund seized the mines there in 1484 in an attempt to monopolize the income from this lucrative enterprise. The Venetian businessmen had been contesting the duke's ownership and jurisdiction and the dispute escalated into a riot in 1487 that destroyed the

¹⁰ Different sources make reference to the years 1525 or 1526 for the death of Jacob The Rich.

¹¹ EHRENBURG, op. cit.

¹² STRIEDER, op. cit., p. 109.

¹³ KALUS, op. cit., p. 47.

property of the Venetian oil industry. The «Ore Duke», as Sigismund was known, sought diplomatic support and the intervention of the Pope for a peace treaty with the Venetians to ensure protection of the oil industry and the mines of Tyrol; but for this treaty to be accepted by the Venetian businessmen, the Ore Duke had to come up with 100,000 gulden, the amount demanded by the Venetians as compensation. Sigismund could not raise this sum, and the Fugger stepped in on 31 December 1487 with loans. Ehrenberg states that two loans were made to the archduke, who offered as security the Schwaz mines of Tyrol. The first was in the amount of 23,627 florins, while the second – 150,000 florins – also allowed the Fugger to buy silver from other mines of Tyrol at a preferential rate. The contracts were valid for five years, and if the loans were not repaid at the time of maturity in 1492, the Fugger House would receive the total income of Tyrolese mining production¹⁴. By the end of the 1480s, the Fugger House was in control of the silver industry in Tyrol. They received the entire output as a repayment of the loan of 100,000 gulden, and the silver was redeemed in the national coin at the agreed price of 4 gulden for a silver Mark, a rate which was higher than the actual market value of silver.

These metallic contracts showed very early a distinctive relation between capital and politics. The 1487 loans made clear that kings, princes and lords relied on merchants, entrepreneurs and traders for generating metallic wealth. Entrepreneurs provided money, capital, and credit, and on occasion, geological and scientific expertise if the mining entrepreneur was also an engineer (as will be seen in the case of Johannes [Hans] Thurzo). The loans to Sigismund also showed that when capital and politics came together, capital tended to concentrate

¹⁴ This was ‘a business with a political taste,’ something that would remain central to the metallic business of the Fugger in Tyrol and elsewhere. On the part of Sigismund, the loan granted by Jacob was a strategic move for expelling Bavarian nobles outside his Tyrolese lands. Sigismund was heavily indebted to the Bavarian duke George. The exact circumstances are still unclear. All we know is that Sigismund had pawn offices and incomes, including those to be inherited by his son, Friedrich III, to the Bavarian duke as payments for old debts. The Bavarian duke had already claimed rights over the oil industry of Tyrol. This political situation was unfavorable for the Venetian entrepreneurs, who feared losing the industry because of Sigismund’s poor financial management of Tyrol. For the part of oil traders, given their vulnerable situation with the duke of Bavaria, there was no other option but to rely on Jacob Fugger for credit. In the immediate years that followed the loan of 1487, Jacob Fugger replaced the family of the Kufstein, resident of Bavaria, as the principal bankers to the Ore Duke. Four years after the initial loan was granted, the Fugger also held control over the oil industry of Tyrol. KALUS, *op. cit.*, pp. 46-48.

in the hands of the entrepreneur. Tyrol gained a central position for the mining and metal trade business of the Fugger. In 1552, as a result of a contract in Spain, Anton's *Buchlater*, Matthäus Schwarz, calculated that it was at the House of the Mint in Hall, Tyrol (and also in Venice) that the firm could acquire the highest profit for the Spanish silver : up to ten percent¹⁵. Estimates of the profits of the Fugger from the silver contracts for the years 1487-1494 are about 400,000 Rhenish gold gulden, most of the silver having been minted in Tyrol¹⁶.

Another circumstance that attracted Jacob to mining was the financial problems of the emperor Maximilian. Ruler of the Reich and the Habsburg dominions since 1486, Maximilian was engaged in a costly military campaign to recover parts of Italy from the French, after French troops crossed the Alps in 1496; also preparations had to be made against a possible Turkish invasion. Tyrol, one of Maximilian's domains, produced in the XVth century a substantial part of the copper of Central Europe. The industry there was well regulated and governed by a series of mining codes issued since 1479; it was also an industry which had been 'modernized' through the introduction of water power and galleries. As such, it was an extremely attractive form of security for the Emperor's potential creditors. Jacob Fugger duly obliged. His first big loan to Maximilian was in the amount of 121,600 florins, secured by the incomes from the copper mines of Tyrol. Incidentally, it is with the copper contracts that we first encounter the name of the engineer Hans Thurzo in partnership with Fugger. Jacob brought together a syndicate that included Hans Thurzo, and possibly other German families such as the Auer and Metzler, who were also mining entrepreneurs in Breslau, Silesia. The Fugger syndicate had the objective of securing control over Tyrolean copper mine production. In fact, the syndicate was quickly dissolved under pressure from Maximilian's 'trusted servant' George Gossembrot, who forced the Fugger to decide between staying with the syndicate or dissolving it in return for exclusive control of the copper market. Ehrenberg explains this maneuver by Gossembrot as arising from the need of the emperor to retain a certain amount of control over his mining assets, coupled with the desire of Gossembrot to take advantage of his role as mediator between Jacob and the emperor. In an age when royal appointments were becoming lucrative ventures, they presented opportunities to people like Gossembrot to make money by exploiting his

¹⁵ KELLENBENZ, *Dinero y Crédito*, cit., p. 30.

¹⁶ STRIEDER, op. cit., p. 110.

role¹⁷. After negotiations, Jacob by-passed the syndicate and granted the loan himself. By the terms of the contract, copper from Tyrol did not have to be exchanged for coins in the royal mint; the Fugger House had the right to sell it freely in the market (a necessary condition, since the firm was hoping to sign metallic contracts with the king of Portugal; it did so in 1500 and 1503). This copper mortgage guaranteed the earlier monopoly of silver mining in Tyrol that had been given as a loan security by Sigismund, this silver monopoly having been extended through a small loan of 40,000 florins to Maximilian in 1492. Only one member of the former syndicate cooperated with Fugger in the copper business of the Ore Mountains: Thurzo. Perhaps they came together because of «the difficulties experienced by these mining companies of the sixteenth century». These, in Boyce words, «are exactly those which stock companies and large associations have to deal with today: hundreds of people knowing nothing of the technical side of the business are in the company simply to get a return on their investment»¹⁸. We shall come back to the Fugger-Thurzo partnership later.

The number of loans to Maximilian grew rapidly in exchange for monopolies of silver and copper production because, as Ehrenberg puts it, the mines of Styria, Salzburg and Tyrol were the «safest deposit that any prince of southern Germany had at their disposal». To this, one must add the salt mines of Tyrol. The Fugger got the right to farm salt, the *Salt Meieramt*, in 1508 as a loan security by Maximilian. Between 1511 and 1514, a series of further loans to Maximilian secured for the Fugger the silver and copper production of the emperor's mines for eight and four years respectively. In 1515, in partnership with the Höchstetter, the firm received as security for another loan the copper of Schwaz from 1520-1523, and the right to market it in Upper Germany and Italy. It also had the right to export Hungarian copper freely to the Netherlands. Through this series of loans to the Emperor between 1487 and 1515, the Fugger firm enjoyed the production of the silver and copper mines of Tyrol. This explains why the *factoria* of Hall became, in the first decades of the sixteenth century, the center for the metallic contracts of the Fugger in other markets¹⁹. It is also relevant to note that the Fugger *factoria* took advan-

¹⁷ EHRENBURG, op. cit., p. 134.

¹⁸ BOYCE, op. cit., p. 16.

¹⁹ Historians do not agree as to when the *factoria* was opened, or even the number of *factorias*. Kellenbenz, for example, mentions only one *factoria*, with unclear date of origin (between 1511 and 1520). Kalus notes three *factorias* between the first and second decades of the XVIth century. Perhaps the contradictions among

tage of the geographic location of Hall. It was in the geographic center of what Blanchard calls the «Tirolean-Thuringian-Slovakian» mining complex. The local business of the Fugger in Hall also served to reinforce the importance of this *factoria*. It is in Hall that Unger finds a shift in emphasis in the business of the Fugger from spices to metals. Loans granted to the prince of Innsbruck in those years specified that the deliveries of silver and copper had to be done in Hall. Unger also is of the opinion that it was the fact that the prince needed money in the Chamber of Innsbruck, and not anywhere else, that prompted the Fugger to demand repayments of loans with silver deliveries to Hall.

The importance of Tyrol can be demonstrated through two sources. The first is the most famous registry of the business in Tyrol, an account book dated December 1546²⁰. It describes in detail the accounts of the Fugger and shows that their activities in Tyrol included money collected in Bozen, Hall, Schwaz, and some personal accounts. The activities in Bozen amounted to 200,000 florins. The transactions in Hall include money collected in exchanges in Venice and other places. Among the stocks of goods, there is copper valued at 9 1/2 florins and 976,23 Marks of silver valued at 12 florins each. These amounted to 168,815,000 florins. In Schwaz, the activities included a steel industry, a stock of ore itemized according to place of extraction, other mines, houses, and households in other places of Tyrol, cash and debtors. These sums amounted to 123,574,000 florins. Other activities of the Fugger, included in the same sheet, referred to Vienna, Leipzig, Breslau (which included the metallurgical trade in Reichenstein), Neusohl, Cracow, and other centers in Italy, Spain and France²¹.

The second source is an account book dated January 1548 which contains details of the income of the Fugger²². It is calculated as the

historians of the Fugger House lie in the fact that the term *factoria* had different meanings in medieval mining regions of Central and Eastern Europe. Braunstein, studying medieval texts, finds that it means «a complex metallurgical establishment». In XIIIth century Hungary it was used as *follis* to mean a «blowing machine». In XVIth century Poland, the terms used were «rad» (wheel-house) and «*molendina que vulgo dicuntur Hutten*» (mill). Other texts used the term «*martinet*» to describe a «copper foundry with hydraulic wheel, bellows and blast furnaces on Jacques Coeur's mine in the Linnais mountains in 1450». BRAUNSTEIN, op. cit., p. 577.

²⁰ EIKE EBERHARD UNGER, *Die Fugger in Hall i.T.*, Tübingen, J.C.B. Mohr, 1967.

²¹ SCHEUERMANN, op. cit., p. 11

²² LUDWIG SCHEUERMANN, *Die Fugger als Montanindustrielle in Tirol und Kärnten*, Munich and Leipzig, Verlag Von Duncker & Humboldt, 1929, pp. 32-34.

net amount of the transfers from the previous year minus the expenses for the year 1548. The transfers from the year 1547 include the value of main goods loaned in different localities in Tyrol. These included 40,000 florins in Münz at the site of Salzpfanne, 8,000 florins in Münz at the site of Salzpfanne repaid in gold at 72 crowns for which the firm got 9,000 florins, a surplus of money from *Hauskammergeld* for the amount of 19,155 florins, a second surplus of 33,946 florins, and another amount of 69,589 florins of unspecified origins. The transfers also included projected profits from an item identified as ‘outstanding metal’ from copper (20,208 florins) and silver (15,397 florins). This expected surplus included other amounts of silver of different Marks in three totals of 17,563 florins, 15,151 florins and 600 florins. The net income of silver sales in 1548 was 56,753 florins. Tyrolese copper signaled the beginning of an expansion of the debt-finance circuits of the Fugger firm from Central Europe to the West.

In order to understand the copper business, we must first describe the Fugger partnership with Hans Thurzo. Since 1488, the Fugger and the Thurzo families were in close contact through several marriages. The second son of Hans, George (1467-1521), married Anna Fugger, the daughter of Ulrich Fugger I. Ulrich became manager and director of the Thurzo society and a regular member of the royal chamber of Cracow. One of the daughters of Thurzo, Katharina, married Raymund Fugger. The other one, Hedwig, married the factor of the Fugger in Cracow, Hans Metzler. Other Fugger daughters, Magdalena and Margarethe, married Voglewaider and Krumbeck respectively, both Cracow citizens. These marriages were to be a very important political card for the Fugger in Cracow. Later, the marriage of Katharina Thurzo with Raymund Fugger, and that of Anna Fugger with George Thurzo, also put the Fugger in a privileged position with the Hungarian king Wladislaw in 1498²³. Various questions now arise. Did the personal relations between the two families provide the catalyst for their partnership in the copper business? Did Fugger and Thurzo come together because of the structural needs of the global economy of mining, pushing for a union between capital and science?

The Fugger-Thurzo partnership in copper mining

That fertility of the soil can be created or destroyed through the circulation of capital was an idea fully developed by David Ricardo in

²³ «Das die Herrn Thurtzo die Herrn Fugger zu Inen in gemeinschaft aller Ir-er erb- und arendierten Perckwerken, heusern und hüttwerckhen nehmen mogen...», in KALUS, op. cit., p. 54.

the XVIIIth century, but it was already in fermentation in the centuries-long evolution of mining in Europe. It was an idea waiting to be distilled with businessmen like Jacob Fugger. But the fertility of the soil in mining, as well as in any other extractive economy, required science and a technical establishment for responding to geological challenges. This was supplied by Hans Thurzo. By the end of the XVth century, the Thurzo family already was important in the Hungarian kingdom. Hans Thurzo had his metal business in Cracow, which was at the time an important center of trade between Central Europe and the Hanseatic League. He appeared as «an industrial man, a dealer in ore and metals, with trade relations all over Europe»²⁴, including the mines of Goslar in 1478. The first mention of a partnership with Jacob Fugger is in 1491, and included other bankers and traders for financing mine drainage in Banská Bystrica. The names of Albert and Jacob Fugger, Nikolaus Tilman, Benedikt Glocknitzer and Michael Königsberger, appear as part of this consortium for the mines of Banská Bystrica, known as the Fugger Society, or the *Fugger-Gesellschaft*. Knowing the role of the Fugger as financiers of Maximilian, at a time when there were real prospects of Maximilian acquiring Hungary, Thurzo saw in Jacob the best partner for his mining business. The partnership between Fugger and Thurzo was identified in the Fugger accounting records as the «Common Hungarian trade»²⁵. The Fugger firm, independently of the partnership, was recognized by the Hungarian king in 1497, so that it was not only a ‘*Protégé* of the Roman emperor,’ but an official business enterprise of the kingdom. The Common Hungarian trade had already been recognized, in 1495, by a letter of support from Maximilian for the development of the mining industry of Hungary.

The initial goal of the Common Hungarian trade was to finance metallurgical operations in specific mines owned and operated by Thurzo and his business partners, including Jacob Fugger. The first official contract was dated 15 November 1494. It was for the development of a metallurgical plant in Banská Bystrica, to be financed with the capital of the Fugger. The plant would process the copper of the Thurzo mines. The cost was 1,000 Hungarian gulden for the infrastructure, and an additional 1,000 Hungarian gulden for fuel and technology. The expected profit was 360 gulden weekly for the processing of 300 cw. of copper. The profit of the processing of metals was to be divided in equal parts between the Fugger and Thurzo com-

²⁴ *Idem*, p. 41.

²⁵ STRIEDER, op. cit.

panies. In 1496, the partnership started to build an ore processing plant using the *Saigerhütte* method in Moštenica, after Queen Beatrix had leased the property to the partnership²⁶. This lease allowed the partnership to sell silver recuperated from the processed ores without having to exchange it in the royal mint houses²⁷.

Another goal of the Common Hungarian trade was to provide loans to the Thurzo Company for the development of risky mining operations. Thurzo needed the capital of the Fugger House for operating in particular the enterprises at Gelnica (chief mining town of the Spiš region of Slovakia) and Smolník (in Slovakia). Although these were located in a very remote region, they were financially attractive to Jacob as investments. From the Common Hungarian trade, Thurzo could only take a loan of 4,000-5,000 Hungarian gulden for one year. With Fugger capital, the engineer Thurzo «was put in a position to buy everything»²⁸. For example, in 1493 Benedikt Glocknitzer and Michael Königsberger of Banská Bystrica granted their mines at the *Sandberg* to Hans Thurzo's company as security for loans which Thurzo made to them ; the money that the Thurzo company offered came from Hans's loans from Jacob Fugger.

The Common Hungarian trade soon secured a virtual monopoly over the Tyrolean and Hungarian copper mines. In Upper Hungary, it bought mines as well as leasing them. Those which it bought remained in the joint possession of the Fugger and the Thurzo firms. Usually, the Fugger advanced the money, and Thurzo «would have to do without profits» until the family cancelled its debt with the partnership²⁹. By 1496, Jacob Fugger appears as the owner of silver mines at Krottenpohl and copper mines at Sandberg (Piesky), which were previously owned by Thurzo. Jacob bought them for 6,000 Hungarian gulden. The Fugger ownership of mines was accompanied by investment in infrastructure and water drainage works in the mines of the Carpathian region. Construction of stamp mills, impelled by water power or horses, proved to be a success in the mines. The problem of water flood-

²⁶ *Idem*, p. 54.

²⁷ The Fugger also bought around the same time two houses next to each other in the area known as Ring of Citizens in Banská Bystrica. Around the area, the Fugger started to acquire mines, huts, and land in Špania Dolina and Staré Hory.

²⁸ KALUS, op. cit., p. 45.

²⁹ *Idem*, p. 53. It seems that there were debts that the Thurzo family could not cancel with the Fugger, which allowed the Fugger to own mines and properties previously owned by Thurzo. This is probably how the Červený Kameň castle, situated on a hill above village Píla in Small Carpathians, passed from the Thurzo family to the Fugger family in 1535.

ing was to be solved at the end of the XVth century by cutting adits several miles long beneath the lode and installing water wheels and whims moved by teams of up to 100 horses.

Not all the investments of the Common Hungarian trade were successful. Around 1500, the company bought shares in the gold mines of Reichenstein (today Sloty Stok) on the slopes of the Silesian Sudetes until it obtained a majority share holding. The company kept these mines until 1568³⁰. This business created more problems than profits. According to a Thurzo treasurer, Szerecsen, Jacob «had exported every year since 1499 – the year when the agreement was signed between Thurzo and Fugger for the organization of the chamber business of the mint of Kremnitz – 100,000 guilders». This was a complicated accusation that was finally resolved in 1535 when the Raymund, Anton and Hieronymus Fugger were made Hungarian nobles and king Ferdinand granted permission to Anton to mint up to 12,000 Hungarian guilders in Chemnitz³¹. This is a surprising failure, considering the importance of gold mining in Hungary, particularly in Chemnitz. The city had experienced a flourishing gold mining activity that made it the richest city of the Hungarian kingdom. We will come back later to the question of the gold venture in Chemnitz.

Despite the difficulties experienced by the firm between 1525 and 1527, after the death of Jacob the Common Hungarian Trade lasted until 1543, the date of the death of Alexis Thurzo (son of Hans). The lease of the mines with the Spanish Crown in Banská Bystrica lasted until 1546. Ferdinand, the brother of Charles V, had inherited the crown of Hungary in 1526 after the defeat of Hungarian king Louis II at Mohács. Under his brief rule, the lease of the mines to the Fugger remained intact. However, the advance of Sultan Suleiman the Magnificent in 1529 resulted in Hungarian resistance orchestrated by the rival to the crown, John Zapolya, who defeated the Turks and kept the Hungarian crown. This was a very difficult situation for the Fugger who had to abandon the lease. However, the mining business continued thanks to the relationship between the king of Poland, Sigismund, and Zapolya. This ensured for the Fugger the continuation of the exploitation and transit of copper³². However, by the 1540s the Fugger business in Neusohl was in decline, partly because of «the growing dislike of the local population for the German capitalists who had gained partial control of the local enterprises»³³.

³⁰ KELLENBENZ, *The gold mining activities of the Fugger*, cit., p. 186.

³¹ *Idem*, p. 189.

³² KELLENBENZ, *Los Fugger en España y Portugal*, cit., pp. 14-15.

³³ NEF, op. cit., p. 578.

THE METALLIC BUSINESS WITH PORTUGAL AND SPAIN

The Fugger business with Spain and Portugal gives us some insights into the ways in which the global mining economy used the routes and networks built by older generations of entrepreneurs in other economies. It is in the metallic contracts with the Portuguese crown that it is possible to identify a unifying element between the structures of the long-distance trade networks in spices, and the new structures of the global mining economy of the XVth-XVIth century.

Prior to the arrival of Portugal in India, the firm's most important copper trade center in the Mediterranean was Venice. From Venice, Hans Fugger had ordered the «fashionable hangings of gilt leather, specially manufactured by Alessander Trevisio of Treviso, the court decorator to Duke Albert of Bavaria»³⁴. Jacob the Rich was sent to Venice prior to joining the firm in Augsburg. He spent time there, 'learning accounting techniques' in the «great business house of the Germans in Venice», the *Fondaco dei Tedeschi*. Built in 1228, the *Fondaco* or *fondago*³⁵, as Venetians called it, became «the medium of Venetian-German trade»³⁶. Hoffman says that it is impossible to know with exactitude when the Germans started to occupy the *Fondaco*. «Tradition has it that the Senate arranged a building for the German merchants before 1200, but the oldest source mentioned is for the year 1228. Fire several times destroyed the building wholly or in part, but German merchants occupied the buildings on the original site until Napoleon's seizure of the property in 1806»³⁷. Other Germans there included the sons of the Kolb, Rehlinger, Rem, Grander and Rorer, and the sons of the XVIth century Frankfurt patrician families of the Bromm, Stalburg, Heller, Rorbach, Neuhaus and Holzhausen. Many Nuremberg families also had during early XIVth century, «six of the fifty-four available *camerae* (rooms) reserved permanently in the

³⁴ KLARWILL, op. cit., p. vii.

³⁵ RAYMOND DE ROOVER, *Money, Banking and Credit in Medieval Bruges Italian Merchant Bankers, Lombard and Money-Changers A Study in the Origins of Banking*, Massachusetts, The Medieval Academy of America, 1948.

³⁶ J. WESLEY HOFFMANN, *The Fondaco dei Tedeschi: The Medium of Venetian-German trade*, «The Journal of Political Economy», April 1932, Vol. 40, No. 2, pp. 244-252. For more on the Arabian origin of the word «fondaco», see Alfred E. Lieber, *Eastern Business Practices and Medieval European Commerce*, «The Economic History Review», New Series, August 1968, Vol. 21, No. 2, pp. 230-243, especially note no. 2, p. 230.

³⁷ *Idem*, p. 246.

*Fondaco*³⁸. The *Fondaco* was the place for ‘German wholesalers’ in the business of pepper. It held its position until XVIIth century, when the «vast warehouses of the Dutch East India Company’ replaced it»³⁹. In 1484, the Fugger family had their own chambers in the *Fondaco*⁴⁰.

The Fugger and Portugal

Trade in the «Mediterranean of the Italian cities», to borrow Lombard’s phrase, had given the Fugger a very important position in the trade networks of the XVth century. But this time, the catalyst for shifting the copper trade routes of the global mining economy from Venice to Antwerp and Lisbon was the copper needs of the Portuguese crown.

In the XVth century, the Fugger had two important cities for metal trade: Venice and Antwerp. The firm exported copper and silver from Tyrol to Venice, and imported from Venice luxury commodities, fine textiles, cotton, and, more importantly, Indian and Oriental spices. However, the expansion of the Turkish empire made it difficult for the influx of Oriental and Asian commodities to arrive at Venice. Antwerp, on the other hand, gained prominence as the center of this global economy at the beginning of the XVIth century. For this, the Fugger relied on the important market networks that were already consolidated in the Low Countries and in the ‘Venice of the north’, Brussels. When the Portuguese crown reached *Qualecut*, with Vasco da Gama’s voyage in 1497-98, a more pronounced shift in the geography of the copper trade of the Fugger took place. Copper increasingly was managed in *Lixboa*, through the *Casa da Índia*⁴¹. The financial transactions for copper and spices were managed in the Antwerp Bourse⁴².

This shift depended on an extensive commercial relationship that the Portuguese Crown established with Augsburg and Nuremberg families, particularly after Da Gama’s voyage. Many German merchant families participated in the second voyage of Vasco Da Gama. Kellenbenz, for example, states that the Portuguese ambassador João

³⁸ CARL-LUDWIG HOLTFRERICH, *Frankfurt as a Financial Centre From Medieval Trade Fair to European Banking Centre*, Munich, Verlag C.H. Beck München, 1999.

³⁹ HOLTFRERICH, op. cit.

⁴⁰ EHRENBURG, op. cit.

⁴¹ The *Casa da Índia* was the organization that managed all economic and trade enterprises overseas of the Portuguese empire.

⁴² EHRENBURG, op. cit., p. 112.

Borja claimed that the commerce of the Indies was exploited almost exclusively by Germans⁴³. In 1493, because of the intervention of Maximilian of Habsburg and his relations with Martin Behaim and Hieronymus Münzer, the king of Portugal, Dom João II, invited the Fugger to participate in an expedition to Cathay in Oriental Asia. Although the expedition did not take place, the king's intention was clear.

The year 1503 marked the beginning of the Portuguese business of the Fugger House based in Antwerp, through the *Feitoria de Flanders*, and the year 1508 marked the beginning of the 'active credit business' of the Fugger in the city. In the same year, the Portuguese crown made Antwerp its staple market for colonial trade. The city attracted many South German merchant-banking families, mostly from Augsburg. The Portuguese Viceroy Francisco de Almeida made a deal with suppliers of Indian pepper about the form of payment to be made in Antwerp: $\frac{3}{4}$ in gold and $\frac{1}{4}$. This increased dramatically the demand for copper in this city. Between 1505 and 1515, twenty five to thirty thousand hundred-weight of spices annually landed in Lisbon «as opposed to an average of about seven thousand five hundred at Venice»⁴⁴.

Trade with Indian suppliers was facilitated by the fact that India produced no gold, silver, copper or cowries. Money from other countries came to it, passed through its «ever-open door and provided it with the basis of its monetary raw material». Prior to the rise of the voyage of Vasco Da Gama, India was connected to the long-distance metal exchanges that passed through Venice. But with the metallic business of the Fugger, Indian trade would be closer to the heart of the European economy. King Dom Manuel, after the first voyage of Vasco da Gama to the Indian Ocean, issued on 29 June 1500 a privilege granting Portuguese and foreign merchants rights for fitting their own ships to India. Another privilege was issued on 13 February 1503 granting more rights to German merchants for a period of fifteen years. «They were asked to select an agent to deal in the commodities. This person was bound to confer with other agents of the city and enter the details of sales and purchases in the books. Germans were given the right to see that their merchandise was processed faster in the customs house at Lisbon. Silver brought by them for minting would have priority in the mint prior to that of others». They selected, as part of the privileges granted by the king, their own *Corretor* or agent

⁴³ KELLENBENZ, *Los Fugger en España y Portugal*, cit., pp. 59-60.

⁴⁴ CHANDRA RICHARD DE SILVA, *The Portuguese East India Company 1628-1633*, «Luso-Brazilian Review», Winter 1974, Vol. 11, No. 2, pp. 152-205, p. 48.

in Portugal, Valentim Fernandes. His role was to act as intermediary or what Mathew describes as ‘middleman’ between German merchants and the Portuguese Crown⁴⁵.

Further privileges were granted to the Fugger on 13 February 1503. The firm was granted freedom of trading, selling and buying goods in the territories of the kingdom. It was granted exemption from taxes and regulations for importing and exporting silver to the kingdom. Copper and mercury brought to the kingdom would pay only the tenth; they would be exempted from any other regulation, and could be exported free of taxes. The *especiarias* bought in the kingdom were also exempted from trade regulations. The firm was granted the privilege of trading in any currency according to its discretion. Fugger silver that was brought to the royal mint had priority over other merchants’ silver. The firm also was permitted to «conduct trade, sell or purchase whatever commodities in Portugal as well as in territories under the Portuguese directly or through their factor or employees»⁴⁶.

The Fugger monopoly of copper trade in the territories of Central Europe, secured through the house’s financial transactions with Sigismund and Maximilian, had put them at the core of the copper market. The Portuguese crown had no alternative but to turn to the most powerful copper merchants at the time for supplying its increasing copper needs. Also, Kellenbenz suggests that the relationship between Maximilian and the king of Portugal had some influence in bringing the Fugger house close to the Portuguese crown⁴⁷. No other merchant enjoyed the privileges granted to the Fugger; these were «*Liberdades e priuilegios os quaes a nenhuus outros nem aos nossos subditos ainda forão concedidos*»⁴⁸. The firm had its own representative in Lisbon and opened a *factoria* there. The *factoria* enjoyed an important place in the metallic business of the Fugger until about 1511, when the Portuguese crown shifted its pepper selling business to Antwerp.

Two Portuguese fleets sailing to India in 1503 and 1506 had a Fugger representative. The first included three vessels fitted out by the Fugger in a consortium with German merchants involved in the spice trade of Venice. King Dom Manuel extended the trading privileges to the Fugger in 1504 and 1509, and granted the House exemption from shipping regulations for spices. In the year 1503, Dom

⁴⁵ MATHEW, op. cit., Appendix II.

⁴⁶ *Idem*, p. 155.

⁴⁷ KELLENBENZ, *Los Fugger en España y Portugal*, cit.

⁴⁸ *Idem*, Appendix I.

Manuel had attracted German capital from the Welser and other German families by granting them privileges of lower taxation and the right to employ their own vessels in the Indian Ocean if they established offices in Lisbon. These proved to be very profitable for the firm in its participation in a German consortium in the famous Asia Contract by which the Portuguese Crown allowed German merchants to be the buyers of pepper. To this point we will return. By 1547, the copper contract with the Fugger was renewed for supplies of copper to India. This contract exempted the Fugger firm from paying taxes over their traded commodities in the Portuguese kingdom.

The Fugger continued this business and further established an agent in the 'Rome of the Orient', Goa. A letter from the Fugger agent in Cochin describes the conditions necessary for the trade of pepper in Goa:

«Such a pepper store is a fine business, but it requires great zeal and perseverance. It takes six weeks to receive the pepper from the heathen King of Cochin, who is our friend, and to load it into our ships. After the departure of these ships to Portugal I and my servants have but little to do. The pepper business is profitable indeed; when the Lord God grants by His Mercy that none of the ships take damage either in coming or going, then the merchants wax rich. With these sailings, all depends upon the right time to take the journey, to wit, during the month of March from Lisbon to this place, and from here to Portugal during the month of January. Also, when this can be arranged, to leave neither place later than 15th day of these months. Then the risk is slight. But it is dangerous to take one's departure later, for then one come across heavy storms, and has to go by a circuitous route, and often the ships are destroyed. This happens but rarely, provided the ships do not run aground, founder or otherwise come to grief»⁴⁹.

The *factoria* in Goa responded to another kind of contract between German merchants and the Portuguese crown, the Asia Contracts. For reasons of space we cannot discuss the history of this transaction here. It is sufficient to say that this contract involved the purchase of pepper and spices at a fixed price in India. Problems of alteration of spices by merchants in India, alliances of local merchants with powerful Muslim and Hindu traders, and difficulties of Portugal in getting wheat and other raw materials from other parts of Europe, complicated the monopoly of Portugal over the spice trade. The Fugger House entered into this kind of contract in the late 1580s. In a partnership with the Welser, the firm arranged an Asia Contract

⁴⁹ GEORGE T. MATTHEWS (ed.), *News and Rumor in Renaissance Europe (The Fugger Newsletters)*, New York, Capricorn Books, 1959, p. 67.

under the following terms: five of the twelve shares for the Matthäus Welser and Company and three out of twelve shares for the *Georg Fuggerchen Erben* (George Fugger's heirs). The other shares of the contract belonged to Giovanni Battista Rovelasca from Milan and Giraldo Paris of Aachen⁵⁰. The partnership was committed to send for the next six years an amount of 170,000 ducats to India every year for purchasing 30,000 quintals of pepper⁵¹. It had to take care of the transport of pepper to Lisbon and pay a fixed tax of 5 $\frac{2}{3}$ ducats to the Portuguese king. Pepper had to be delivered to the *Casa Da Índia*. In 1587, the Fugger firm covered most of the expenses of the insurance of the ships. This consortium ended up financing the ships that set sail for India every year during the period 1587-1593. In 1591, another contract was negotiated for two years, known as the *Europa Contract*. This time, it included merchants from Portugal (Tomas and Andrea Ximenes), the Fugger and the Welser firms, and the Spanish business house of Francisco and Pedro Malvenda.

A good example of the variety of goods brought from India by the Fugger comes from a letter from the firm's officers at Lisbon. It contains a detailed inventory of cargoes from India⁵². The letter, probably dated in August-October 1580, contains the following description of amount of spices (measured in cws.) coming from India:

Cargoes of four ships from Calicut in India which arrived at Lisbon in August –

Pepper, all sorts.....	20,777 cw.
Cloves.....	2,863
Mace.....	343
Nutmegs.....	444
Cinnamon.....	248
Ginger.....	203
Ginger for Preserving.....	600
Tufted cloves	470
Indigo.....	235
Wax.....	235
Resin.....	27

⁵⁰ MATTHEW, op. cit.

⁵¹ The ducat (*ducado*) was the currency used in credit negotiations by the Spanish and Portuguese crowns, principally in the transactions that took place in the Iberian peninsula. One ducat was worth 375 maravedies. Escudos or *coronas* were used for similar transactions abroad, with the following equivalency: 1 escudo = 340 maravedies.

⁵² KLARWILL, op. cit., pp. 45-46.

Raw silk.....	87
China silk.....	1.2 [arobas]
Incense.....	3.2 arobas
Amber.....	2,826
Small pearls.....	1,696
<i>17 ships from New Spain are bringing- [in ducats]</i>	
For the King.....	600,000 d.
for merchants.....	1,100,000
Hides.....	100,007
Cochineal.....	6,000 [arobas]
Cinnamon.....	407 [arobas]
<i>The fleet from Peru and the Main is to bring- [in ducats]</i>	
For the King.....	1,500,000 d.
For merchants.....	4,500,000

The port of Cochin remained the firm's *entrepôt* on the Malabar Coast for the entire XVIth century. This port was, in the words of Braudel, «not only a way out, but also a way in» for Fugger's products. Through contracts known as *Ordenações do Reino*, the firm was able to sell copper to the Portuguese Crown destined for India, which was paid for in spices. This copper rendered huge profits to the Fugger, if one considers the terms of the contracts with King Dom Manuel, and the increasing demand from the Portuguese factors stationed in the Malabar coast. Mathew says that «Affonso de Albuquerque the Portuguese governor of Gujarat informed of a short supply of copper in the factory at Cochin and asked him to dispatch large volume of copper to India»⁵³. The Sultan of Gujarat as early as 1513 was asking for 40,000 quintals of copper, each to be sold at eighteenth *xerafins*⁵⁴. The agreement with the King of Cochin set the price of pepper in 1503 at three *crusados* per quintal; three-fourths of the price had to be paid in cash, and one fourth in copper (approximately 2.62 kilograms of copper). «One quintal of copper purchased at Antwerp for 4.5 *crusados* and brought to India cost at the most nine *crusados* including the freight charges. A quintal of copper was sold

⁵³ MATTHEWS, op. cit., p. 165.

⁵⁴ *Xerafin* was an Indo-Portuguese coin worth 300 *reais* (s. *real*), or 3 shillings. The main currency of the Portuguese crown used for international transactions in the spice-copper trade was the *cruzado* or *crusado*. One *cruzado* was equivalent to the following: 400 *reis*, or 272 *maravedies*, or 1 *real de 8 pesos*, or 4 *shillings*. Other currencies used in the trade were the *florin* (equivalent to one *guilder* or 160 *reis*).

at fourteen *crusados* in India. The Portuguese were able to make a profit of five *crusados* at least by way of the sale of copper»⁵⁵.

The lucrative copper business continued into the 1570s, when the Portuguese Crown tried to solve its liquidity problems by experimenting with leasing of pepper contracts to Portuguese and foreign syndicates, particularly in the face of the Dutch and English economic competition. In a letter dated 22 October 1599, an agent of the firm sent a letter to Augsburg saying that the «Dutch navigation to the Indies is becoming ever greater, which will cause the Portuguese heavy damage in their trade»⁵⁶. A letter dated August 18, 1600, reveals how the firm carried its interests in the spices trade:

«Two ships, the Lion and Lioness belonging to Balthasar Monseron in Zeeland have arrived home from Madagascar with thirty loads of white pepper and with some white ginger. They have had a bad voyage and have endured great dangers both afloat and on land on account of the savages. These gave them to drink of an intoxicating beverage, which they took full of trust. Owing to this they all became unconscious and for three whole hours the ship was besieged by the savages and nearly lost. But those on board the Lioness fought the savages so bravely that the latter had to abandon her. However, eighty men who had landed perished. These savages, therefore, should not be trusted»⁵⁷.

The firm continued to have representatives in Lisbon until mid-sixteenth century, probably being interested in the pearl and diamond trade that developed in Lisbon after the discovery of Brazil. In the mid-fifteenth century, however, a powerful interest had developed in the mercury mines of Almaden in Spain, and prospects opened up for expanding into the Iberian-Atlantic economy.

The asientos with Spain: Mercury mining and trade

The metallic business of the Fugger in Spain was limited to specific contracts for mercury mining in Almaden and Guadalcanal. The evolution of the mining contracts, or *asientos*, offers insights into the economic and political difficulties that mining capital encountered. Investments in mercury mining never came alone; they were tied to other business with the Spanish crown. There is no question that invest-

⁵⁵ MATTHEWS, op. cit. A.R. DISNEY, *The First Portuguese India Company*, 1628-33, «The Economic History Review», New Series, May 1977, Vol. 30, No. 2, pp. 242-258.

⁵⁶ MATTHEWS, op. cit., p. 241.

⁵⁷ *Idem*, pp. 243-244.

ing in mines in Spain was not the same as investing in mining in Central Europe. Spain was at the periphery of the mineral trade developed by Jacob after 1487, but this periphery had developed a strong link with German mercantile activity in the spice trade since the early XIVth century (for example, the lucrative German trade in saffron that came to Barcelona through the fairs of Lyon is a case in point). After the discovery of the New World and of the silver mine of *Ciudad Imperial de Potosí* in 1545, Spain became the center of the metallic trade of the sixteenth century.

Spain had been in the book accounts of the Fugger bank in Augsburg since the early 1520s, and under Philip II the Fugger played a central role in the finances of the Spanish Crown. They were close to Philip II through the debts inherited by the king, but also through loans and cash advances : what Juana of Austria elegantly called the *socorro del dinero*⁵⁸. This aspect of the Fugger banking business has been extensively discussed by historians of the Habsburg monarchy. Suffice to say here that the connection of the Fugger firm to Spain dated back to the financing of the campaign of Charles, son of Maximilian, for the imperial crown. Most of the loans given to Charles had as security his incomes in Spain. «It is clear as day that had it not been for me, you would not have been able to obtain the Roman Crown», Jacob Fugger reminded Charles V on 24 April 1523⁵⁹. When Philip II became king of Spain, the Spanish Crown had accumulated a debt for the amount of seven million ducats, one third of this amount being owed to the Fugger firm⁶⁰. The power of the Fugger in the Spanish finances was so strong that when Philip II declared a suspension of payments in 1557, the bankruptcy did not include the accounts with the Fugger family. The Fugger offered Philip II a fifty percent reduction in the interest on the loans if the firm was omitted from the bankruptcy. Despite intense lobbying by his powerful secretary, Francisco de Eraso, and Spanish bankers who were rivals of the Fugger, Philip did not include the Fugger in the bankruptcy⁶¹.

⁵⁸ In a letter by Juana of Austria to Philip II, on 20 March 1557, in FERNÁNDEZ ÁLVAREZ, *Corpus Documental de Carlos V, Vol. IV (1554-1558) Apéndice Las Memorias del Emperador*, Salamanca, Universidad de Salamanca, 1977, p. 306.

⁵⁹ HUGH THOMAS, *Rivers of Gold The Rise of the Spanish Empire, from Columbus to Magellan*, New York, Random House, 2003, p. 414.

⁶⁰ HERMANN KELLENBENZ, «Los Fugger en España en la época de Felipe II. ¿Fue un buen negocio el arrendamiento de los maestrazgos después de 1562?», in ALFONSO OTAZU (ed.), *Dinero y Crédito (Siglos XVI al XIX)*, Actas del Primer Coloquio Internacional de Historia Económica, Madrid-Villalba-Segovia, 21, 22 y 23 de marzo de 1977, pp. 19-36.

⁶¹ KELLENBENZ, *Los Fugger en España y Portugal*, cit., p. 25.

The Fugger entered the Iberian-Atlantic economy when the trade in metal products became the core of this economy⁶². German houses in the spice trade were incapable of adapting to the conditions imposed by this economy. Contrary to the spice trade, investments in metal trade depended upon investments in production. It required 'fixed capital' for investing in processes of extraction and technological development. The Fugger firm had a competitive advantage, as its mining complex of Tyrol, Bohemia, and Hungary firmly testify. In mining, using the words of Peter Kriedte, mercantile capital took upon its shoulders the processes of production⁶³. Second, the Iberian-Atlantic economy required financial circuits to be organized around Antwerp and its serving cities and ports, particularly after 1531 with the creation of the Antwerp Bourse⁶⁴. The traffic of Atlantic silver to Antwerp was «common knowledge»; «documents at Antwerp», says Braudel, refer to links between the port on the Scheldt and the farthest regions of the ocean, West Africa, and the early settlements in Brazil⁶⁵. And here, the Fugger firm enjoyed another advantage because its copper trade was concentrated in Antwerp. Between 1497 and 1503, 1,390.4 tons of copper were exported by the Fugger firm : 12.3 percent to Antwerp, Gdansk and Szczecin, and 32.1 percent to Venice and Trieste. By contrast, the firm exported between 1507 and 1509, 1,476.8 tons of Hungarian copper: 49.3 percent to Antwerp, and 13.3 percent to Venice and Trieste. In 1510-1518, 55.8 percent of 1,625.2 tones of Hungarian copper were exported to Antwerp (compared to 2.6 tones to Venice and Trieste)⁶⁶. Another explanation is related to the transformation of the Mediterranean traffic of spices and credit into an «imperial silver route», to borrow Braudel's phrase. A

⁶² For a discussion of the term «Iberian Atlantic economy», see JORGE CAÑIZARES-ESGUERRA, *Nature, Empire and Nation Explorations of the History of Science in the Iberian World*, Stanford, Stanford University Press, 2006; *Iberian Science in the Renaissance: Ignored How Much Longer?*, «Perspectives on Science», 2004, Vol. 12, No. 1, pp. 86-124.

⁶³ PETER KRIEDTE, *Feudalismo Tardío y Capital Mercantil*, Crítica, 1994 (1982).

⁶⁴ For German trade with Antwerp in the XVth and XVIth century, see DONALD J. HARRELD, *High Germans in the Low Countries: German Merchants and Commerce in Golden Age Antwerp*, Boston, Brill, 2004.

⁶⁵ FERNAND BRAUDEL, *The Mediterranean and the Mediterranean World in the Age of Philip II*, Vol. I, Berkeley, University of California Press, 1992, p. 480. For the traffic in bullion between Spain and Antwerp after the revolt of 1566, see BRAUDEL, *The Mediterranean and the Mediterranean World*, Vol. I, Berkeley, University of California Press, 1995, pp. 482-487.

⁶⁶ KRIEDTE, op. cit., p. 49.

crucial structure in this transformation was the flow of bullion through the *asientos*. The fact that these contracts were principally repaid with the silver imports that arrived to Seville, meant a steady demand by the Habsburg monarchs for international capitalists eager to participate in the international silver markets. The Fugger were capable of advancing cash to the monarchs, and more importantly, transferring and paying to the Crown in bills of exchange, gold and copper in the places where these were needed. Many *factores* of the old German families in Spain ended up working for the Fugger in Seville, Guadalcanal, Madrid, Almagro, and Barcelona. The connections of the *factores* to the Spanish court were welcomed by the Fugger firm as part of a business strategy that allowed access to key people inside the court. Jost Schedler de Kempton, for example, was a *factor* of the Germans of Ravensburg. After their business in Barcelona experienced a crisis, he went to work for the Fugger. The firm's factors in Spain were instructed to «follow the court wherever it goes», as in 1562, when the court moved to Segovia.

The first negotiation of the *asientos* of Almaden took place in 1524 between Charles, king of Spain, and the Fugger firm registered in Spain as *Jacobo Fúcar y Sobrinos*. This lease was part of a bigger one negotiated with the king of Spain for the incomes of the *Maestrazgos* (masterships of the military orders of Santiago, Calatrava and Alcántara). As a security for a loan, the Fugger firm acquired a lease for producing mercury and managing the mines of Almaden and Guadalcanal for the years 1524 to 1527. After the invention of mercury amalgamation, the mines of mercury all over Europe were sought by merchants and bankers for their high expected returns⁶⁷. This was particularly the case with the mines at Almaden, which were

⁶⁷ There is disagreement among historians as to the exact date – and place – of the invention of amalgamation. Spanish historians López Piñero and Bargalló put this invention somewhere in the XVth century, by German miners in Central Europe, or in Almaden, and perfected in the viceroy of New Spain (Mexico). Blanchard has a more provocative thesis that puts the origins of amalgamation in the East, from there it traveled to Europe through Western Sudan in the XIIth century. Amalgamation consisted on mixing mercury with gold-bearing ores over a charcoal fire for allowing mercury to evaporate and recuperate gold. The technique was going to change, after ‘incessant experimentations’ in its journey to the New World, but the inputs remained the same. See, for example, JORGE CAÑIZARES-ESGUERRA, *Iberian Science in the Renaissance: Ignored How Much Longer?*, «Perspectives on Science», Vol. 12 No. 1, 2004, pp. 86-124; JOSÉ CARRACIDO, *Los Metalúrgicos Españoles en América*, Madrid, Ateneo, 1892; MANUEL CASTILLO MARTOS (comp.), *Minería y Metalurgia Intercambio Tecnológico y Cultural entre América y Europa Durante el Período Colonial Español*, Sevilla & Bogotá, Editores Muñoz Moya y

described by the experts of the Spanish crown as rich in mercury⁶⁸. Jacob gave the king cash advances of 50 million maravedies annually for the years 1524 to 1527. As a security, the incomes of the *Maestrazgos* would be collected by the Fugger firm. The total profit for the period 1524-1527 collected by the Fugger was 2,200,000 maravedies⁶⁹.

The profits from this first *asiento* comprised the revenues from the ecclesiastical orders of Santiago, Calatrava and Alcántara, and those of the mercury mines of Almaden. What was the share of the profits of the *asiento* of Almaden? Historian Tascón Mastilla says that it is difficult to determine with precision what was leased in Almaden during the first decades of the XVIth century⁷⁰. Part of the reason is embedded in the political history of Almaden itself. Since 1151, the Order of Calatrava was the owner of the mines of Almaden, a privilege granted by Alfonso VII of Castile after the expulsion of Arabs from this region. From 1168, the Order shared the incomes of the mines of Almadén and Chillón with Count Nuno, but the mines were located in 'unstable territory', at least during the first half of the XIIIth century when a series of Muslim-Christian conflicts occurred. By 1212 the territory was in Christian control, and between 1232 and 1248 king San Fernando conquered regions which included the mines. He granted half of the mercury mine of Chillón to the Order of Calatrava⁷¹. Between 1254 and 1282, the king of Aragon and the Order of Calatrava shared ownership of the mine of Almaden. In 1282, the Order was granted exclusive ownership of the mine and royal protection for the production of vermillion⁷². In 1313, the Order started to lease the production and trade in mercury from the mines of Almaden. Catalan and Genoese merchants enjoyed leases at different periods in the XIVth and XVth century, but in 1485, when the Order of Calatrava was incorporated into the crown of Castile, the mines became part of

Montraveta, 1994; SILVIA FIGUEIRÔA, CLARETE DA SILVA, *Enlightened Mineralogists: Mining Knowledge in Colonial Brazil*, «Osiris», 2001, Vol. 15, pp. 174-189; FRANCISCO X. GAMBOA, *Comentarios a las Ordenanzas de Minas Dedicados al Catholico Rey*, Madrid, Oficina de Joachin Ibarra, 1761, especially the "Prólogo"; JOSÉ MARÍA LÓPEZ PIÑERO, *Ciencia y Técnica en la Sociedad Española de los Siglos XVI y XVII*, Barcelona, Editorial Labor, 1979; JULIO REY PASTOR, *La Ciencia y la Técnica en el Descubrimiento de América*, Buenos Aires, Espasa Calpe, 1951.

⁶⁸ AGI, Patronato, 171, N. 1, R. 9, *Tratamiento de los metales: pozos de los azogues de Almaden*.

⁶⁹ EHRENBURG, op. cit., p. 82.

⁷⁰ A. TASCÓN MASTILLA, *Historia de las Minas de Almadén Vol. I Desde la época romana hasta el año 1645*, Madrid, Gráficas Osca S.A., 1958.

⁷¹ A. TASCÓN MASTILLA, op. cit., p. 12.

⁷² *Idem*, p. 13.

the patrimony of the crown. In 1487 Pope Inocencio VIII recognized the crown as the «apostolic administrator of the incomes of the order», while another papal bull dated 4 May 1523 granted the crown «perpetual administration» of Order's incomes.

Another difficulty of the *asientos* of Almaden was the scarcity of miners. This problem was exacerbated by the legacies of the *Reconquista*, particularly in Granada. During the middle ages, the population of Almaden included Jews and *moriscos*⁷³. Many *moriscos* ended up working for the Fugger factory in Almaden as *forzados*⁷⁴. But the supply of labor for the mines was a condition that had to be negotiated in the *asientos*. On several occasions the Fugger firm asked the crown to grant a special privilege to allow the firm to recruit *moriscos* or to have a specific number of *forzados* in the mines. To these difficulties, we must add another peculiarity of the *asientos* of Almaden that related to the production of mercury. Production required a constant supply of raw materials, in particular wood. Conditions for using timber and pasture had to be identified in the *asientos*. Lack of these conditions could open the window to delays in deliveries and low productivity, and more importantly for conflicts between the Fugger firm and pasture and cattle ranchers of the region.

The *asiento* of Almaden was renewed in 1537 for a period of five years. This time the Fugger made several investments in infrastructure and tools. Very little is known about this *asiento* in terms of price and deliveries, but it is an important moment in the history of the metallic business of the Fugger⁷⁵. As part of this *asiento*, the Fugger requested the crown to invest money in building an adit (*contramina*) in Almaden. The crown sent the request to the *Consejo de las Órdenes* for further consideration ; the *Consejo* turned down the proposal⁷⁶. In 1543 an accident in Almaden took the lives of eleven miners. The Fugger were held responsible for not protecting the walls of the mine with wood. They responded by blaming the crown for not investing in the building of the adit. The Fugger had produced in this *asiento* between 600 and 1,000 cw of mercury and vermilion combined for each year of the *asiento*. The *asiento* was granted again to the Fugger in 1547-1550.

⁷³ *Moriscos* was a term used for identifying baptized Arabs or Moors who stayed in the peninsula after the Reconquista.

⁷⁴ *Forzados* were the men (*galeotes*) sentenced to work in the rowing of the galleys.

⁷⁵ KELLENBENZ, *Los Fugger en España y Portugal*, op. cit., p. 91.

⁷⁶ The organization of the Spanish government in the XVIth century was based on councils or *consejos* with ministerial and territorial functions. The ministerial

Table 1: Deliveries of mercury and vermillion to the *Casa de Contratación* by the Fugger factory, under the *asiento* of 1547-1550⁷⁷

Year	Mercury cw + lbs	Vermilionw cw + lbs
1547	1,359 + 83	125 + 96
1548	1,600 + 71	101 + 76
1549	1,724 + 57	83 + 88
1550	622 + 41	84 + 17.5

In 1550, a fire in Almaden stopped production of mercury. The accident escalated into a political conflict over jurisdiction and mining rights between the government, Spanish bankers, and the Fugger factors. After the fire, the Fugger lost the *asientos* of Almaden for the

councils of administrative and judicial functions were the following: *Consejo de Estado* (Council of State, 1522), *Consejo de Guerra* (Council of war, 1517?), *Consejo de Inquisición* (Council of inquisition, 1483), the *Consejo de Órdenes* (Council of military orders, 1495), *Consejo de Cruzada* (Council of crusades, 1509), and the *Consejo de Hacienda* (Council of finance, 1523). The territorial councils were the following: Castile (1480), Indies (1524), Aragon (1499), Italy (1555), Portugal (1582), and Flandes (1588). There was also the Council of Navarra, located outside the court. The areas of jurisdiction of the councils determined their relevance in the Habsburg monarchy. The councils of State, war and inquisition had competence in the entire monarchy. The councils of orders, crusade and finance, directly linked to the crown of Castile, had competence in the entire monarchy. This was particularly the case of the *Consejo de Hacienda*, for the enormous relevance of the Castilian finances for the monarchy. Since 1502, the *Consejo de Hacienda* consisted of several departments of finance (*contadurías*). After 1523, with the reforms of Chancellor Gattinara, the *Consejo* was composed of a president, 3 councillors from the *Consejo de Castilla*, and the *Contadores Mayores*. The *Consejo de hacienda* had control over the incomes, rents, subsidies, and revenues of the monarchy. J.H. ELLIOT, *La España Imperial 1469-1716*, Madrid, Editorial Vicens-Vives, 1979.

⁷⁷ The *Casa de Contratación* was established in 1503, following the model of the *Consejo de Burgos* and the *Consulat* of Barcelona. It operated as a corporation and trade tribunal for exercising control of the monopoly of trade imposed by the Spanish crown in its overseas possessions. It managed the relations among bankers, creditors, merchants and the crown. It was the political branch of the Real Hacienda for establishing policies concerning trade, commerce and finance of all enterprises in the Indies. Metals delivered under the *asientos* had to be registered in the *Casa de Contratación*. From here, metals were distributed to royal treasurers and offices in charge of distributing payments and advances to bankers and creditors. ELLIOT, op. cit.

periods 1551-1554, 1555-1558 and 1556-1562, which the crown granted to Spanish merchants. The judge of the Order of Calatrava who investigated the causes of the fire reported that «*el fuego pudo haberse extinguido con sólo ocho ducados*»⁷⁸. His report stated that on the first day of the fire, the managers of the adit could have contained it by closing the mouth of the mine to stop the oxygen flow. Second, the judge concluded that the Fugger benefited from the accident by claiming shortages of supply and raising the price of mercury. Third, the contract of the Fugger included a provision stipulating the responsibility of the firm to build the necessary infrastructure for draining water from the mine. The investigation by the Order of Calatrava concluded that the firm had failed to build the necessary pumps for water drainage. It also concluded that the Fugger violated the contract by neglecting the construction of an adit.

The opportunity to recover the *asiento* of Almaden came on 29 April 1562, when the *Consejo de Hacienda* opened the lease of the incomes of the Maestrazgos. This lease included an *asiento* for the mine of Almaden, which was negotiated for a period of 10 years⁷⁹. It stipulated a progressive increase in the production and delivery of mercury. At first the Fugger had to deliver to the crown the amount of 600cw of mercury from the mines of Almaden; in 1564, the amount was raised to 800cw and in 1565 to 1,000cw. From 1565, the volume was raised to 1,000cw of mercury per year. The Fugger were allowed to produce up to 1,500cw and to sell the surplus free of taxation. For each hundredweight, the crown would pay 25 ducats in Seville. The *asiento* also granted the Fugger the right to produce cinnabar up to 150cw/year, to be paid at 28 ducats/cw. The crown stipulated two conditions: first, that mercury could not be taken to take to America by the firm, and second, that they had to deliver up to 1,500cw/year of vermilion at 28 ducats/cw. The crown would pay for the deliveries of mercury and vermilion in Seville in *reales de contado*⁸⁰. Also, in the year of the expiration of the *asiento* the crown had the option of buying the azogue and the vermilion that was still in the possession of the firm at a price of 20 ducats and 28 ducats respectively. If the crown did not buy it, the Fugger had the right to trade it outside Spain. Another important privilege to the Fugger was the jurisdiction granted to

⁷⁸ «The fire could have been extinguished with the sum of 8 ducats». TASCÓN MASTILLA, op. cit., p. 51.

⁷⁹ *Idem*, p. 27.

⁸⁰ The crown used ducats, maravedies, and the *real*. The *real de 8 pesos* was equivalent to 272 maravedies; the *real de 4 pesos* was equivalent to 136 maravedies.

the firm in «private civil and criminal matters» pertaining the firm's employees, its factors, local administrators, and the operations of the mine⁸¹.

Why, after the 1550 report against the Fugger, did the crown grant them the *asiento* again? The answer is found in the level of crown debt. By 30 March 1563, according to the *contador* Francisco de Garnica and royal officer Fernán López del Campo, the Spanish crown had a debt of 779,016,999 maravedís and a further 336,907,224 maravedís in interest. This was equivalent to 1,115,924,223 maravedís. The Spanish crown, under Charles of Spain, king Ferdinand, and in particular Philip II, had borrowed heavily from bankers. In 1519, the year of the election of Charles as emperor, a loan for 220,000 florins in bills and notes had been given to Charles, in addition to 543,000 florins⁸². In 1522, Jacob granted a loan to the crown for the amount of 10,000 ducats for the expedition to Moluccas. Under Ferdinand, revenues of German lands were leased in 1524 and 1525 for 25,000 florins, 20,000 ducats and 59,562 ducats, respectively. By the time the firm set its feet in the Iberian peninsula, the crown was already financially dependent on the Fugger. Indeed, the incomes of the *Maestrazgos* granted to the firm in 1524-27 had the purpose of paying back the loan given to Charles of Spain. From 1538-41, the firm got the lease of the *asiento* of the *Maestrazgos*. This time, the crown charged 57 million maravedís annually. After a brief interruption, the crown again granted the lease to the Fugger in 1547-50 for 61 million maravedís. Between 1563 and 1573 the firm secured the lease for 93 million maravedís annually, and between 1573 and 1582 the figure was 98 million maravedís per annum. These transactions, particularly the later leases from 1582 until 1634 created a huge debt for the crown (in this period, the lease of the incomes of the *Maestrazgos* was for 110 million maravedís). The problem was that the Fugger firm usually advanced the total amount of money for each year of the lease, and charged interest (usually 10 percent) on the advances. In the mean time, other loans and transactions were taking place involving the Spanish crown. Under Anton, the firm negotiated with Ferdinand a loan of 356,845 florins and 37 kreutzer to be paid at a charge of 10 percent interest. With Charles V, Anton Fugger had given in 1536 and 1537 bills of exchange for the amount of 100,000 ducats in both years, at 14 percent interest (and installments of gold and silver from India and an annuity of 26,526 ducats from the crown's rev-

⁸¹ TASCÓN MASTILLA, op. cit., p. 90, and footnote no. 94.

⁸² The florin was equivalent to 160 reis and 1 guilder in the spice copper trade.

enues of Castile in 1537, and the revenues of Maestrazgos in 1538). In 1557, the crown had a debt of 600,000 ducats; the firm would wait until 1591 to recover this loan⁸³!

The Fugger also had interests in the Spanish colonies of the New World. A letter from a Fugger factor in Venice, dated April 30 1599, echoed the news about the 'abundant wealth' of the New World: «Of the Indian fleet only one gallon with two millions in gold and a large quantity of cochineal has remained behind. The newly arrived fleet informs us also that the Spaniards have conquered a new kingdom in India called Old Mexico. It is inhabited by intelligent people who are to be instructed in the Christian faith. Very rich gold and silver mines exist there also»⁸⁴. The Fugger had a direct interest in the colonies of Spanish America, in particular because of their exports of silver to Seville. As mentioned before, Charles and Philip II pledged the silver of the Americas to the loans which they had contracted not only with the Fugger, but also with other German, Italian and Spanish bankers⁸⁵. The Fugger's interests in Mexico and Peru were also linked to their production of mercury from Almaden, which was destined for the mines of Mexico. The introduction of mercury amalgamation into Spanish America allowed miners an efficient recuperation of silver. Soon, a market for mercury imports developed, albeit under the supervision of the crown.

The Fugger acquired concessions for establishing trade in Spanish America. In 1532, Anton Fugger received from Philip II a license for «colonizing Chile and southern Peru»⁸⁶. In 1535, there was a factor of the Fugger in Chile involved in the slave trade. In the early decades of the XVIth century, a new direction in the flow of news appears: letters started to arrive from the viceroys of New Spain and New Granada, especially from Vera Cruz (Mexico), Chile, and Hispaniola (today the Dominican Republic). A letter dated May 15, 1586, referred to the «bad times in Mexico» for selling commodities due to piracy in neighboring colonies:

«[...] a ship with three hundred men and all manner of munitions sailed for Havana to render assistance. Those who have landed here previously from Havana, report that the country is ruined and that there is no demand for merchandise. They were obliged to take off twenty per cent, and to give long credit for the little that was sold. A ship brings nine hundred arobas of cochineal as counter cargo [...] Whether it comes or not, it will bring little

⁸³ TASCÓN MASTILLA, op. cit., pp. 172-174.

⁸⁴ MATTHEWS, op. cit., p. 237.

⁸⁵ ÁLVAREZ NOGAL, op. cit.

⁸⁶ MATHEW, op. cit., p. 112.

money back, for no one will wish to spend because the goods are worth more in Spain than here. What is sold here will have to be given on credit'⁸⁷.

The debt of the crown, the interests of the firm, and the need of both for mercury, kept them together in Almadén. Two important *asientos* of 1567 and 1568 set new amounts of deliveries of mercury and higher prices for the remaining 5 and 6 years of the *asiento*. According to the 1562 *asiento*, the firm had to fulfill its obligations of deliveries twice a year in the months of June and December. Mercury was delivered late during the years 1563 to 1566. Before the price of 20 ducats came into effect in 1567, the Fugger asked the crown to negotiate a new contract setting higher deliveries at a higher price. The factor of the Fugger offered to open a new *adit* (*contramina*) for delivering an additional 200cw per year of mercury for the remaining years of the *asiento*, at a price of 26 ducats per cw. He argued that a higher price was needed for covering the costs of building an *adit*. The crown signed this *asiento* in April 1567, adding two further conditions. First, that the crown would buy up to 1,500cw/year, for every year that the Fugger firm produced more than 1,200cw/year. The additional amount of mercury would be understood as part of the initial obligations of the crown stipulated in the 1562 *asiento*. The second condition was that the new mine had to be built before the expiration date of the lease (1572), and with the necessary dimensions for allowing workers to enter and exit the mine. The *asiento* of 1568 raised the required deliveries to 1,700cw, starting in 1569 until 1572. Mercury was to be delivered in the *Casa de Contratación*, in transit to New Spain. The new price was 29 ducats/cw. The crown would buy up to 2,000cw of mercury per year; but if in any given year the deliveries were reduced to 1,600cw, the price to be paid was 26 ducats (as stipulated in the previous negotiation)⁸⁸.

⁸⁷ MATTHEWS, op. cit., pp. 118-119.

⁸⁸ Other *asientos* were granted to the Fugger in this period. Among the most significant are the *asientos* for solving the problem of scarcity of miners. The Fugger factors had complained to the crown about the difficulties of attracting labor force to the mines. The Fugger factors had warned the crown that it was going to be impossible to fulfill the firm's delivery obligations without the intervention of the crown. On 14 February 1566, an *asiento* granted to the Fugger 30 *forzados* of the *Cárcel Real de Toledo* to work in the mines, «*siempre que fueran de los condenados por tiempo limitado*». The firm was obliged to provide food and clothes to the *forzados*. A royal decree signed on 25 September 1566 granted the Fugger jurisdiction over the 30 *forzados*, after the Fugger factors complained about the 'inconvenience' of the fact that *forzados* were under the jurisdiction of the *Alcalde Mayor* of Almadén. It seems that the problem of attracting free men to the mines

The Fugger delivered to the *Casa de Contratación* the total amount of 14,800cw of mercury for the asiento of 1562-1572 (see Table 2). Each hundredweight was paid at 34 ducats as opposed to the price of 25 to 29 ducats as stipulated by the *asiento*. The difference in price corresponds to the amount of money paid by the crown in interest for the delays in payments. As with the leases of the Maestrazgos, the asiento stipulated that the Fugger could charge the crown 10 per cent interest for late payments. For the 1562-1572 *asiento*, interests paid by the crown amounted to 455,083 ducats⁸⁹.

Table 2: Deliveries of mercury to the *Casa de Contratación* by the Fugger factory, under the asientos of Almaden, 1562-1645

(a) <i>Asiento</i> 1562-72		(b) <i>Asiento</i> 1572-81		(c) <i>Asiento</i> 1583-94		(d) <i>Asiento</i> 1595-1604	
Year	Hg cw	Year	Hg cw	Year	Hg cw	Year	Hg cw
1563	600	1573	1,900	1583	2,400	1595	3,055.5
1564	800	1574	1,900	1584	800	1596	3,106
1565	1,100	1575	2,100	1585	1,600	1597	1,601
1566	1,000	1576	1,700	1586	2,400	1598	2,250
1567	1,200	1577	3,400	1587	3,200	1599	3,382
1568	1,200	1578	1,700	1588	2,400	1600	3,080
1569	1,700	1579	2,500	1589	3,200	1601	3,292.5
1570	1,700	1580	2,500	1590	3,200	1602	2,472.5
1571	1,700	1581	2,900	1591	2,600	1603	3,127.5
1572	2,100			1592	2,000	1604	3,235
				1593	2,525.5		
				1594	3,005.5		
T	14,800	T	22,700	T	29,331	T	28,602

was a constant concern with the asientos of Almaden. By the end of the XVIth century, free men and miners preferred to enroll in the Spanish troops than to seek for work in Almaden. When Philip II ordered expulsion of *moriscos* of Granada after the revolts of 1560s, the Fugger factor asked the crown for a license to employ 150 to 200 *moriscos*, and provide them sustenance and salaries, *según se conviniese*. Ninety-three *moriscos* from Granada were granted to the firm in Almaden, not without complains by Spaniards from the region. TASCÓN MASTILLA, op. cit., p. 94.

⁸⁹ As the Crown became increasingly indebted to the firm, animosities arouse between the financial agents of the Crown and those of the Fugger. Erasso, the agent of King Philip dealing with the Fugger, once described the Fugger firm as «from no one else do they have so much trouble and so little profit as from them», EHRENBURG, op. cit., p. 114.

(e) <i>Asiento</i> 1605-14		(f) <i>Asiento</i> 1615-24		(g) <i>Asiento</i> 1625-35		(h) <i>Asiento</i> 1636-45	
Year	Hg cw	Year	Hg cw	Year	Hg cw	Year	Hg cw
1605	3,278	1615	4,580	1625	4,760.5	1636	4,452
1606	3,977	1616	4,610.5	1626	4,813.5	1637	1,321.5
1607	3,817.5	1617	5,096.5	1627	4,504.5	1638	3,825
1608	3,522	1618	5,282.5	1628	3,793.5	1639	2,517
1609	2,737.5	1619	4,961.5	1629	5,097.5	1640	2,030
1610	3,019	1620	4,980	1630	4,565.5	1641	2,577.5
1611	3,040	1621	4,750.5	1631	4,597	1642	2,547.5
1612	3,357.5	1622	4,526.5	1632	4,589	1643	1,503
1613	4,155	1623	4,584	1633	4,452	1644	2,823
1614	5,051	1624	4,561.5	1634	4,005.5	1645	1,749
				1635	2,634.5		
T	35,954.5	T	47,933.5	T	47,813	T	25,345.5

In 1572, a new *asiento* was signed for 10 years obliging the firm to deliver 1,700cw/year, starting in 1573. At the end of the 10 year period, the deposit of mercury in the *Casa de Contratación* had to reach the amount of 17,000cw. If, in a given year, the Fugger delivered less than 1,600cw, the crown would pay such delivery at 26 ducats/cw. Otherwise, the crown would pay 30 ducats/cw for mercury, and 32 ducats/cw for vermillion⁹⁰. Table 2 shows that the total amount of mercury delivered in the 1572 *asiento* exceeded the amount of 17,000cw by 5,000cw. The surplus started to arrive to the *Casa de Contratación* from 1577 onwards. Tascón Mastilla observes that the firm advanced

⁹⁰ This *asiento* contained two new conditions. If the crown decided not to buy mercury on a given year, the Fugger were going to continue operations in Almaden, under a lease for the amount of 10,000 ducats per year. In this case, the firm had freedom for trading mercury inside Spain, or export it to Europe. A royal decree signed on 3 February 1573 extended to the firm the privilege of exercising the civil and criminal jurisdiction in Almaden. Another new condition was that in case of accident or fire in Almaden, the crown was going to make a reasonable deduction of the delivery obligations, and would 'justly compensate' the Fugger for any damages of their factory in Almaden. Marcos Fugger had the privilege of establishing a supplies store in the villa for the selling of basic foodstuff and necessities to the local people (meat, fish, wine, bread, etc.). The governor of the mine, an employee nominated by the Fugger, was the person in charge of setting the price of the articles.

deliveries of mercury on a systematic basis. Was it a strategy for making profits, by forcing the crown to pay interest on deliveries? To the question of interest we will return later. This *asiento* was renewed in 1583 for twelve years, until 1594. This time, Philip II would only buy 1,500cw/year of mercury until 1594, or, when possible, a total amount of 1,750cw/year. In this *asiento*, the Fugger also made advances of deliveries and fulfilled the required deliveries four years before the expiration of the *asiento*. Again, the crown was forced to accept mercury deliveries and increase its indebtedness to the firm.

The Almaden *asiento* remained in the hands of the Fugger until 1645. It was renewed periodically in 1595 (until 1604), 1605 (until 1614), 1615 (until 1624), 1625 (until 1635), and 1635 (until 1645). Two aspects are important regarding the deliveries of mercury and management of the mines of Almaden. In the 1595 *asiento*, the Fugger had to deliver a minimum of 1,500cw/year of mercury, but the crown reserved the right to ask for a higher amount on any given year for the duration of the *asiento*. The Fugger had the right to deliver up to 2,000cw/year of mercury if production reached such a level. As Table 2 shows, the first delivery reached the amount of 3,000cw of mercury. This time, the Fugger negotiated an agreement with the crown for advancing a payment of 10 percent of the debt the crown had accumulated with the firm. By 1602, the firm had delivered more than 20,000cw, and forced the crown to extend the *asiento* for 2 additional years, at 32 ducats/cw. The 1603 extension of the *asiento* was conditioned to an advanced of cash by the Fugger for the amount of 259,450,893 maravedíes, in the form of payments to creditors for the *Real hacienda*.

With the *asiento* of 1605-1614 we see two structural problems of the Fugger's mining capital in Almaden: technology and labor force. The Fugger knew about a new German oven for processing ores that had been introduced to Spain by captain Martín O'Campo from Peru. The new invention, known as *horno de reverberación*, substituted the *xabecas* (ovens) and appeared as 'investments' in the accounts of the firm from 1609 to 1637. The oven made the recuperation of mercury more efficient, because it reduced the amount that vaporized into the air. We do not know the cost of this oven, nor the 'royalties' (in modern terms) that had to be paid to Martín O'Campo. But we can infer that there was a cost for the Fugger that was not recuperated, at least not immediately in 1609. Table 2 shows a decline in amount of mercury delivered from 1608 to 1609, and a slight increase again in 1610. There was another problem that can also explain the 1609 decrease in deliveries. Philip II had expelled the Moors from Granada in that same year, and a lot fled the village of Almaden. In the mine, the Fugger lost 26 Moors who worked cutting the stones (*cuadrilleros*). To

cope with these problems, the Fugger asked the crown for a reduction of the *alcabala*. Annually, the payment of this tax amounted to 502,000 maravedies. The crown granted a reduction of 30,000 maravedies.

The problems of investments in infrastructure and labor force in Almaden that continued through the seventeenth century, had a deeper root: it was a fight between Fugger's quest for profits and the crown's desperate need for mercury. In 1612, the *Junta de Almadén* reported that a new vent (*resolladero*) was needed in the mine for air ventilation⁹¹. The Fugger argued that German miners, experts in the field, did not want to come to Almaden to build the *resolladero*, therefore it was the duty of the crown to pay for the construction. The *Junta* decided that it was the duty of the Fugger to invest in it because they were the owners of the lease. In 1614, and after the crown had advanced 4,000 ducats for the *resolladero*, the crown ordered the Fugger to provide the necessary amount of money for finishing the job.

It is important to remember that in October 1611, an accident in the mercury mine of Huancavelica (Peru) had raised the demand for mercury from Almaden⁹². The crown had no patience with the arguments of the Fugger about the vent. It needed more deliveries of mercury in Seville for the silver mines of the New World. In 1613, the king ordered Marcos Fúcar to give loans of 60 ducats to 30 people from Almaden. This order was in response to the observations critical of the economic conditions of workers that came from a report by Don Juan de Pedroso, a royal inspector of the mine. One of the most important observations was that the Fugger had distributed fifty tax exemptions (which the *asiento* allowed them to extend to miners) to rich people of Almaden, some of whom were not even connected to mercury mining. The *asiento* of 1615 stipulated deliveries of 4,500cw/year for ten years at 11,000 maravedies/cw (29 ducats/cw) in

⁹¹ The life of a miner, wrote Agricola, was «a constant battle». The miner incessantly had to work upon the steady removal of water from the shafts and the *spirital*es, or the provision of air ventilation to the tunnels. GEORGIUS AGRICOLA, *De Re Metallica* (1556), New York, Dover Publications Inc., 1950, p. 102. See also IAN BLANCHARD, *Mining, Metallurgy and Minting in the Late Middle Ages, Vol. 3 Continuing Afro-European Supremacy, 1250-1450*, Stuttgart, Franz Steiner Verlag, 2001; MARTIN LYNCH, *Mining in World History*, London, Reaktion Books, 2002.

⁹² The mercury deposit at Huancavelica was discovered in 1563. For more, see PETER BAKEWELL (ed.), *Mines of Silver and Gold in the Americas (An Expanding World: The European Impact on World History, 1450-1800, Vol. 19)*, London, Ashgate Publishers, 1989; GWENDOLIN COBB, *Potosi and Huancavelica: Economic Bases of Peru, 1545-1640*, Berkeley, Berkeley University Press, 1947.

gold and silver from the Indies. Contrary to the previous negotiations, this *asiento* stated that the Fugger had freedom to bring mercury from Germany, Italy and France for fulfilling the required deliveries. However, all the deliveries came from the mine of Almaden. In 1625, the *asiento* was renewed for 10 years.

In Lang's work, the 1620s appear as the height of the Fugger in Almaden. By then, the *Fúcar* family had become very close to one of the most important offices of the Spanish Crown, the *Casa de Contratación*. The *Conde Gerónimo Fúcar*, Julio César Scazuola (the Fugger's Madrid agent), and Federico Oberolz (Seville agent) were by 1620s the first to be paid by the crown when the metal arrived at Seville from America, sometimes several months ahead of other bankers. The Fugger had become critical for the *Casa de Contratación*, because of the firm's expertise in financial dealings with bills of exchange. They were in charge of disbursing payments in the *Cajas Reales* or financial agencies of the foreign bankers – Germans, Italians, and others. From 1627-1639, even the new generation of the Fugger were important for the Crown. They had a *Factor General del Rey* and they paid for the consignations of Genoese and Portuguese bankers. The firm was also involved in the negotiations of *asientos* on behalf of the Crown with Genoese and Portuguese bankers. As such, they were privileged bankers, with ample financial power in their hands to impact silver production and monetary movements in Spain and the New World⁹³.

But the presence of the Fugger in Almaden was approaching its end. In 1625, the Fugger were caught up in a long dispute with the shepherds of the region over rights of wood and pastures. The problem of the labor force continued, because the free population of Almaden had stagnated. A general increase in salaries between 1626 and 1630 in the kingdom forced the Fugger to raise salaries in Almaden. By 1629, the cost of producing a hundredweight of mercury for the firm was 10,706 maravedies; this was almost the same amount that the crown was willing to pay per hundredweight. Moreover, by 1632, the crown had accumulated an exorbitant debt with the firm for the deliveries of mercury in Seville: 1.3 million ducats. This debt hit the firm very hard, particularly after the failure of several agricultural enterprises of the Fugger in 1630. In 1635, Juan Cristóbal Eberlín, factor of the Fugger, replied to a complaint made by the *Consejo de Indias*, that the firm was in no position to request more than the

⁹³ HÄBLER VON KONRAD, *Die Geschichte der Fugger'schen Handlung in Spanien*, Weimar, E. Felber, 1897.

1,800cw that it had delivered in 1635 because the crown had paid nothing to redeem the debt it had with the firm since 1630. In the last years of the 1630s, a fifty percent rise in salaries in the peninsula, shortages of wood in the area near Almaden, and a fire that destroyed the installations in Almaden in 1639, were among the factors that led to a decline in mercury production in the region. Mercury production reached its lowest levels in the 1640s, being less than 3,000cw/year in the second half of the decade. The mines of Almaden returned to the control of the crown. With respect to the Fugger's interests in the Spanish colonies, it is still unclear how much success the firm's ventures enjoyed. What is clear is that the firm encountered many problems in Spanish America, particularly in New Spain, with piracy. «We must expend much money, labor and trouble», had warned a factor in the late 1580s, discussing the problems of piracy in Santiago, Puerto Rico and La Hispaniola⁹⁴.

PROFITS FROM THE METALLIC BUSINESS

These snapshots of the mining and metal trade contracts of the Fugger in Central Europe, Portugal and Spain provide insights into the unifying elements that put their metallic business together. What were the structures that allowed the Fugger to accumulate surplus? What was the surplus? Can the surplus be called mining capital - that is, productive money to be invested in mining industries and related activities?

After the death of Jacob the Rich in 1525/6, the capital of the company was 2,021,202 golden gulden. The figure comes from the 1527 Fugger inventory prepared by the bookkeeper and accountant of the firm, Matthäus Schwarz⁹⁵. After the death of Jacob the Rich, Anton expanded the business of the firm through loans to emperor Charles V, and the Portuguese and the Spanish crowns. A great share of the profits of the firm under Anton came from its Tyrol business, especially its silver minting. Profits from the House of the Mint in Tyrol were possible only after the mint enjoyed sovereign status since

⁹⁴ KLARWILL, op. cit., p. 103.

⁹⁵ The inventory has been the center of an interesting controversy about the origins of the technique of double-entry accounting. HUNT and MURRAY, op. cit.; RAYMOND DE ROOVER, *Business, Banking and Economic Thought in Late Medieval and Early Modern Europe Selected Studies of Raymond de Roover*, Chicago, The University of Chicago Press, 1974; WERNER SOMBART, *The Jews and Modern Capitalism*, Illinois, The Free Press, 1951; and BASIL S. YAMEY, *Essays on the History of Accounting*, New York: Arno Press, 1978.

the mid-fourteenth century. Archduke Sigismund had completed a monetary reform between 1446 and 1490 to be able to compete successfully in the north-south trade in Europe. Tyrol had been the house for minting gold coins, but monetary crises in the neighboring regions of Bavaria, Salzburg and Austria had hit the kreuzer hard. After Sigismund's loans from the Fugger, he started to send the royal silver to the Mint house for striking silver coins in Tyrol. The first coin minted as part of this reform in 1477 was the *pfundner*, equal to 12 kreuzer and modelled on large Venetian coins. Then came the *sechser*, which equaled $\frac{1}{2}$ *pfundner*. In 1484, the mint house started to produce another smaller coin, worth half a gulden, the half guildner. The firm kept a great volume of its coinage business in Tyrol. According to Kellenbenz, the peak of the coinage business for the Fugger in Hall took place in 1596. On 13 May, Hall coined 360,143 reales of 32,351 Silver marks and 4 ounces. The total number of coins minted for that day was 1,153,594 *taler* for the value of 1,313,901 florins and 30 kreuzers. On 14 May 1597 the Fugger coined 18,060 marks of *Indiänisches Silber*⁹⁶.

As mentioned before, the Fugger Spanish silver was brought to Tyrol. Kellenbenz gives two examples of how the Fugger made profit out of the House of the Mint in Hall. First, the *Consejo de Hacienda* accepted the Fugger's condition for exchanging Spanish silver in Hall at the rate of 80 kreuzer to 325 maravedís. With this rate, the Fugger earned one real for each ducat, because 8 kreuzers equaled one real. Second, in the year 1589, Tyrol produced 27,973 silver marks and 5 ounces of silver. In the same year, more than 100,000 silver marks reached the Mint House. The Tyrolese share of this amount was small; the greatest share comprised Spanish silver in the form of *reales* minted for the Fugger. In 1589, the Fugger minted 20,674 Silver marks and 2 $\frac{1}{2}$ ounces of silver in the form of reales. The total amount of reales was 41,102 silver marks, 5 *lot*⁹⁷, 3 hundredweight. The next year, the Fugger minted 410,844 reales of a total of 601,002 reales. Another important source of profits was Hungary, through the partnership with Thurzo. The accounts studied by Kellenbenz show that the Hungarian Common Trade, particularly the commerce linked to Portugal and Spain, left the Fugger a profit of 750,000 to 800,00 florins (from the Rhine) from 1494 to 1526. An additional profit appears for Jacob Fugger after the death of Ulrich of fifteen percent per year. The accounts studied by Ehrenberg, show that be-

⁹⁶ KELLENBENZ, *Los Fugger en España en la época de Felipe II*, cit., p. 31.

⁹⁷ 1 lot = $\frac{1}{2}$ ounce.

tween 1511-1527, the firm had annual profits of fifty-four and a half percent⁹⁸.

That generating profits was not always a smooth process is shown by the Fugger's gold mining investments in Hungary. Problems with the royal chamber of the mint proved to be a more severe obstacle for generating profits. The royal chamber of the mint truly represented the historical consciousness of the *Walbürger*: the forest free mining entrepreneurs of the Carpathian Mountains. Almost two centuries earlier, Hungarian gold producers supplied one third of the gold that went to Western Europe, a proportion exceeded only by Africa. Until 1325, gold and silver from Hungary could be exported free of any tax or toll. A royal law by king Robert von Anjou ended this tax exemption for exports of metals from Hungary. It also granted to its royal mint house, the *Münzkammern*, exclusive rights for exchanging precious metals. Metal ores had to be sold in the cities designated by the king. Trade and export of raw metals were strictly forbidden. This allowed the royal coffers to add 35 to 40 percent profits. With time, the royal mint house was moved to various centers of mining production, such as Chemnitz. Kalus estimates that in the second half of the XIVth century, approximately 500,000 gold coins left the chamber of Chemnitz and went into circulation in the European economy.

Gold coins produced in the cities with the mint house were transferred to a royal *Kammergespan* or chamber count. The *comes camerae monetarum* was the official royal organ fulfilling on behalf of the king the tasks of the chamber of the mint house. The ore caster, the exchange broker and other personnel were under the orders of the chamber. An officer called the *Münzregal* acted as a judge supervising the monopoly of metals and their transit from the mine shafts to the chamber⁹⁹. The chamber made contracts for buying ores from producers that usually lasted for one year, with the possibility of extension after they were finalized. The fineness of gold was supervised by two additional officials: the treasurer and the archbishop von Gran (*Esztergom*), entitled to one tenth of the minting, or the *Piset* (*pisetarium*).

The Fugger enjoyed a 'cementation privilege' in Chemnitz, granted by king Wladislaw as a *ius regium*. This privilege dated back to the years when Jacob Fugger was the 'patriarch' of the firm. Hans Thurzö had become a *Kammergraf* of Chemnitz and owner of the mint in

⁹⁸ Kellenbenz has a different calculation for «Ehrenberg's overinflated numbers», in KELLENBENZ, *Los Fugger en España y Portugal*, cit., p. 624, especially footnote 310.

⁹⁹ KALUS, op. cit.

1498¹⁰⁰. An earlier contract between Fugger and Thurzo stipulated that Jacob Fugger would advance to Thurzo the 14,000 Hungarian guilders necessary for the engineer to keep his privilege. In exchange, the Fugger would participate, through Thurzo, in the organization of the business of the chamber of Chemnitz. But this cementation privilege, exercised by Anton Fugger, became an object of controversy with the chamber officials. In 1546, Anton Fugger was denied permission for minting Silesian gold at Chemnitz. Not only were the silver and gold privileges of the Fugger in Chemnitz abolished, but a special commission investigated the cementation process. Accusations had arisen earlier against the ways in which plastering was done by the Fugger employees at the mint house. The powerful group of Hungarian *walbürger* that controlled gold mines questioned the alloy of lead and gold that the Fugger used in the process of lead smelting for recuperation of gold¹⁰¹. This question was finally settled, as mentioned earlier, by Ferdinand in favor of Anton Fugger.

There were other political risks of the metallic business of the Fugger. The *asiento* of Almaden of 1537-1541 ended after a dispute with the Spanish court over the building of an adit. That of 1547-1550 left the Fugger in a politically sensitive situation with the Spanish crown. To what extent did the problems respond to the different attitudes and cultures of the financiers involved, and to what extent could the financier take advantage of the cultural differences? For a mine to become a 'metallic blessing', as Jacob once said, certain political and cultural conditions had to be created, and this was nowhere more clear than with the Fugger *factoría* in Almaden. Rivalries with Spanish merchants, and legal battles with the crown had created a negative opinion against the *Fúcares viejos* among key people inside the court. Francisco de Eraso called them *gente malévola*¹⁰². The Fugger had key moments to take 'revenge'. In 1613, Juan de Pedroso, a royal inspector of the mines of Almaden, was sent to the *factoría* for investigating the Fugger's operations. He reported to the court that the documents in the possession of the factor could not be examined because they were written in German¹⁰³!

Profits from other businesses of the Fugger House are discussed elsewhere, but some general observations are needed to appreciate the extent of the transactions of the house. The firm had a low profit in

¹⁰⁰ KELLENBENZ, *The gold mining activities of the Fugger*, cit., p. 188.

¹⁰¹ *Idem*, p. 191.

¹⁰² KELLENBENZ, *Los Fugger en España y Portugal*, cit.

¹⁰³ TASCÓN MASTILLA, cit., pp. 126-128.

commodity trades – below ten percent – as compared to other business of the firm¹⁰⁴. In the commodity trades with India, the profit for the German Houses between 1505-1506 was 150 percent. The usual profits for the Fugger were 30 percent. From the Order of the *Maestrzgos*, which included the *asiento de pozos y minas* of Almaden, during the period 1538-1542, the firm made a profit of 152,000 ducats per year. Looking at two separate accounts, Kellenbenz calculates an additional mean profit for Anton Fugger of 224,000 ducats per year. This surplus in the accounts appears as independent from the profit of 51 and 8 percent from the lease. The failed negotiations for renewing the lease in 1551 after the fire in Almaden were also included in the accounts of the firm with an estimated profit of 85 percent.

Profits also were generated by creating a commodity with the power to create interest: interest-bearing capital. Here, the classical debates about the relationship between interest rates and profits illuminate a powerful, deeper aspect of the Fugger's metallic business. The Marxist question on interest, put forward by Hilferding, illuminates some aspects of the profits of the Fugger. For accumulation of surplus to take place, in the strict Marxist sense of the word, it is necessary to generate productive capital. Let us describe briefly the formation of interest-bearing capital in the business of the Fugger. As mentioned before, the rise of the metallic business of the Fugger happened between 1460 and 1560, corresponding to the long silver production cycle in Central Europe. Underneath the flourishing mining activity, as Blanchard has shown, there were changes in the capital markets of Europe¹⁰⁵. In Western Europe, interest rates varied above the prevailing five percent, in response to fluctuations in the mining industry. Here, loans were arranged on a four to five percent iron-based security. With the localized mining booms that started in the Silesian mines, then moved to Tyrol before expanding to the Slovakian, Hungarian and Saxon-Silesian mining regions, came cheap money which started to flow into these areas. That was the case, at least before the arrival of American silver. The lowest interest rates were centered in the markets in close contact with Tyrol, Slovakia and Hungary. The benefits of cheap money widened the population of potential borrowers.

The mortgages on the incomes and mine outputs from Tyrol, Hungary, and Slovakia, were the 'lifeless' assets of the Fugger firm. This was particularly the case with copper. The Fugger firm was able

¹⁰⁴ *Idem*, pp. 622-623.

¹⁰⁵ IAN BLANCHARD, ANTHONY GOODMAN, JENNIFER NEWMAN, *op. cit.*

to acquire a monopoly in the trade of copper, which came back to the firm in the form of profits. The long term of the leases and the frequent renegotiations allowed the Fugger to accumulate profits from the interest upon these transactions, particularly if the mines were experiencing production booms. The borrowers were tied to the metallic business of the firm in two ways: by the interests of the leases and mortgages and by the prices of the commodities traded by the Fugger. Loans were granted by the Fugger in the capital market for renegotiating the payment of interest to Charles V and Philip II. In one of the loans given to Charles V for the repayment of old debts in 1530, the emperor gave the Fugger 'great immunities' and the title of *Freiherr* (Count). The silver and copper mines of Schwaz, for example, mortgaged by Sigismund in 1487 and later by Maximilian, were in the active account of the firm until 1530. The silver mines of Tyrol appear as important assets of the firm for a short period of time, as securities for loans given to Sigismund and Maximilian between 1487 and 1492, coinciding with the greatest silver mining boom of Tyrol.

Later, particularly after the 1550s, this scenario changed dramatically, with the impact of American silver on prices in Europe¹⁰⁶. Castile's imperialist policies and its financial underpinnings have been extensively discussed elsewhere. It is sufficient to note here that Castile's 'addiction' to American silver would be fatal for the metallic business of the Fugger. The incessant and successful experimentations with amalgamation in the Great Silver Mining District of Mexico (Zacatecas, Guanajuato and Pachuca) and later in Potosí, had reduced the cost of producing silver¹⁰⁷. The ten-fold increase of silver imports from America between 1580 and 1620 started to drive its market value downward. In some silver mines in Europe, the value of silver dropped dramatically so as to make it unattractive to continue investing in silver mines¹⁰⁸. For Flynn, the silver mining districts of Central Europe were hit the hardest: «The bountiful German mines with maximum output on the eve of the American mine discoveries were forced out of business»¹⁰⁹. This 'profit deflation' contrasted sharply with the characteristics of the market during the period of early silver mortgages negotiated by Jacob the Rich. During the period 1487-1492 the

¹⁰⁶ EARL J. HAMILTON, *American Treasure and the Price Revolution in Spain, 1501-1650*, Massachusetts, Harvard University Press, 1934.

¹⁰⁷ For a discussion of experiments with amalgamation in the New World, see CARRACIDO, op. cit., and REY PASTOR, op. cit.

¹⁰⁸ DENNIS O. FLYNN, *Fiscal Crisis and the Decline of Spain*, «The Journal of Economic History», March 1982, Vol. 42, No. 1, pp. 139-147.

¹⁰⁹ *Idem.*, p. 141.

silver market had been very profitable because of the low cost of silver production and its rising market value in terms of purchasing power.

Centered around Seville and Medina del Campo, the new American silver market produced different patterns of inflation. Certain commodities imported by the crown had to be paid in cash. This was the case with cereals and sail canvas. The demographic expansion of Europe in the second half of the sixteenth century had increased the demand for numerous commodities, including silver. From the perspective of mining entrepreneurs, even when there was profit to be made by imports of silver bullion, this profit yielded less purchasing power after the 1550s because of increasing prices of commodities, in particular war technologies. Lenders started to raise the interest rates for protecting their assets, in response to the fall in rates that took place in the initial period of the Seville metallic boom.

American silver became increasingly committed to war finances. Spain sent eleven million ducats to the Netherlands to finance the war against France. In 1554, Philip II wrote to his father that for the current year and the following one, there was a deficit exceeding three million ducats while «money from the Indies, by reason of the letters of exchange assigned to it remains unavailable for several years»¹¹⁰. In 1556-1557, as part of declaration of bankruptcy, bankers had been forced to accept *juros* (fixed annual sums derived from the Crown's future revenues) in exchange for 1.8 million ducats of sequestered treasure. Successive bankruptcies of Castile in later years (1560, 1575, 1596) proved disastrous for the bankers and mining entrepreneurs of the crown. The «Castilian debt in 1556 was 20 million ducats, in 1573 it was 50 million ducats, and in 1598 it ascended to 85 million ducats, as opposed to 9.7 million ducats in total revenue. [...] In 1623 Castile's debt rose to 112 million ducats, the equivalent of at least 10 years' revenue, and by 1667, it reached the staggering sum of 180 million ducats»¹¹¹. This period marks the decline of the metallic business of the Fugger.

CONCLUSION

The Fugger firm put in place a highly diversified structure of mining investments by exploiting mineral rights and privileges granted by its powerful borrowers, from archduke Sigismund, to emperors Maximilian and Charles, to the kings of Spain and Portugal. Its

¹¹⁰ *Idem*, p. 142.

¹¹¹ *Idem*, p. 143.

metallic business extended from the Ore Mountains of Central Europe in the east – the Hungarian-Slovakian complex – to Portugal and the Iberian-Atlantic economy in the west. The Fugger's mining investments were highly diversified: copper and silver production, a metallurgical complex developed with Thurzo, metal supplies in Antwerp, Lisbon and Seville; investments in *hornos de reverberación* for mercury and vermilion production in Almaden; and mercury deliveries in Seville. There are two unifying elements of the Fugger's metallic business that expanded from the XVth century to mid-XVIth century: credit and finance for mining and metal trade; and a strategic pursuit of profits. The fact that the Fugger were creditors of Maximilian I and later on Charles V, put their firm in a privileged situation for building and expanding its mining rights in the territories of the empire. It also allowed them to secure monopolies of silver and copper trade, at a time when there an increase in the purchasing power of silver. As Munro argues, the power of silver, and the deflationary pressures in the coins of Europe provided the necessary incentive for the mining technological changes that 'created the subsequent South German or Central European silver-copper mining boom'¹¹².

The privileges obtained for mining and the metal trade depended in turn on the development of credit and the system of security. The silver and copper mines of the Fugger in the Tyrol-Slovakia-Hungarian complex had been obtained for the most part as loan security. Security, in Sombart's words, «gives the creditor the right to participate in the capital and profit of a concern with which he has no direct personal contact. He may never even have seen the building in which the undertaking in question is housed, and when he parts with his security to another person he transfers his right of participation»¹¹³. This system allowed the Fugger to systematically acquire mines and integrate them into wider metal trade and debt-finance relationships, with little capital investments in mining operations. The standardization of this system, also a process that took several centuries to develop, facilitated the emergence of the Fugger as a mining financier because of the limited liability it represented for the capitalist. To this, one must add the speculation that the mining entrepreneur was willing to risk as part of the calculation for starting a venture. This was the case with the Common Hungarian Trade. On the part of the Fugger, it was a form of investment in social capital, a way for gaining not only

¹¹² MUNRO, op. cit., p. 5.

¹¹³ WERNER SOMBART, *The Jews and Modern Capitalism*, New York, Burt Franklin, 1969, p. 63.

metallic wealth from the copper mines and metallurgical operations of Thurzo, but also to have access to the Hungarian nobility and the *Waldbürger*.

Were the privileges granted to the firm as creditors of the emperor and the Spanish court enough to explain the rise of its metallic business? The metallic contracts of the Fugger described in this paper speak of a deeper connection between finance capital and mining. The capital of the firm took over the production process in mining at different stages in different regions. In Tyrol, capital was invested in mining; in Poland, it was invested in technology and smelting operations; in Portugal, in metal trade overseas; in Spain, in production, storage and transport. The phrases «diversification of portfolio», or «entrepreneurial ability», are euphemisms that hide a unique historical relationship between banking and extractive production that took place in Europe during the XVth century. Financial capital was able to take advantage of the metallic economies of Europe for feeding the integration of its own markets. The fact that the firm handled different moneys of account in different regions, shows, no doubt, expertise and audacity: accounts in florins, starting in Augsburg in 1469 with the loan granted to Bäsinger; florins again in the 1490s with the first loans to Maximilian, and in 1510s, for Charles V; gold guildens, in the business of the Common Hungarian Trade with Thurzo, in Hungary, Poland and Slovakia; guilders in the mint business in Chemnitz; ducats and crusados in the Asia and Europe pepper contracts with Portugal; and ducats again and maravedies in the *asientos* of Almadén and the *Maestrazgos* with Spain. But this impressive account shows how the Fugger as creditors put mining and metal trade into other markets in expansion. This is the relevance of the metallic business of the Fugger: they embody the unique historical relationship between finance and mining production that was necessary for the economy of Europe to expand to the West.

There are three important questions that arise for further research about the metallic business of the Fugger. First, did the mining capital of the Fugger help to «free humanity from its environment», in Braudel's sense? Second, what is the role of an empire in the expansion of mining capital? Does an empire constrain or facilitate the globalization of mining markets? What happens when the logic of accumulation of mining capital collides with the political and economic structures of empires? Third, to what extent can mining entrepreneurs survive broader geographic shifts in the expansion of global mining capital? How loyal is mining capital to its architects?

The first question requires digging like a miner, deep into the long-term history of mining, following a rich vein. It seems that the Fugger's mining capital freed people from their environment, but tied

them to a new set of economic structures. This is, in a sense, the fate of the natural mining economy that developed in the Ore Mountains of Europe. The question about the relationship between empires and mining capital is important, particularly for understanding the development of mining in the New World. The Spanish empire was able to build strong mineral-export economies (Mexico and Peru) because of a flourishing mining market in Central Europe that had put in motion the structures of banking, credit, monopolies and mineral privileges and rights, but also because of the development of scientific mining. For the third question, it seems that once the structures of monopolies, trade, and debt-finance are put in motion, mining capitalists have a difficult time to survive changes. With respect to the question of displacement, it seems that mining entrepreneurs are displaced with changes at the core of mining capital. In the early decades of 1500s, Jacob Fugger bought the mining assets of other bankers of Hungary, such as Martin Baumgartner, who had declared their bankruptcy. This was also the case with respect to the short-lived ventures of the Fugger in the New World. This is not merely a question of utility, whether mining is a profitable venture or not. These questions ultimately require a deeper exploration of metallic business, mining contracts and mining entrepreneurs across time and space; that is, they require a genealogy of mining capital. The metallic business of the Fugger is just a very discrete window to such genealogy, but one that provides a solid entrance into the social history of global mining capital during the XVIth century.

All'Estero la *Rivista di Studi Politici Internazionali* si trova o ha lettori a: Aalsmeer, Algeri, Al Kuwait, Amburgo, Amman, Antibes, Atene, Banholt, Belgrado, Berlino, Berna, Bielefeld, Bonn, Boston, Bruges, Bruxelles, Bucarest, Budapest, Buenos Aires, Buffalo, Caen, Cambridge, Canberra, Carapacay, Castellon, Charlottesville, Chicago, Città del Messico, Città del Vaticano, Copenhagen, Crozon, Dublino, Francoforte, Gentilino, Gerusalemme, Ginevra, Grenoble, Hanover, Heidelberg, Helsinki, Hyogo-ken, Il Cairo, Khania, Kinshasa, Kobe, Köln, Kuala Lumpur, L'Aja, La Plata, Lasne, La Valletta, Lisbona, Lisse, Londra, Losanna, Lubiana, Lugano, Lussemburgo, Maastricht, Madrid, Manila, Maribor, Maryland, Merida Yuc., Montevideo, Montreal, Mosca, Nanterre, Nashville, New York, Nicosia, Notre Dame, Osaka, Oslo, Osnabrück, Ottawa, Oxford, Palaiseau, Pamplona, Parigi, Pechino, Philadelphia, Pittsburgh, Prešov, Rabat, Rio de Janeiro, Rosario, Salisburgo, San Francisco, San José di Costarica, San Paolo, Santa Barbara, Santiago de Compostela, Santiago del Cile, Seoul, Shanghai, Sofia, Stanford, Stoccarda, Stoccolma, Strasburgo, Sydney, Teheran, Thessaloniki, Tokyo, Tunisi, Vancouver, Varsavia, Vienna, Washington, Wellington, Wetherby, Yorks.