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Crises and Merchant Networks in the nineteenth century: The Case of German Networks in Lombardy

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CRISES AND MERCHANT NETWORKS IN THE NINETEENTH CENTURY: THE CASE OF GERMAN NETWORKS IN LOMBARDY

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Abstract: During the nineteenth century in Continental Europe, merchant networks founded enterprises wherever comparative or absolute advantages related to natural resources or workers' capabilities, but also changing economic policies, made it profitable. Incessantly comparing the cost-effectiveness of investments, merchant networks enhanced the efficiency of the entire economic system, but also favoured innovation, introducing technological advancements when feasible and potentially remunerative. At the same time, though, economic crises, more and more dependent on manufacturing and less on agricultural cycles, became manifest and an object of theoretical debate. The paper analyzes how merchant networks envisioned economic crises, if at all, and how the economic decision processes of such organizational structures responded to them. It will be ascertained that, more than sectorial imbalances and insufficient demand, the crisis that merchants really feared was the end of credibility and thus of access to credit. Personal failure could dramatically reduce the level of trust, depriving the merchant system of its functioning principle. The chosen framework of analysis describes the actual economic decision process, on which the distribution of production depended, and its relation to economic cycles.

Introduction

During the nineteenth century in Continental Europe the entrepreneurial function[1] was mainly performed by merchant networks. These networks,[2] made out of loose ties between international merchant houses, *négociants* or *negozianti*,[3] founded enterprises wherever comparative or absolute advantages

[1] A definition of entrepreneurial function can be found in Monika Poettinger, "Lo sviluppo economico lombardo ed i network imprenditoriali", *Mitteilungen* 10 (2007), pp. 152-154.

[2] On networks and international businesses, see Mark C. Casson, "Entrepreneurial Networks in International Businesses", *Business and Economic History* 26 (1997), pp. 811-823.

[3] An apt definition of such merchant houses was first given by Daniel Defoe in 1726: "But in England the word merchant is understood of none but such as carry on foreign correspondences, importing the goods and growth of other countries, and exporting the growth and manufacture of England to other countries; or, to use a vulgar expression, because I am speaking to and of those who use that expression, such as trade beyond the sea.

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related to natural resources or workers' capabilities, but also changing economic policies, made it profitable. Incessantly comparing the cost-effectiveness of investments, merchant networks enhanced the efficiency of the entire economic system by channelling capital, resources and entrepreneurs where the highest return was guaranteed. They also favoured innovation, introducing technological advancements whenever feasible and potentially remunerative.

At the same time, though, as merchant networks increasingly organized trade and production on the Continent,[4] economic crises, more and more dependent on manufacturing and less on agricultural cycles, became manifest and an object of theoretical debate.[5] Wilhelm Roscher would even venture to say[6] that such crises, regularly afflicting Europe every nine to ten years, were the consequence of the spreading of these networks. It would thus be meaningful to ascertain how merchant networks envisioned economic crises, if at all, and how the economic decision processes of such organizational structures responded to the same crises. Such a study, shown below, will be micro-based, having as a unit of analysis the merchant house and its network. Contemporary theoretical analyses will be briefly considered with the perceptions and actions of nineteenth-century merchants. The subsequent sections will relate how merchant networks reacted to crises as a source of entrepreneurial opportunities or as a cause to change the network of pertinence and so the given distribution of resources and production across borders. More than sectorial imbalances and insufficient demand, then, what the crisis merchants really feared was the end of credibility and

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These in England, and these only, are called merchants, by way of honourable distinction." Daniel Defoe, *The Complete English Tradesman*, London: BiblioBazaar, 2008, p. 18.

[4] On the case of Greece and the Ottoman Empire, see Maria Christina Chatziioannou, "Creating the Pre-Industrial Ottoman-Greek Merchant: Sources, Methods and Interpretations", in Lorans Tanatar Baruh and V. Kechriotis (eds), *Economy and Society on Both Shores of the Aegean*, Athens: Alpha Bank Historical Archives, 2010, pp. 311-335. On the case of German networks, see Monika Poettinger (ed.), *German Merchant and Entrepreneurial Migrations*, Lugano: Casagrande Editore, 2012. On the British case, see Stanley Chapman, *Merchant Enterprise in Britain: From the Industrial Revolution to World War I*, Cambridge: Cambridge University Press, 2004.

[5] See Daniele Besomi, "'Periodic Crises': Clément Juglar between Theories of Crises and Theories of Business Cycles", in Jeff E. Biddle and Ross B. Emmett (eds), *A Research Annual*, Research in the History of Economic Thought and Methodology, Vol. XXVIII, Bingley: Emerald Group Publishing Ltd, 2010, pp. 169-283.

[6] Wilhelm Roscher, "Die Produktionskrisen, mit besonderer Rücksicht auf die letzten Jahrzehnte", in *Die Gegenwart eine Encyklopädische Darstellung der neuesten Zeitgeschichte für alle Stände*, Brockhaus 1849, Vol. III, pp. 721-758.

thus of access to credit. Personal failure could dramatically reduce the level of trust, depriving the merchant system of its functioning principle. The final section will highlight how merchant networks faced such an ultimate crisis, limiting its consequences on the whole netlike organizational structure.

The chosen framework of analysis thus represents the actual economic decision process, on which the distribution of production on the Continent during the nineteenth century depended, and its relation to economic cycles.

Merchant Networks and Economic Crises: Theory and Practice

At the beginning of the nineteenth century, theoretical debates centred on the validity of Say's law. The existence of economic crises[7] was not doubted; what was disputed was if they were only sectorial and limited in time or could become general, affecting the equilibrium between production and consumption. It is to be noted that Jean-Baptiste Say himself considered the investment decision process fundamental to the solution of sectorial imbalances. Differing profit rates amongst sectors would prompt investors to funnel capital into the most rewarding sectors, adjusting production to demand. The general equilibrium of the system would so be granted along with its efficiency.

In so doing, Say quite perfectly depicted the mercantile economy of his time. Merchant networks readily organized production across time and space so as to adjust it to a never-exhausting demand. Starting in the eighteenth century, be it for porcelain, linen, silk, cotton pieces or sugar, demand grew all over the Continent. Trade of foreign luxury goods, organized by international merchant houses, had generated consumption, frenzied in some cases, that prompted merchants to finance the production *in loco* of the new wares. "Such manufactures, therefore, are the offspring of foreign commerce," explained Adam Smith, "They have been introduced in the manner above mentioned, by the violent operation, if one may say so, of the stocks of particular merchants and undertakers, who established them in imitation of some foreign manufactures of the same kind."[8] The main economic problem then was not the scarcity of demand. As old productions turned out to be

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[7] On the concept of crisis in broad terms and also in economics, see Reinhart Koselleck, "Krise", in *Geschichtliche Grundbegriffe. Historisches Lexicon zur politisch-sozialen Sprache in Deutschland* , ed. Otto Brunner, Werner Konze and Reinhart Koselleck, 8 vols, Stuttgart: Klett-Cotta, 1972-1997, Vol. III, pp. 617-650.

[8] Adam Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations*, Vol. III, London: Charles Knight, 1836, p. 43.

obsolete and new ones emerged, the role of merchant houses became that of Say's investors: to select the sectors granting the highest returns and organize scarce resources to produce the demanded items. Merchants thus became manufacturers but also arbiters of the international division of labour and, by choosing the capital intensity of production, of the distribution of income.

The investment decision process, though, once easily done by comparing buying to selling prices of traded wares, had now to take into account the costs of organizing manufacturing premises and of continuously evolving technology. Risks, once pertaining to travel routes and means, now included incessantly changing relative advantages, causing relevant sunk costs. Such continuously shifting circumstances generated many sectorial imbalances, as innovation and mercantilist measures on the part of governments changed the circumstances on which investment decisions were taken. Nonetheless, these crises were not perceived as such by merchants. The netlike organizational structure of international merchant houses granted the flexibility and the adaptability needed to meet such challenges with success. Entrepreneurs and merchants were ready to migrate, sometimes more than once, to find the location where their aptitudes would generate the highest profits. An alternative to such economic wandering was changing the sector of activity, adapting investments to the changed incentives. Adam Smith said, with more than a hint of condemnation:

> Sudden fortunes, indeed, are sometimes made in such places, by what is called the trade of speculation. The speculative merchant exercises no one regular, established, or well-known branch of business. He is a corn merchant this year, and a wine merchant the next, and a sugar, tobacco or tea merchant the year after. He enters into every trade, when he foresees that it is likely to lie more than commonly profitable, and he quits it when he foresees that its profits are likely to return to the level of other trades.[9]

Exactly the trait Smith so reproached, the flexibility in investment strategy based on extensive commerce and correspondence, generated the highest return on capital and the diffusion of innovative productions all over the Continent: efficiency and development at once. Say's sectorial crises would otherwise condemn all those who stuck to just one trade, one manufacture or one production process to failure, while merchant houses acting internationally through netlike organizations flourished in the risky and uncertain environment that nineteenth-century Europe was.

What about general crises though? What about the failing of Say's law?

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[9] *Id.*, *An Inquiry into the Nature and Causes of the Wealth of Nations*, Vol. I, Dublin: N. Kelly, 1801, p. 115.

Clément Juglar, as did many of his contemporaries, noted the regularity of overproduction crises and the ensuing financial crises, at least in countries such as Great Britain, the United States and France starting from the 1820s.[10] An instability of the economic system began to emerge that many thought a chronic and incurable malady. The cost-reducing innovations related to technological advancement would cause an unbridgeable rift between offer and demand, contended some; the distribution of income would be altered to the detriment of consumption, contended others. Introducing a time-lapse between the earning of income and its use as investments or consumption, through the monetization of the economy and the diffusion of credit, recited a spreading common wisdom, would inevitably sweep away the validity of Say's law. The time of equilibrium, in economy as in society, was at its end, and chaos in the form of full warehouses and famished populations would dominate the future of industrialized Europe.

It is highly doubtful that international merchants would ever subscribe to such catastrophic views. Although the stagnation of trade and excessive financial speculation were common and recurring objects of recrimination in merchants' journals, writings and letters,[11] the close-knit world of private banks, trading networks and innovating entrepreneurs that governed most of Continental Europe's production was generally untouched by the recurring crises. There were always other markets to be opened, technologies to be introduced, monopolies to be gained, protections to be demanded, and new sectors to be exploited. The world was still to be fully explored and crises limited to a few developed countries. As Joseph A. Schumpeter would later acknowledge,[12] the innovating entrepreneur had been the pivotal point of the economy's up- and downswings of the nineteenth century, completely at ease in its ebbs and flows. 'Crisis' would not be a term merchants would associate to the economy in general, because changing circumstances always harboured opportunities for someone disposed to innovate, migrate or change in any other way her/his business.

What about labourers whose qualifications had become obsolete, then, and what about consumers strangled by insufficient income? The flexibility of merchants left ruins, where comparative advantages were lost in consequence of new trade flows or technological advancements. As Adam Smith reproached:

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[10] See Pascal Bridel and Muriel Dal-Pont Legrand (eds), *Clément Juglar (1819-1905). Les origines de la théorie des cycles*, Geneva and Paris: Librairie Droz, 2009.

[11] Monika Poettinger, "Forme d'impresa, socializzazione del capitale e innovazione nella Milano di metá Ottocento", *Rivista di Storia Economica* 2 (2011), pp. 182-185.

[12] Alfredo Salsano (ed.), *Alois Schumpeter. L'imprenditore e la storia dell'impresa. Scritti, 1927-1949*, Turin: Bollati Boringhieri, 1993.

> A merchant, it has been said very properly, is not necessarily the citizen of any particular country. It is in a great measure indifferent to him from what place he carries on his trade; and a very trifling disgust will make him remove his capital, and, together with it, all the industry which it supports, from one country to another. No part of it can be said to belong to any particular country, till it has been spread, as it were, over the face of that country, either in buildings, or in the lasting improvement of lands.[13]

Where merchants really the cause of local economic disasters by selfishly dedicating themselves uniquely to their own profit? In effect, the socialist idea was grounded in the defying of Say's law and seemingly condemned merchants to the role of Ebenezer Scrooge. Wherever and whenever merchants gained economic primacy and political representation, though, local development always included investments in the technical instruction of workers, the foundation of societies for the development of arts and crafts, the diffusion of schooling and the setting-up of a net of social securities and mutual companies. The detrimental effect that varying comparative advantages, technological innovations and costs containments inevitably had on the living conditions of labourers could be countered in the long run by their increasing and continuing qualification and requalification.[14] When all else failed, an international merchant such as Heinrich Mylius, a banker transplanted from Frankfurt to Milan at the end of the eighteenth century, would even finance the construction of a panoramic street in the heights of Loveno on Lake Como to "help the poor bridge a difficult winter",[15] an *ante litteram* Keynesian measure that summarizes many an effort done by merchants to restore an apparently lost general economic equilibrium.

Sectorial Crises as Entrepreneurial Opportunities

At the end of the eighteenth century, enlightened governments dedicated to the new, flourishing manufactures an increased attention as means to counter unemployment and social unrest. Wherever old, established productions languished due to the introduction of new, cheaper or more beautiful wares, governments tried to solve the ensuing sectorial and local economic crisis through protection and import substitution. The ensuing entrepreneurial opportunities were best exploited by international networks of merchant

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[13] Smith, *An Inquiry*, Vol. III, p. 67.

[14] Monika Poettinger, "Etica mercantile e sviluppo economic", *Societá e Storia* 125 (2009), pp. 465-502.

[15] A commemorative notice posted along the same panoramic street in 1853.

houses, able to coalesce temporarily into a firm that collected capital and technical capabilities from wherever abundant and transferred them to the new location, where higher returns, due to scarcity and government protection, were expected. Such ventures lasted only as long as initial conditions remained valid, resulting in a high mobility of factors and relevant entrepreneurial migration flows across the Continent.

An example of this practice is the case of Kramer & Compagni, a firm founded in Milan in 1782 (see Table 1). The entrepreneurial occasion was given by state aid, granted by the Austrian government through the elevation of a tariff, to save a local cotton printing manufactory and expand its business to include the spinning and weaving of cotton in the northern provinces of Lombardy, where the old and established trade of bombazines had been almost completely wiped out.[16] Given this precise scope, state officials offered the bankrupt firm to its former Swiss supplier of printable cotton pieces, Johann Adam Krämer,[17] a young entrepreneurial talent who, as did many, migrated around Europe in search of the best reward for his knowledge, trying to acquire the capital necessary to found his own enterprise. Krämer contributed to the venture his knowledge of the production process of cotton pieces, an unknown technique in Lombardy, but very little capital and no capacity at all for the printing of cotton. To save the bankrupt printing activity, Krämer associated to his firm a young entrepreneur from Augsburg, Johann Paul Hartmann, scion of a family involved in the trading of Swiss cotton pieces and the flourishing cotton printing business.[18]

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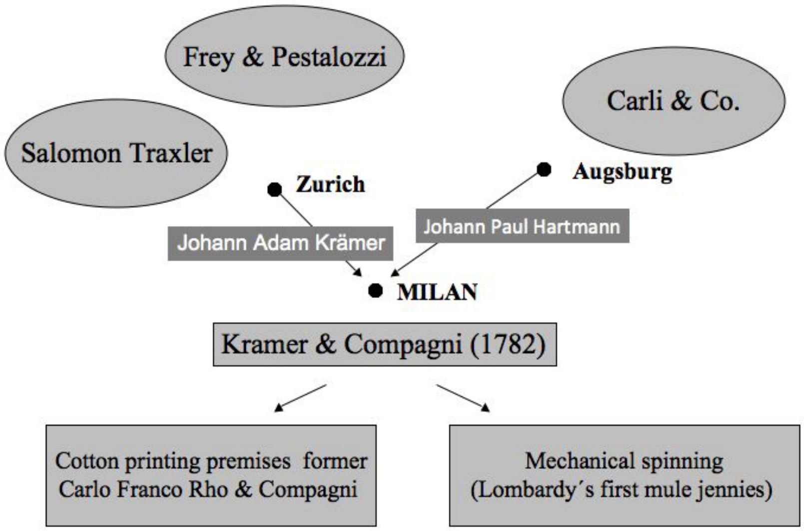
[16] Monika Poettinger, "The Mercantile Network Economy and the Mechanization of Cotton Spinning and Printing in Milan (1760-1815)", in Poettinger (ed.), *German Merchant and Entrepreneurial Migrations* pp. 260-266.

[17] Gio. Adamo Kramer, as he was always known in Milan, was born in 1753 in Essenheim, a little German town near Frankfurt that experienced a long-lasting emigration wave during the eighteenth century. Krämer himself moved from Essenheim to Zurich, where he found employment and acquired experience in a *Verlag* [i.e a printing manufacture] of printable cotton pieces, then he moved to Milan. All genealogical data on Johann Adam Krämer in Milan are to be found in the Censimento (1811), Vol. XX, *ad nomen*, and the Censimento (1835), Vol. XXVIII, *ad nomen*, "Rubrica del ruolo generale della popolazione". Archivio Biblioteca Trivulziana (hereafter ABT), Milan. For a biographical sketch, see Monika Poettinger, "Imprenditori tedeschi nella Lombardia del primo Ottocento. Spirito mercantile, capitale sociale ed industrializzazione", *Rivista di Storia Economica* 23 (2007), pp. 319-360.

[18] Johann Michael Hartmann owned a merchant house dealing with Swiss products and was the contact between Krämer and Johann Paul Hartmann. In the 1780s the Hartmanns diversified their activity by direct involvement in the cotton printing manufactory. Johann Gottfried Hartmann bought the Apfel'sche Druckerei in Augsburg in partnership with Johann Michael Schöppler. Schöppler & Hartmann became, next to the famous Schüle mill, one of the most important printers of Augsburg in the last decades of the eighteenth

Table 1

Originating network of Kramer & Compagni, Milan 1782



From Augsburg came also 30% of the 100,000 florins capital of the venture, invested by one of Augsburg's three Catholic banks, Carli & Co. Two Zurich merchant houses, Salomon Traxler and Frey & Pestalozzi, both with previous involvement in *Verlag* [printing manufacture] production and the silk trade, financed another 30% each. Only the remaining 10% was financed by Krämer and Hartmann. Yet the form of limited partnership, typical for most of these international ventures, valued human and entrepreneurial capital as much as financial capital, and profits were divided accordingly: 25% went to Krämer, 15% to Hartmann and 20% to each limited partner (See Table 2).

Kramer & Compagni is a fairly typical case of how mercantile networks responded to varying incentives across Continental Europe during industrialization. Once an entrepreneurial occasion arose, existing networks

century. Later the venture was successfully led by Johann Gottfried Hartmann's son-in-law, Karl Foster. See Paul von Stetten, *Beschreibung der Reichs-Stadt Augsburg*, Augsburg 1788, pp. 133-138; and "Handlung und Manufakturen der Stadt Augsburg", *Handlungs Zeitung* [Gotha] 29 (19 July 1788).

funnelled resources from excellent production sites, in this case Zurich for the *Verlag* of printable cotton pieces[19] and Augsburg for cotton printing, and financed the setting-up of the new venture.[20] The related migration was not limited to entrepreneurs. Krämer "procured with great difficulties entire families from Switzerland"[21] apt in the spinning and weaving of cotton and able to teach such operations to local workers, while Hartmann arrived in Milan with precious human capital: a colourist and a designer, the most important specialized workers a printing manufacture required for success.

In time Kramer & Compagni became the first venture to introduce a mule jenny in Lombardy and further implemented many innovative production processes in the printing sector. Innovation was thus the result of the interaction between mercantilist protection and the ability of international trading networks to move resources and production processes from centres of excellence to backward regions.

[19] In this manufacturing sector, Swiss districts, such as the outskirts of Zurich, held almost a monopoly in Europe, having accumulated a long-lasting comparative advantage in the years when cotton printing had been outlawed in nearby France. Such a comparative advantage was not yet of a technical nature, like the one England was soon to acquire through mechanization, but resided in skilled labourers and early chemical and mechanical abilities. Even Peel, the biggest English cotton printer, had to admit the superiority of Swiss craftsmanship in 1786: "We are excelled... – he affirmed about the production of printable pieces – in Switzerland both in execution and cheapness."; quoted in Stanley D. Chapman and Serge Chassagne, *European Textile Printers in the Eighteenth Century*, London 1981, p. 88.

[20] "Augsburg at the moment is much more advanced than other locations only in the preparation of the necessary colours," wrote Paul von Stetten in 1779 in his historical representation of the Reichsstadt. See Paul von Stetten, *Kunst-, Gewerb- und Handwerks Geschichte der Reichs-Stadt Augsburg*, Vol. I, Augsburg 1779, p. 253.

[21] Memorandum (or Promemoria) of the firm Kramer & Compagni, 8 April 1791. Archivio Storico di Milano [hereafter ASM], Fondo Commercio, p.a., cart. 252.

Table 2

Capital composition of Kramer & Compagni

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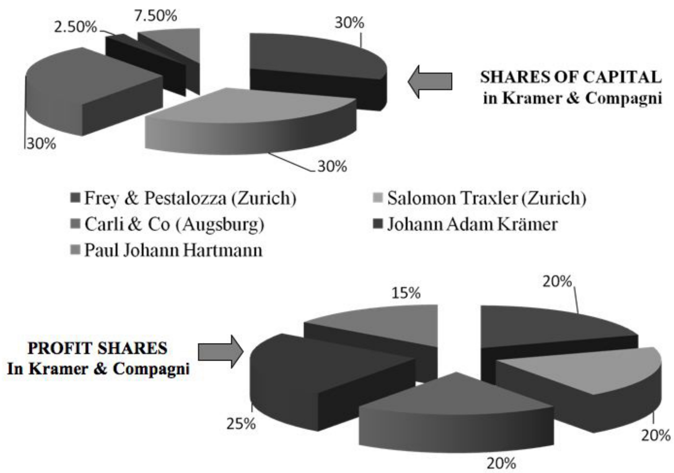
<tr><th>Firm</th><th>Capital composition</th></tr>
<tr><td>Kramer &
Compagni
Milan,
1782-1807</td><td>
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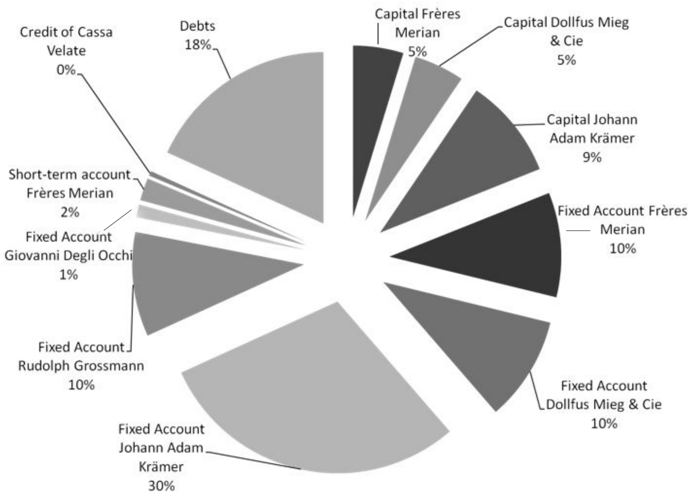
<tr><td>Kramer &
Compagni
Milan,
1807-1814</td><td>
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While closing down a market, as in the case of Kramer & Compagni, could result in the introduction of production in locations with comparative disadvantages, there was also the case when opening or enlarging markets caused the foundation of firms in comparatively advantaged countries to exploit economies of scale. A fitting example of this kind of incentive and the reaction of merchant networks is the Austrian linen sector after the Restoration. Following the distortions induced by the Continental System, the return of Austrian rule in Lombardy abruptly reintroduced the region into the common economic area of the Austrian Empire. Local merchant houses had to adapt to the new institutional and economic setting, adjusting their investments. Enrico Mylius & Compagni, a banking and trading house of German origin based in Milan, consequently decided to intensify trade by importing the high-quality linen products of Upper Austria's provinces[22] and particularly from the Mühlviertel, a region with a lengthy tradition in that sector.[23] The abolition of all guilds in 1801 and the distortions imposed by Napoleonic policies, though, had severely damaged the local economy and impoverished the 18,000 linen spinners and weavers working in the domestic system, centred on the market of Haslach. In consequence, conditions were favourable for profitably introducing the same kind of *Verlag* production, or cottage industry, that was typical for Lombardy's silk sector, in which Mylius successfully operated. To exploit such entrepreneurial opportunity, a younger member of a Swiss family involved in Mylius' trading network was chosen. Johann Niklaus Vonwiller had until then acted as a business traveller, while his brother, David, at the beginning of the century, had profited from the Continental System by setting up a complex network for the production of cotton in Naples.[24] In 1819, on his part, Niklaus Vonwiller, financed by Enrico Mylius & Compagni, founded a bank in Milan and a trading subsidiary in Haslach. The Austrian branch would manage the flourishing trade between the two provinces of the Empire, but also the *Verlag* production of high-quality linen. The old master weavers of Haslach thus became dependent *Faktoren*, working exclusively for Vonwiller's trading house

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[22] See Monika Poettinger, *Deutsche Unternehmer im Mailand des neunzehnten Jahrhunderts. Netzwerke, soziales Kapital und Industrialisierung*, Lugano: Casagrande Editore, 2012, pp. 172-176.

[23] Benedikt Pillwein (ed.), *Geschichte, Geographie und Statistik des Erzherzogthums Oesterreich ob der Enns und des Herzogthums Salzburg. Erster Theil: Der Mülkreis*, Linz: Quandt, 1827.

[24] See Daniela L. Caglioti, *Vite parallele. Una minoranza protestante nell'Italia dell' Ottocento*, Bologna: Il Mulino, 2006; Dieter Richter, *Napoli cosmopolita. Viaggiatori e comunità straniere nell'Ottocento*, Napoli: Electa, 2002.

and organizing their homemade work on its behalf. The merchant house had an exclusive relationship with the homeworkers, who could buy raw materials and working tools only from it, while it retained the right to buy at a given price only as much finished product as it wished, *de facto* transferring most of the entrepreneurial risk onto the dependent *Faktoren*. Such organizational innovation was so successful that the Milan trading house employed thousands of *Faktoren* all over the Mühlviertel, up to the River Vltava, irreversibly altering the local economic and social system.

One decade later, even the successive step from proto-industrialization to the factory system was completed. Given the high profits gained by the *Verlag*, in 1830 the local trading manager of Vonwiller, Wolfgang Alois Fririon, was entrusted with the erection of an imposing factory in which weavers would be put to work under one roof, while finishing operations could be completed through water power (see Table 3). This change transformed the seasonal *Faktoren* into full-time workers, allowing, at the same time, a stricter control over the quality of their work by supervisors. The use of water power, on its part, diminished costs while improving the uniformity and appearance of the finished product; again, an organizational transformation that manifoldly increased productivity.

In Lombardy, trade in the Mühlviertel's linen boomed. The region, estimated the Austrian government, generated a demand of 1.5 million Gulden that could not be adequately covered by the low quality of local linen production.[25] Not even the factory of Vonwiller could satiate it. In consequence, another trading house from Milan, Pietro Simonetta, equally supported by Enrico Mylius & Compagni, built a similar factory in Helfenberg with the same rationale. Nothing of the sort had ever been seen in the valleys surrounding Haslach: huge, dominating buildings, stories high, that obstructed the view of the former peaceful, agrarian surroundings, Molochs that swallowed men as water, constraining their free flow and work.

Historiography, in effect, marks the erection of these factories as the starting point of industrialization in Upper Austria. During the 1840s, Vonwiller's mill hosted 360 weavers, while Simonetta reported 1000 workers in his premises. The official report on the third general Austrian manufacturing exhibition, held in Vienna in 1845, boasted, "By operating 8000 looms, Upper Austria has a yearly production of up to 200,000 linen pieces, 30 ells long, corresponding to a value of 1 million Gulden. The biggest factories belong to Vonwiller and

[25] *Bericht über die Dritte allgemeine österreichische Gewerbe-Ausstellung in Wien 1845*, Vienna: K. K. Hof- und Staatsdruckerei, 1846, p. 327.

Comp. in Haslach, Simonetti [sic] in Helfenberg, Kamka in Zwettl and Wurm in Neumarktl near Linz."[26]

In the Austrian region, the factory system, if not the full mechanization of the production process, was brought about by the direct investments of Lombardy's merchant houses and the entrepreneurial migration of younger members of the related families. In this case, no particular technological knowledge was necessary to exploit the opportunity offered by the opening of trading space amongst Austria's provinces after the Restoration. The entrepreneurial advantage of Lombardy's houses consisted in the availability of capital, necessary to finance the *Verlag*, in the organizational knowledge needed to set up the cottage industry first and the factories later on, and lastly in the knowledge of the end market.

The two illustrated cases, cotton printing in Milan at the end of the eighteenth century and linen production in Upper Austria in the first half of the nineteenth century, clarify the interplay between varying incentives, related to state interventions in regions subject to sectorial crises, and economic decisions of merchant networks that brought about the foundations of firms and the related diffusion of innovation in Continental Europe during industrialization. Milan has been depicted once as the receiving country for Swiss and Bavarian investments thanks to the protection offered by the Austrian government, while in the second example the increased trade with Austrian provinces after the Restoration prompted Milan's trading houses to replicate the local *Verlag* production of silk and the factory system of cotton in the linen sector of Upper Austria. As seen, it was knowledge of markets and techniques and organizational capabilities that gave international trading houses an unbeatable advantage in exploiting entrepreneurial opportunities arising far away from already existing centres of excellence. The resulting entrepreneurial migration, sustained by merchant houses with capital and resources, diffused efficiency and innovation in regions that had suffered acutely from the dying out of formerly flourishing productions.

Sectorial Crises as Stimulus for Change

State intervention, as seen, could create many an entrepreneurial opportunity, salvaging entire regions from the consequences of sectorial crises due to changing consumer demand or comparative advantages. There was always a flip side of the coin, though. Changing economic incentives, reversing investment decisions and countering comparative advantages was a process of

[26] *Ibid.*

creative destruction: whenever entrepreneurial opportunities were generated in a region, another region lost its own. Networks were able to exploit the new advantages, but how would they cope with the reversing of existing ones?

The setting up of the Continental System in the first years of the nineteenth century was the first and foremost example of massive political intervention in the economy, useful for analyzing the reaction of merchant networks to the destructive effect of changing economic conditions. In effect, the Napoleonic measures were followed by an unprecedented repositioning of investments across borders. The Rhine River, for example, witnessed a general migration of production facilities from its right to its left banks, while Switzerland, as with many Austrian and German provinces, lost much of its textile production.[27] Certain wares and raw materials abruptly became unavailable, prompting substitution through hastily set up local cultivations or manufactures. Cotton was one of those, and the cited entrepreneurial adventure of David Vonwiller in Naples exemplifies one of the solutions pursued by international merchant networks.

In Lombardy, Kramer & Compagni lost its capitalists, and Hartmann also decided to set up his own network for the trading of cotton between Trieste, Milan and Naples, leaving the partnership.[28] Incentives had changed, and the original partnership was dissolved. Krämer himself invested in real estate and government provisions and gave up the mechanical manufacturing of cotton. The printing activity, though, profited from the French Court that ruled Italy residing in Milan and was worth pursuing. Having severed the link to Augsburg, Krämer resorted to his Swiss contacts to build up a new network through which capital and innovation could flow to his manufactory from the most advanced manufacturing centres in Europe. He soon found an eager investor in Frères Merian, a merchant house of Basel, heavily involved in the booming smuggling business until the catastrophic Neuenburg Affair. After Napoleon's personal threats, Frères Merian had been obliged to change its investments. Unable to continue its *Verlag* production in Switzerland, due to French protectionism, it changed strategy towards direct foreign investments, financing cotton printers in imperial territories; hence, it invested in Dollfus, Mieg & Cie in Mulhouse and also in the newly founded Kramer & Compagni. The capital composition of the Milan cotton printer completely altered (see Table 2): Kramer & Compagni was now able to supply

[27] Eli F. Heckscher, *The Continental System: An Economic Interpretation*, New York: Cosimo Classics, 2006, pp. 295-320.

[28] Poettinger, *Deutsche Unternehmer im Mailand*, pp. 68-70.

half of the capital, while one fourth each was invested by Frères Merian and Dollfus, Mieg & Cie. From Mulhouse Krämer also obtained precious organizational capital: Rodolphe Grossmann, former partner of Dollfus, who would from then on direct the printing activities of Kramer & Compagni in Milan. Grossmann's knowledge would also be decisive in erecting the new mechanized printing factory of La Pace, which increased the annual potential production to 65,700 pieces a year (see Table 3). In the case of Krämer in Milan, as in Alsace, incentives had become favourable to the introduction of an innovation – cylinder printing – which guaranteed enormous returns in terms of economies of scale, but had to rely on markets sufficiently extended to justify it.

To further highlight the stance of international merchant houses when facing a crisis, it is worthwhile to cite the report written on the conditions of Lombardy's trade under the Continental System by Krämer, who had been elected in 1812 to the Trade Council of Milan.[29] For every economic sector analyzed, Krämer valued Lombardy's comparative advantages or disadvantages and the market positioning. He wrote that innovations should be introduced whenever local workers lacked skills and sufficient demand was guaranteed, rarely in the case of Lombardy; whenever skilled workers were available at a sufficiently low price, instead, traditional techniques should be preferred, and even in case of clear disadvantages sometimes markets could be found, in Eastern Europe for example, that could absorb low-quality products. What Krämer suggested at a macroeconomic level was simply what merchants did in their counting rooms, evaluating investments and market conditions in order to implement only those businesses that would be profitable. Whenever incentives were averse to a production, a technique or a location, resources had to be otherwise put to use.

[29] Atti del Consiglio del Commercio. ASM, Fondo Commercio, parte moderna, cart. 59.

Table 3

Mechanization in Mulhouse and Milan through capital from Basel

Firm	Year	Production / pieces[30]	Year	Workforce	Year	Cylinder-printing	Year	Printing-tables
Kramer & Compagni, Milan	1789	16,613	1791	200[31] approx.		X	1782-1807	**45**
Kramer & Compagni, Milan	1817	180 daily[32]	1817	673 including weavers[33]	1807	1	1817	**78**
Dollfus, Mieg & Cie, Mulhouse[34]	1804-1805	34,000	1806	715	1806	1	1804	**200**

The reaction of international merchant networks to the diversions of the Continental System was to dissolve partnerships and redirect capital and resources towards the regions or the sectors that guaranteed higher returns, maintaining a high grade of liquidity and averting whenever possible excessive fixed capital investments. The trading house Enrico Mylius & Compagni, for example, dissolved the old partnership that connected it to a complex web of firms managing the trade of linen, cotton and silk between Frankfurt, Manchester and Milan.[35] The banking house was then founded again as a firm dedicated mainly to silk trading and direct relationships to the then newly established and booming silk manufactories along the Rhine,

[30] Data correspond to Continental "pieces" (24 m or 26.3 yards).

[31] Letter from Kramer & Compagni to the Municipality, 21 July 179. ABT, Fondo Famiglie, Cartella 815.

[32] *Gazzetta di Milano* 122 (1 May 1820). Archivio della Camera di Commercio di Milano, Atti della Camera di Commercio di Milano riguardanti le manifatture di cotone.

[33] *Ibid.*

[34] Nicolas Schreck, "*Dollfus-Mieg et Cie.* Histoire d'une grande industrie cotonnière des origines à la première guerre mondiale", *DMC. Patrimoine mondiale?*, Colmar 2006, pp. 15 and 32.

[35] Poettinger, *Deutsche Unternehmer im Mailand*, p. 57.

particularly in Elberfeld.[36] Such repositioning was so favourable that another family of bankers in Frankfurt, the Seufferhelds, established a trading house in Milan with the same rationale.[37]

As seen, the strategy of merchant houses on the Continent during Napoleonic times was quite successful. The organizational structure of merchant networks was best suited to take advantage of constantly changing conditions and incentives. The picture did not change with the post-Napoleonic crisis or the crises of the nineteenth century that followed regularly. In the course of the century, for example, Kramer & Compagni became a family business financed and run by Krämer's many sons.[38] Its management maintained two main focuses: competitiveness through innovation and the search for the highest returns. Investments were decided accordingly. For half a century the firm represented the cutting edge of the technological frontier in Milan, but its activities varied continuously. Already in the mid-1820s the printing activity was abandoned. Technical improvements and the use of steam machines were then required to remain competitive in that sector, but these investments could not be justified by the limited market of Austrian Lombardy. The return to protectionist policies had raised raw material costs while impairing the possibility to access wider foreign markets. The sons of Krämer, in the decades up to the 1860s, consequently organized the production of machines for the silk industry, pipes and fertilizers, invested in banks, insurance companies and railways, and experimented with sugar beets and the raising of alternative worms for silk production. The changing focus of Kramer & Compagni perfectly depicts the evolution of comparative advantages in Lombardy in the first half of the nineteenth century. During the difficult years after the Restoration, when manufacturing became risky and hardly rewarding due to English competition and Lombardy's backwardness, Kramer & Compagni switched its focus mainly towards services, as most other Continental merchant houses did. In all of Continental Europe, the 1820s became the years in which banks and insurance companies in the form of limited companies were founded, collecting large profits made through manufacturing and smuggling during Napoleon's time. Only later and always in relation to the booming sectors of the local economy did Kramer & Compagni reinvest in manufacturing activities. As silk became the golden thread on which Lombardy's development rested, an innovative throwing machine *a trama filata* became a point of excellence of the firm,

[36] Herbert Kisch, *From Domestic Manufacture to Industrial Revolution: The Case of the Rhineland Textile Districts*, Oxford: Oxford University Press, 1989, pp. 200-206.

[37] Poettinger, *Deutsche Unternehmer im Mailand*, p. 60.

[38] *Ibid.*, pp. 97-145.

while lead pipes, uniquely produced without junctures and to be used for gas illumination and canalizations, became the best seller amongst the firm's products, thanks to the economic development of Milan in the second half of the nineteenth century. Agriculture being, through silk, cheese, rice and grain, a continuous source of wealth for Lombardy, many activities of Kramer & Compagni still centred around it, such as the production of fertilizers and the experiments on sugar beet production and raising silk worms.

As exemplified, when crises struck, the response of merchant networks was always the same: implementing innovation whenever economically feasible, otherwise changing sector or even country to follow the new advantages. Flexibility became a way to profit, even during unrelentingly changing circumstances.

The Waning of Trust: The Real Crisis

During the eighteenth and nineteenth centuries, merchant houses faced rapidly changing incentives. On one side, economic policies, heavily influencing trade flows and comparative advantages, varied continuously; on the other side, technology improved incessantly, influencing and sometimes reversing comparative advantages. War and rapidly shifting frontiers rendered the economic decision process even more difficult and uncertain. In this sense it is possible to speak of a continuous state of crisis due to endogenous and exogenous shocks. At a microeconomic level, though, these erratic or cyclical disturbances could constitute an opportunity for well-organized networks and entrepreneurs willing to migrate. Given the low fixed to circulating capital ratio for most enterprises and the legal framework, adverse to limited responsibility and legal entities, founding a new enterprise was easily done and undone. The historical trait of the "commenda", a mercantile contract between associates, some contributing capital and others personal capabilities, for the completion of a very precise enterprise limited in time and scope, continued to characterize most firms. In Continental Europe the democratization of capital and the spreading of limited responsibility, up to the foundation of limited companies, due to Napoleonic reforms did not change this business practice much. Whenever an entrepreneurial possibility arose, loose networks founded a new firm, while the advent of changes would bring about its closure. Merchant networks continuously expanded during this period, accumulating capital and gaining an increasing political representation; a circumstance made possible by their loose and netlike organizational structure made up of temporary firms, cross-investments, trust relations and family ties.

The worst crisis such a system could face was not related to changing circumstances or sectorial crises, but personal failure, the end of credit-worthiness. Not only was bankruptcy the worst nightmare of an entrepreneur, given the interlocking structure of merchant networks and the prevalence of credit by trust, it could impair the functioning of the whole system. It might be interesting to cite a last case, to exemplify how networks reacted to such a kind of failure.

The merchant house Pietro Simonetta had been part of the network of Enrico Mylius & Compagni since the foundation of Milan's first insurance firm as a limited company in 1825, a relationship strengthened by the common venture in Upper Austria during the 1830s. In 1854, a year of crisis for Lombardy's economy, the house of Simonetta had to undergo liquidation, having lost its credit.[39] The relevance of this house can be inferred from the list of personal belongings that Karl Leopold Simonetta, near to death in consequence of the bankruptcy, left to his wife, including several diamonds and canvases by "Barbieri" (Il Guercino), and to friends, for example a painting by Velázquez. The failure of such a house could have had terrible consequences on Milan's market, already afflicted by a crisis in wine production and a general decline of trade. Pertaining to the same network, the head of the house of Mylius decided therefore to step in, guaranteeing all of Simonetta's debts. He thus permitted the brothers of Karl Leopold to maintain their trade in Milan, while his son continued the manufacturing activity in Austria, even if under the tutelage of Mylius and Vonwiller. Liquidation could proceed, avoiding a general credit crisis, while the trust level of the market was preserved.

The case described was not unique. Through personal interventions or collective guaranteeing, the worst cases of default were circumscribed and solved with little damage to the entire system. The strategies of international networks towards crises emerge, in their entirety: business cycles and changes in comparative advantages were countered with a continuous innovating activity guided by a precise economic calculus, while single bankruptcies and their consequences on trust and credit conditions were limited to a minimum, firstly by closing down unprofitable firms before default, and secondly by managing the eventual liquidation process so as to avoid a general panic.

Given these business structures, and the practices and strategies employed by merchant networks, wherever and whenever the merchant community was large enough to control a market, as in nineteenth-century Lombardy, a very stable economic system developed, efficiency-oriented, but at the same time capable of reducing to a minimum the cases of failure.

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[39] *Ibid.*, p. 179.

Conclusions

During the nineteenth century, within merchant networks, the decision process was mainly based on international comparisons of costs and, in consequence, on comparative advantages. Firms were founded and resources moved according to the results of such comparisons, stimulating the international specialization of production and increasing the overall efficiency of the economy. The netlike organizational structure of merchant houses maintained a high grade of flexibility: investments in costly fixed equipment were made only cautiously, and innovations were introduced only if rewarding. The stability of the system was further preserved by closing down firms that became unprofitable, selecting entrepreneurs according to their knowledge and capacities and leaving locations that had lost their advantages.

The evidence presented clearly shows how this organizational structure perceived crises and reacted to them. Sectorial imbalances could become a source of entrepreneurial opportunities, exploited through temporarily set up networks or firms, collecting resources according to the changed incentives. If crises, though, struck already established initiatives, the response of merchant houses could be to redirect investments towards other sectors or to migrate following the new advantages.

In Continental Europe, the increasing diffusion, wealth and political power of merchants up to the end of the nineteenth century attest to how profitable such a decision process was for the networks involved. In Milan international networks of German origin funnelled precious entrepreneurial capital, techniques and financial means into traditional sectors, such as silk, and into protected ones, such as cotton. They also exploited the profitable trade in linen with Upper Austria, further strengthened by direct investments and entrepreneurial migration.

The main crisis such a system would face was the waning of trust, source of credit and foundation of the organizational structure. Failures could generate a domino effect, bringing down the whole system. Merchants were aware of the danger and entrusted their networks with a function of containment in case one of the associated houses was constrained by liquidation or bankruptcy. Insolvencies were thus limited to a minimum and their effect on the system contained by collective guaranteeing and personal warranties.

Only where the personal responsibility of entrepreneurs and the collective responsibility of networks were lacking, in consequence of the diffusion of banking credit and limited companies, would the abuses of industrial association cause recurring economic crises as in the United States, Great

Britain and France.[40] On the contrary, whenever and wherever merchant houses controlled the investment decisions process, they not only became an indispensable means of diffusing economic efficiency by redirecting resources towards the most profitable activities, but also a stabilizer against the excesses of speculation, granting long-term economic development, as the case of Lombardy amply demonstrates.

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[40] Francesco Restelli, "Memoria in risposta al quesito. Qual è l'influenza delle associazioni industriali e commerciali sulla prosperità pubblica? Quali sarebbero i più congrui mezzi per tutelarle?", *Giornale dell'I. R. Istituto Lombardo di Scienze, Lettere ed Arti* 31 (1845), p. 60.