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A Contribution on Relationship Banking. Economic, Anthropological and Mathematical Reasoning, Empirical Evidence from Italy

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Abstract

This research concerns the tightness of the economy and demonstrates the need for procedural reforms between banks and companies for more relational and infra-cooperative structures. Among these corrections, we suggest that banks and companies be considered as unicum bank-enterprises and monetary-financial and productive activity as two faces of the same coin, rather than distinct functions of separate entities.

With the rapid and increasingly "liquid" evolution—to put it in the Bauman (2000) context—of financial intermediation in large groups and fintech, it is with a certain audacity that we propose more "solid" action.

Following an anthropological and economic-behavioral survey on the inherent human qualities of cooperation and relationality, we situate these two qualities in economic actions and particularly in the relationship between financing institutions and producers.

This heterodox notion is supported by an analysis of Italian performance data on financing trends, bank non-performing loans and the number of companies in the production sector, which reflects the progressive deterioration of the economy. From there, we apply a mathematical model to finalize our hypothetical reform.

We finally recommend a strategy for the gradual implementation of our conclusions, based on an examination of existing cooperative banking intermediation practices.

Keywords: Cooperative Credit, SME Lending, Relationship Banking, Economic Systems, Financial Stability, Credit Market Structure.
JEL Codes: C73; E71; G41; O16; P43

1. Eulogy to Cooperation: A Socio-Economic Introduction

1.1. Some Anthropological Considerations

At its most basic level, cooperation is a social action innate to human existence. The intrinsic need for emotional and relational ties is apparent, in fact, from the embryonic stages of birth. This working relationship between the person and the ecological system continues through all development stages[1]—"*[the child is] a dynamic entity that progressively moves into and restructures the milieu in which it resides*" (Bronfenbrenner, 1979, p. 22). Continuous and systematic reciprocity and interdependence between the environment and entities in its perceptible world is therefore essential.

As experiences with and perceptions of the surrounding environment are constantly informed by and shared with others, a close correlation can be found between a sense of communal belonging and the maturation of cognitive skills. Interactions and meaningful relationships formed within a community encourage mental development.[2]

During early childhood, human connections are essential for psychological and physical growth. For infants, sensory acceptance of social surroundings is essential to the development of their implicit mnemonic kit, and particularly emotional memory, the lack of which can lead to behavioral deficits and dissociative tendencies in adults. The complete absence of physical and relational proximity to other individuals or a community can also lead to certain biological impairments, even death for children.[3] Alongside phylogenetic and ontogenetic biological development, however, the human species is characterized inextricably by its historical and cultural development,[4] made possible by a relational environment, solidarity and cooperation.

From these various influences, it is also necessary to address the presumed, though controversial, dichotomy of human nature and culture. At first glance, it would seem that there is an inherent divide between what is biologically innate and what is socially ingrained. However, even if we admit that certain conditions are genetic and that a behavioral disposition exists—whether selectively or generally—it is imprudent to define a generic *x* characteristic, no matter how recurrent, as predetermined (*rectius*, pre-deterministic).

Instead, according to Neural Darwinism,[5] "*which recognizes the historical and creative dimensions of human thought, no divorce is necessary between science and the humanities*" (Edelman, 2007, p. 156). In broad terms, environmental stimuli drive adaptive behavioral mechanisms, as well as physical, para-physiological or pathological modifications. The evolution of a community is thus characterized by epigenetic autopoiesis, strongly influenced by both the surroundings and the cultural systems produced. The neuropsychological functioning of the human being is therefore inseparable from the environment in which it is developed.

Also, of note is that, while human communities have formed under numerous social models, the oldest anthropic settlements were firmly egalitarian.[6] Across these various models, the process of their fundamental formation can be said to mirror that of human behaviors. Different religious, metaphysical, philosophical, ethical and socio-economic beliefs will inevitably lead to different considerations and actions, shaping perceptions and changing individual goals and objectives. Whether collectivist or individualist, the social system is then strengthened.

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[1]This is not a one-sided relationship: as the environment influences the person, it is also changed by the actions of the persons who exist in that time and space.

[2]cf. Rogoff, 2003.

[3]cf. *ex multis*, Bowlby, 1988, and Ainsworth, 1978.

[4]cf. Vygotsky, 1980.

[5]Neural Darwinism is a theory developed by American biologist Gerald Edelman (Nobel Prize in Physiology or Medicine in 1972) as an innovative approach to the study of cognitive sciences through the conjunction of biological and neurophysiological knowledge and philosophy in order to explain, with interdisciplinary completeness, the functioning of the mind, the formation of thought and the manifestation of emotions.

[6]For early hunters and gatherers, (total) progress relied heavily on resource sharing and cooperation as well as 'gifts.' Characterized by a life of communion, generally void of material excess, these communities lacked any conspicuous forms of competition and, consequently, were far removed from violence (cf. Konner, 2002).

A social structure grounded in capitalism, for example, will orient its members and institutions around verticalist approaches. In socio-economic terms, this causes social stratification, a sense of alienation and the loss of mutual interdependence, as well as a deterioration of those values intrinsic to the human experience, including affinity, altruism, collaboration and unity. The danger that emerges from such a model is that man, selfish by nature (Hobbes), will be driven by the maximization of profits (Walras), where utility—not *happiness*—motivates each action. However, utility amounts only to the relationship between a person and an object, whereas happiness, as Aristotle observed,[7] arises chiefly from relations between people. This culminates in a disingenuous milieu, diminishing the importance and fulfillment of these inborn human needs. While such principles as compassion and cooperation are retained in spaces where these needs are expressed, competitive structures displace them with a centrality of self, fomenting a propensity for abuse and conflict.

From an anthropological perspective, this egocentric expectation is perhaps more logical in relation to communion, cooperation and empathy. Social imperatives that cause a deviation from these fundamental values do so by leveraging the adaptive flexibility of human beings. They also, however, degrade basal kit inclinations. While the human brain is found to respond favorably to the physiological stimuli of integrated societies and to encourage protective mechanisms against those that threaten them, such adaptations may result in endogenous cognitive development errors such as mental diseases and isolationist or dissociative behavior.

Looking back to pre-Socratic thought, references to the connections between humans and society are also prevalent in philosophy. Of note is Heraclitus, who attends to the fluidity and permeability of relationships within a given system. Where the dialectic between x and $f(x)$ assumes epistemological and ontological value, each component comes together as both form and content. Each existence is, at the same time, its environment. The real balance is therefore neither in the origin nor the end: it is created through a mediation of the terms and an acceptance and cooperation between them.

1.2. Human and Socio-Economic Fundamentals of Cooperation

The human propensity to relational and cooperative action can be found in such fundamental social structures as families and schools. The cognitive assets that these collectives transfer to successive generations can be divided into two main categories. The first refers to formal and institutionalized knowledge, or codified knowledge, that exists in and is largely applicable to every nation and culture in the world.[8] Importantly, this generalized cognitive heritage is, and should continue to be, steeped in what Polanyi calls “tacit knowledge” (1966), which relates specifically to the traditions and histories of a place and/or people, and is learned through immersion in specific communities and the horizontal and vertical relations within it.

Socio-economic development then emerges incontrovertibly from the *ars combinatoria* of codified and tacit knowledges. The apprentices of Leonardo da Vinci, for example, were able to discern, at least in part, the precise genesis and processes of his distinct artistic model through *ars combinatoria*, where direct observations and interactions complemented study of techniques and mathematics. Subsequent research into certain artworks or experiments would likely not have arisen for the rest of the sixteenth century if this initial study had occurred in another facility, in a different place or by practitioners of other fields or schools,[9] assuming a global standard of skills, adaptable for students of various disciplines.

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[7]Also, from the dianoetic point of view.

[8]Such knowledge may also be called “universals.” Although essential for the community, they add little value in terms of emotionality and—in a broad sense, though perhaps a bit semantically risky—culture.

[9]In geography, ‘places’ refers not only to objective or physical locations, but also to emotional and relational spaces—the *genii locorum*—that convey a sense of belonging, cultural suggestion and traditional knowledge to the individual. Where irreplaceable human aspects are not particularly valuable to the former two ‘places,’ their unique qualities must be protected in order to protect the biodiversity of the whole.

Both the school and the family are crucial examples of the inherent propensity of human beings to social cooperation. Yet, at least in the former, the postmodern and contemporary eras have already born witness to a distortion of its founding values in favor of hierarchy between teacher and student. In addition, the drive for individual emergence too often replaces collaboration among peers with competitive stimuli.[10] The term 'school,' however, comes from the ancient Greek *σχολή*, which relates specifically to a place of learning devoted to the *sanctity* of intellectual exercises, and therefore distinct from the conflicting or hierarchical potentialities of individual practices in trade and war. In Latin, such intellectual devotion is known as *otia litterata*, with *negotium* as its counterpart.[11]

This dichotomy between actions driven by systemic evolution, as in the classical conception of schooling, and those motivated by individual success, as in current capitalist structures, is not new. The latter arises from a cultural change originating in the mid-1600s. Influenced in large part by Hobbesian interpretations of the Leviathan (1651), his anthropological conclusions are encapsulated by the well-known postulate "*homo homini lupus*," wherein every man is, by nature, aggressive and oppressive towards all other men. This assertion was later bolstered by Locke (1690/1967), whose ideas on the formation of the right to private property continue to inform contemporary thought:

> "*we see in commons, which remain so by compact, that it is the taking any part of what is common, and removing it out of the state nature leaves it in, which begins the property; without which the common is of no use. And the taking of this or that part, does not depend on the express consent of all the commoners. Thus the grass my horse has bit; the turfs my servant has cut; and the ore I have digged in any place, where I have a right to them in common with others, become my property, without the assignation or consent of any body. The labour that was mine, removing them out of that common state they were in, hath fixed my property in them*" (p. 166).

Promoting overwhelming competition between individuals, these ideas continue to have substantial impacts on the socio-economic *game*. Today, the chessboard of economic markets has turned transactions into confrontations between rivals, rather than work alongside *socii*.

In the mid-nineteenth century, a recognition of and response to this market structure eventually appeared in the form of cooperative ventures, as economic actors began taking mutual impacts and communal benefit into consideration. Such ventures were first realized in 1844 Manchester, when a group of textile workers in the suburb of Rochdale formed a special partnership based on cooperative goals. In Italy, the cooperative *Magazzino di Previdenza* (Social Security Warehouse) was founded in Turin by the *Società degli Operai* (Society of Workers) 10 years later, when severe agricultural shortages and ensuing inflation caused the famine of 1850. With support from the Republicans at the time helping the warehouse to succeed, the first cooperatives for production and work appeared in 1856.

This alternate method of compensation, however, continues to be relegated as a *subspecies paupertatis* to the margins of the wider capitalist movement. Not only are perceptions of the cooperative paradigm highly limited, but the real contributions of the model are either confined to the social sphere or considered as supports only for those excluded by the dominant liberal market. Economic considerations of cooperatives are then distorted as observed and reported experiences are isolated to poverty assistance and therefore deemed irrelevant to mainstream economic and commercial paths.

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[10]Voting systems and assessments, for example, promote these dynamics.

[11]The classical methodology for teaching is most comparable to current school systems in Scandinavia, specifically Norway.

Despite this, cooperative enterprises are inherently oriented around simultaneous economic and social action. The attempt by present corporate structures to delegitimize this first function—based on its alleged disconnection with the second—discounts the prerogative of the cooperative as a *super being*, thus inhibiting its potential socio-economic scale and impact. The proscriptive duality of the primary economic market, which centralizes the generation of added value and the creation of wealth, then limits the scope of cooperative activities. As such, while cooperative entities retain some overall redistributive capabilities, they are simultaneously undermined by their limited sphere of influence.

Instead, it is clear that the distribution profile of capitalist ventures is deficient. The need for state assistance intervention to compensate for structural deficiencies through welfare state systems affirms their existence and the impacts they have on exchange economy models. The economic system must therefore be rebalanced, and capitalist discontinuities removed.

In order to make these adjustments, we must clearly understand the specifics of cooperative action and ventures, as well as the *fundamentum divisionis* between cooperative and capitalist orientations. The creation and objectives of all enterprises, whether cooperative or capitalist, are commonly characterized by three basic elements[12]:

1. awareness of interdependence;
2. assignment of shares ownership and related responsibilities to stakeholders[13]; and
3. propensity to achieve one or more objectives.

The fundamental differences between cooperative and capitalist structures, therefore, are solely in their operations, which defines their internal relations. Where the capitalist venture acts according only to *resources*, the cooperative acts according to both resources and *purpose*.[14] The first assumes that organizations are characterized by formal hierarchies, specifically on a proprietary scale, while the second assumes reciprocity and democracy.[15]

The connection between resource management and purposeful direction is innate to cooperatives and brings decisions ontologically in line with the most fundamental human needs. As such, these enterprises should be co-located in the economic system, and perhaps given a more prominent position. This can only be done, however, once the economy is divested of the regulations and cultural predominance of conventional capitalist entities.

From these demo-anthropological discussions on human activities, we offer an alternate financial system for work and enterprise that aggregates economic-humanism and personalism to foster local senses of belonging. Included in this are a credit intermediation function to support such a system, and a mathematical model that demonstrates the resulting attenuation of average expected levels of default for economic operators in a given area, which occurs due to mitigating factors introduced by cooperative entities.

1.3. Relational Goods

We therefore propose a departure from socio-economic systems that are neither cooperative nor mitigated by cooperative substructures, and that are both unnatural and unfavorable for those involved, regardless of social position. But how did society come to this *pareto-equilibrium* in the first place?[16] Why has the human atavistic dynamic of cooperation, mutuality and solidarity given way to this

[12]cf. Zamagni, Negri Zamagni, 2010.

[13]This reflects the preservation of common action identity, to the point of systemization within overall action.

[14]cf. Bruni, Zamagni, 2004.

[15]Variations in roles in such organizational environments are significant systematically for better exploiting the capabilities available to each position. Certainly, the principle of authoritativeness, derived from the Latin '*augeo*,' refers to management skills that promote the common whole, according to broader plans.

[16]Coined by Italian economist Vilfredo Pareto in the *Cours d'Economie Politique* (Lausanne, 1896), 'Pareto optimality' recognizes the optimal allocation of resources such that any reorganization would only increase the utility of one factor by decreasing the utility of another. This, however, is also the case in a monopoly with perfect discrimination (player 'A' = "all" while other players = "0").

insatiable appetite for wealth and material goods, that both sustains and generates competition in a self-perpetuating cycle of mistrust and isolation?

The answer is found in the real assets of the free-market capitalist system, first posited by political economists as an automatic sequence of (not necessarily egalitarian) exchanges, with money a mere vehicle for thinning such transactions. As described by leading economist Smith (1776), the market should be based on the exchange of equivalents—if not monetary, then socially or legally, as theorized by Hobbes (1642)—and established on a relationship of voluntary subordination (*pactum subiectionis*). During the Enlightenment, these criteria were legitimated and consecrated as effective tools for resolving the livelihood dilemma and the sorting problem.[17] The markets departed, even substantially, from the intentions that contributed to their creation, especially their formal subordination to consumers and citizens, to become self-referential, autonomous and independent superstructures. This substantive erosion, even abolition, of civil values and relational foundations then dismissed associative, relational and adjacent cultural subsystems as non-relevant elements or potential threats that could undermine new capitalist establishments.[18]

Heavily informed by Aristotelian chrematistic assumptions,[19] the classic economic model also sought to justify the allocation of each category of goods. Relative to the work factor in question, allocation logic and the functional value of each good has been affixed to a characteristic value of exchange that validates commercial relationships. Conversely, the Marginalist interpretation, through the general equilibrium theory, dictates that individual interests are expressed mathematically by a specific utility function,[20] which separates the enhancement of a product from the intrinsic amount of work defining it. Instead, utility function is tied to the market system. By reflecting levels of subjective satisfaction—as selfish impulses or self-involvement—through market interactions, the utility function influences the dynamics of supply and demand. This highly neoclassical conception of the market can then be summated as the mediation and abstraction of every relationship formed. Theoretically, this construct could even improve the effectiveness and pragmatism of exchange relations, in terms of order and synthesis.

Yet Smith (1776/1976), in his analysis, also introduced significant subsidiarity concepts, albeit overshadowed somewhat by the prioritization of individual profit:

> "*upon equal, or only nearly equal profits, therefore, every individual naturally inclines to employ his capital in the manner in which it is likely to afford the greatest support to domestic industry, and to give revenue and employment to the greatest number of people of his own country. [...] By preferring the support of domestic to that of foreign industry [...] he intends only his own gain and he is in this, as in many other cases, led by an invisible hand to promote an end which was no part of his intention*" (p. 455-456).[21]

[17]Where the former represents the economic problem of the fulfilment of responsibilities and the organization of production, the latter refers to the regulation of individual behavior according to order, justice and the advancement of society.

[18]cf. Bruni, 2005.

[19]From the Greek *κρῆμα*, meaning 'something that we need,' especially in its plural *χρήματα*, as 'riches' and 'resources.' Philosophically, Aristotle (fourth century BC) proposed these resources as an integral part of the domestic economy, contemplating exchange to procure missing goods and meet basic needs.

[20]Acknowledged by Antoine Augustin Cournot (1841), therein applying infinitesimal calculus.

[21]Prior to this, Smith (1759/1995) had discussed the notion of sympathetic economic operators, evidently in contrast with self-interested ones:

"*how selfish soever man may be supposed, there are evidently some principles in his nature, which interest him in the fortunes of others, and render their happiness necessary to him, though he derives nothing from it, except the pleasure of seeing it*" (p. 47).

Walras and Menger, as well as their disciples in the economic schools of Lausanne and Austria,[22] also focused on abstract and indirect principles to represent the theories of value based on differential utility and of remuneration from production factors according to marginal productivity.

In order to regain a positive relational within the markets, it is necessary for economic theory to progress permanently beyond Smith—and, socially, with Hobbes—and for derivative approaches to implement a science in line with the assumptions of reciprocity, cooperation and mutuality.

Similar conclusions about grassroots participation were drawn by Rawls (1971/1999), who focused on the inevitable dynamic between justice and equity.[23] His principle centers on observations of behavioral choices by agents, which can be attributed to two structures:

> "*the first requires equality in the assignment of basic rights and duties, while the second holds that social and economic inequalities, for example inequalities of wealth and authority, are just only if they result in compensating benefits for everyone, and in particular for the least advantaged members of society*" (p. 13).

According to this line of thought, a market system that restricts most benefits to a select few is only permissible if it also allows for a higher aggregate value, especially for those at the margins. Rawls also recognized the need for a reformed economic orientation to realize this hypothetical situation:

> "*it hardly seems likely that persons who view themselves as equals, entitled to press their claims upon one another, would agree to a principle which may require lesser life prospects for some simply for the sake of a greater sum of advantages enjoyed by others [...] The intuitive idea is that since everyone's well-being depends upon a scheme of cooperation without which no one could have a satisfactory life, the division of advantages should be such as to draw forth the willing cooperation of everyone taking part in it*" (p. 13).

Where studies are traditionally occupied with the instrumental role of economics to society, the difficulty of conducting purely economic analyses without discussing adjacent factors is evident. It seems prudent, therefore, to consider the relationship dynamics of the market, as well as pro-social attitudes, including voluntary contributions to public goods.[24]

The economic definition of subjective well-being requires special considerations of reciprocity and social integration. Empirical analysis of the paradox of happiness,[25] for example, demonstrates the strong effect of relationships on quality of life, which, more so than income levels, forms the core of subjective well-being.[26] This paradox often appears in Western economies, where a growing sense of social impoverishment has resulted in a reduction of individual well-being and quality of life—despite a considerable growth of traditional consumption in recent years. This is because well-being is,

[22]Including Italian economist Vilfredo Pareto.

[23]cf. Rawls, 1971/1999.

[24]cf. Giorgi, 2007.

[25]In 1974, American economist Easterlin showed that public utility and happiness in Western societies are no longer in congruence. Happiness, in fact, has little correlation with positive changes in income, whether as increasing wealth or overall economic well-being. It instead rises only to a given maximum—at which point, the first derivative of the function vanishes—and then decreases in a clean downwards parabola. Mathematically, the paradox is as follows: where '*F*' is the happiness of an individual (the cardinal measurement variable), '*I*' the income, '*R*' the relational goods, and discounting less significant elements, we write $F = f(I, R)$.

Happiness is thus expressed as a function of individual income and relational goods. Where this assumption is probable for a certain threshold of *I* such that $\delta f (I, R) = 0$, the function beyond this state assumes a flexor progression. This is because the sacrifice to generate successive wealth units—relative or absolute—negatively and systematically impacts the results produced by relational goods, and therefore the quality and quantity of relationships. The net effect is essentially a reduction of happiness (cf. Desogus, 2014, 2015).

[26]cf. Kahneman, 2004.

crucially, not just a function of the goods and services available for purchase, but also of the relational goods—those intangible *productions*, *a latere* of trade—that connect purely economic acts with the social interactions associated with them.

Nussbaum (1986), Donati (1986), Gui (1987) and Uhlaner (1989) further defined the concept as the set of goods that can be accessed only by mutual agreement—developed after the completion of joint transactions—and with the active involvement of all parties. Bruni (2006) also includes relational goods as a third *genus*, a corollary of the more traditional public and private goods. Not only are these goods necessary for understanding the happiness paradox, they are also important to the general concept of the economy, although not without dialectic provocation. If the economy is reduced to instrumental exchange, its utilitarian purpose will overpower other forms of human connection.

In this sense, even as local and global markets grow, the condition of the individual, in the aspects of trust and cooperation integral to social interactions, is restricted. Paradoxically, these relations are foundational to profit creation, because they tend to reduce negative economic externalities typical of exacerbated marginalist logic.

Historical observations have already indicated the urgent need to advance economic theories that focus especially on relational goods, their importance and their associated complexities. The relational capital generated is also the result of systemic structuring in a territory that consolidates cooperative relationships between those involved, whether as individuals or institutions organized under some infrastructure, to pursue developments for the common good. Where interpersonal relationships regulate and ensure protection and support for societal coordination, they have become a special economic driver for diffusing knowledge and creating a sense of cooperation. This dynamic process produces a collective learning of cultural and socio-economic identity that elevates places from mere geographical labels to relational spaces.[27]

Yet, neither markets based on equivalent exchange nor societies based on the top-down verticalization of distributive and regulatory relationships have proven to be effective social action models.

The need for this progression is made even more urgent by the current *paroxysms* of system degeneration. In a vicious cycle of increasing rates of business default, particularly micro, and bank failures, alongside a progressive reduction of financial support from banks, are beginning to characterize the dynamics of financial intermediation, which can function as a meter of the macroeconomic environment, especially in fragile economies.[28]

However autopoietic the service may be, the number of loans given by conventional banks continues to fall and destabilize markets. Such financial intermediaries, in fact, restrict credit through customer segmentation procedures, such as rating models and consequent operational event horizons based on increased pricing—the cost of financing—in order to purport a decrease in the total quantity demanded for a so-called 'adverse selection.'[29]

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[27]cf. Tagliagambe, Usai, 2008.

[28]Such economies will be focused on later, through data on Italy.

[29]There is, in fact, no significant change in the overall demand for credit, but in the criteria defining the purpose of the loan. If such a policy discourages requests for credit on investment, it also maintains or increases the number of requests aimed at restructuring existing physical and financial infrastructure and supporting discontinuities in the production cycle. This, however, sustains subsidized production practices, and a new flow of income will not be formed to finance the credit granted to the company. To carry out the second intervention, it will be necessary to transfer an income present with a future (this derives from the correct reimbursement of the additional sum lent), since the new lever will likely not favor a proportional increase in production. In this case, there is an overabundance of overall banking support, particularly with respect to the economic value that a company can assign to its product. Moreover, it will be characterized by an exacerbation of the cost of use, due to the increase in financial charges, which represents a deterrent only to "optional" operations aimed at strengthening corporate structures. All this is one of the main reasons for the evident growth in bad debts for banks. At the closing of the economic circuit, with consumption, the final expense that income holders contribute to the product market will not fully compensate for the credit obtained for that same production, even if it is entirely purchased. Because of the national accounting disorder (Cencini, 2005), these incomes, which are transferred to companies that express the aforementioned needs, are actually (also) made up of perfectly fixed capital. However, they

2. Empirical Survey on Loans, Npls and the Number of Companies Active in Italy

In the context of Italy from 2012–2018,[30] we apply these discussions to research the dynamics between bank loans and Non-Performing Loans (NPLs) granted to corporations, and the trend in the number of companies operational in the country (with a breakdown on micro-enterprises, as defined by EU Recommendation 2003/361/EC).

2.1. Loans

Figure 1:

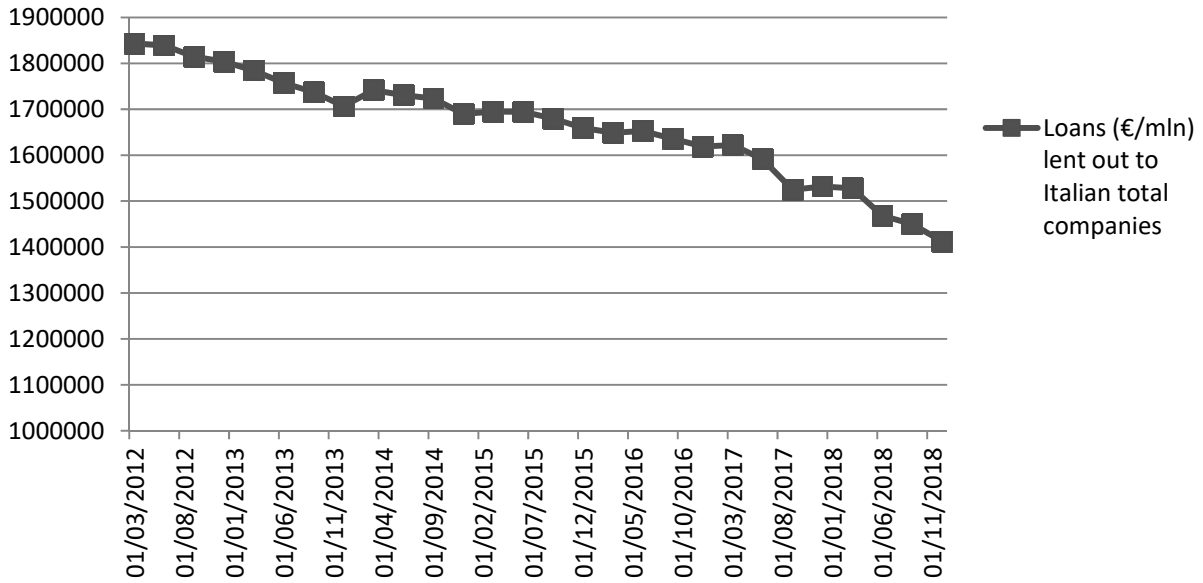
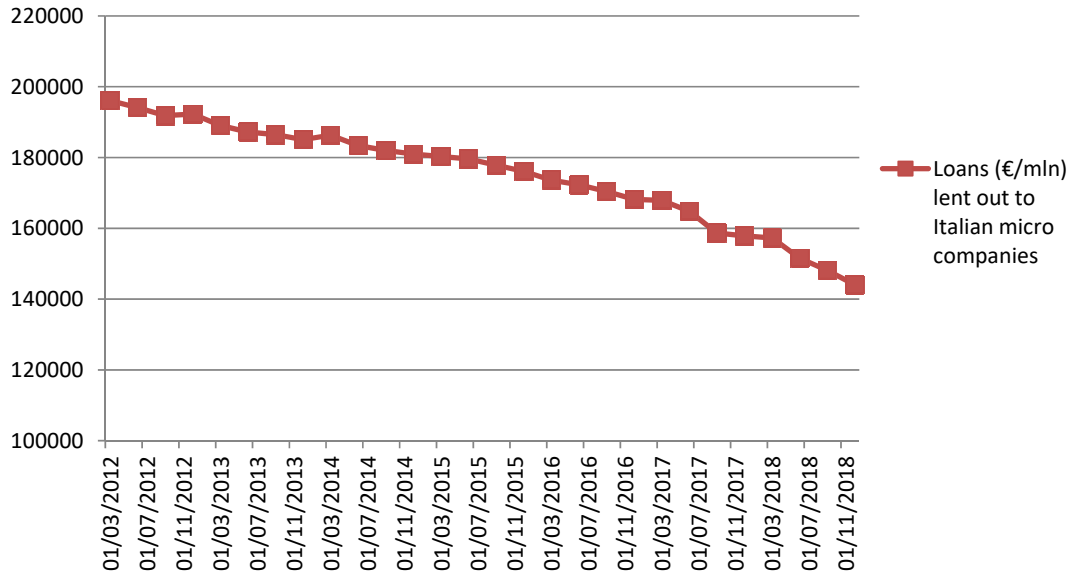


Figure 2:



are not accounted for as such, and are deemed effectively usable for further financial use. Harmful consequences are therefore not limited to a singularity but interact to involve the whole system.

[30] Based on data from the Bank of Italy, ISTAT and Chambers of Commerce.

2.2. Non-Performing Loans

Figure 3:

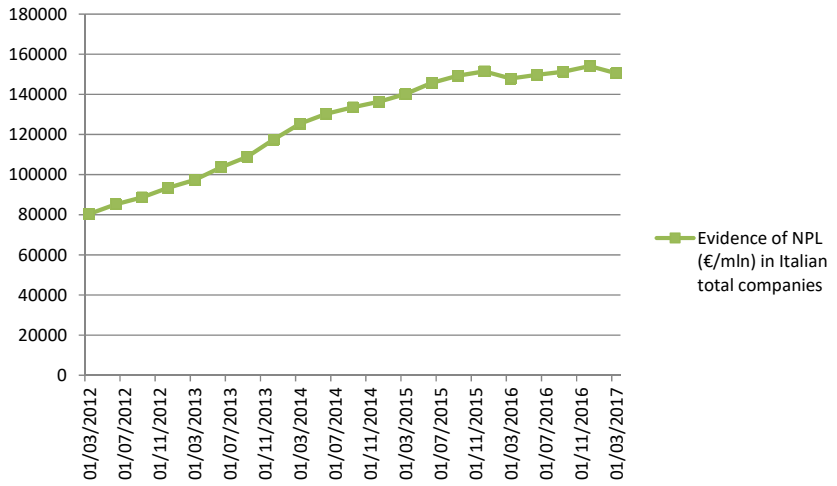
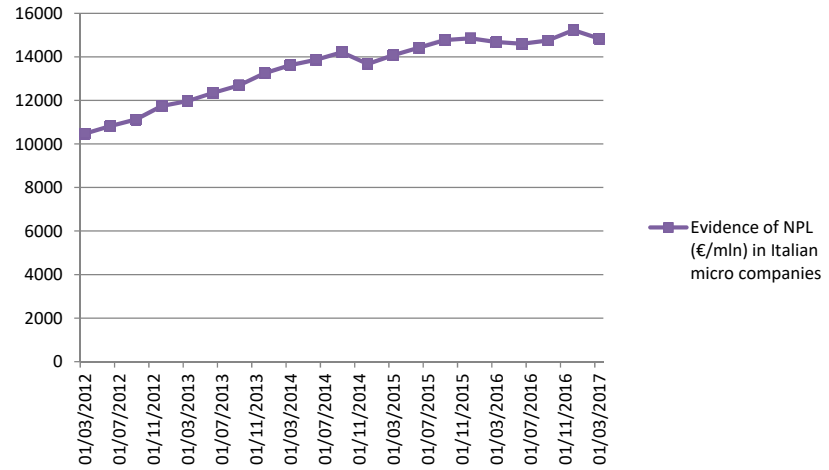


Figure 4:



2.3. Number of Companies

Figure 5:

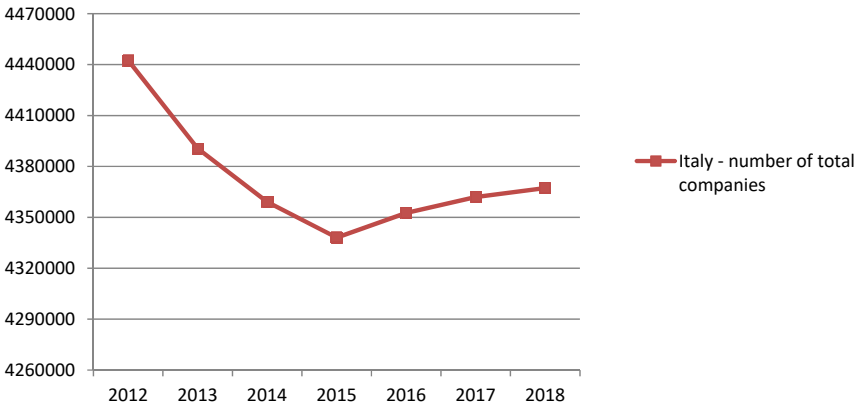
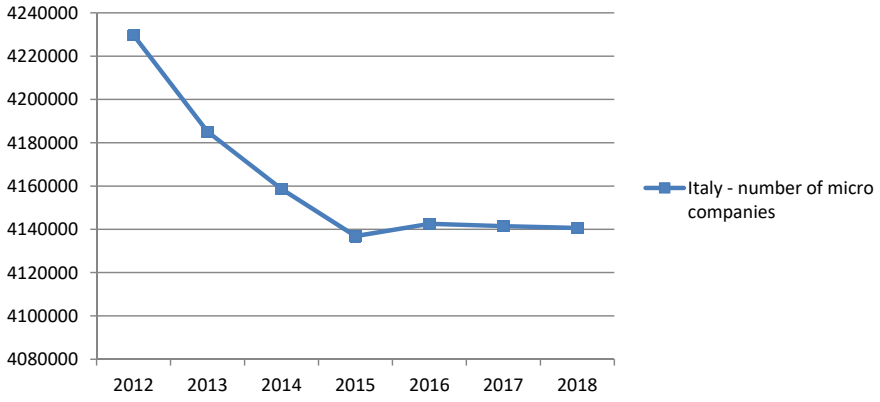


Figure 6:



Based on the logic and structural flaws previously outlined, the current bank-enterprise system has malfunctioned. Where the above data show a gradual decrease of overall funding, they indicate specifically an increment in NPLs and a significant decline in national productivity. The following section will therefore examine how these financial intermediaries derive and impose negative repercussions on the general macroeconomic environment to create a vicious cycle tending towards recession. Investigating first the seemingly mutual relationship between banks and businesses, we will then offer possible solutions (with cooperative bases) to compensate for the anthropo-social shortcomings that contribute to observed imbalances, until a paradigmatic reform is reached.

3. Intrinsic Mutuality in the Bank-Enterprise Relationship: A Mathematical Model

Traditional banks implement strategies according to business logic and profitability. Loans are represented by risk portfolios, the overall weighting of which is derived from the summation of segmented portions that are based on precise evaluations of each counterparty.

This model seeks to approximate the portfolio average, with the assumption that all *n* entities receiving bank funding have the same Probability of Default *PD*, Loss Given Default *LGD* and Exposure at Default *EAD*. Where expected losses must be accounted for in the income statement as a cost to the bank, total expected losses TEL_n are therefore:

$$TEL_n = n \times PD \times EAD \times LGD \quad (1)$$

Analysis must also be conducted for unexpected losses, which represent capital constraints on the bank and inform funding decisions for loans. The Vasicek model is adapted here,[31] describing mathematically the effect of credit intermediation in a system of mutual dependence between lenders and borrowers. With a portfolio of *n* positions, as described above, and time *t* measured in increments of one year:

$$TL_n = \sum_{i=1}^{n} U_i LGD_i EAD_i \quad (2)$$

Where:

TL_n = the total expected loss on the portfolio over time *t*;

LGD_i and EAD_i = the *LGD* and *EAD* of the *i*-th enterprise, respectively;

U_i = the boolean indicator that assumes a value of 1 if the *i*-th enterprise has reached *default* within the time *t*, or a value of 0 if the *i*-th enterprise continues *performing* during the time *t*.

[31] cf. Conti, 2016.

Now, assume that default is essentially determined for all companies in the portfolio by the size of their budget surplus S_i for the *i*-th enterprise. Below a certain threshold, the enterprise will be unable to continue operating and will enter default.

Where S_i is a random variable, a Markov process is necessary to determine its progression: at instant t_0, the probable value of S_i in t_1 depends solely on the state of S_i in t_0.

Here, we introduce the quantity *X*—of great importance to the rest of this thesis—which represents a macroeconomic environment variable, showing future scenarios in which businesses in that portfolio may operate. Derived from this is a further random element *Y*, whose variation ΔY in an interval Δt is the sum of the variations of the elementary states of each independent *Y* value, and the variance, similarly, the sum of elementary variances. As such, if $\Delta Y(\delta t)$ has a variance σ^2 across the whole range Δt, the total variance of ΔY would equal to $\sigma^2 \Delta t$, with a corresponding standard deviation of $\sigma\sqrt{t}$ on an equal probability distribution of the elementary variations. Therefore, where *X* is a Gaussian random variable:

$$dY = X\sigma\sqrt{t} \tag{3}$$

The whole process can thus be expressed in the stochastic differential equation:

$$dS_i = S_i(t) r_i dt + S_i(t) X_i \sigma_i \sqrt{dt} \quad [32] \tag{4}$$

And when integrated with Itô's lemma,[33] we find that:

$$S_i(T) = S(0) e^{r_i T - \frac{1}{2}\sigma_i^2 T + \sigma_i \sqrt{T} X_i} \tag{5}$$

Where the randomness of the process $S_i(T)$is determined solely by X_i:

$$X_i = \alpha K + \beta e_i \tag{6}$$

where *K* is the random variable reflecting macroeconomic environment, and e_i is the idiosyncratic random factor of the counterparty in question. It must be noted, however, that a certain component of e_i is dependent on *K*.

Assuming both variables are Gaussian normal (average = 0, variance = 1) and independent, then:

$$\alpha^2 + \beta^2 = 1 \tag{7}$$

and

$$X_i = \alpha K + \sqrt{1 - \alpha^2} e_i \tag{8}$$

If α is known *a priori*, formula [8] describes the process that leads to default; that is, for X_i less than a minimum M_i

$$PD_i = Pr\,(X_i < M_i) \tag{9}$$

from which

$$PD_i = F(M_i) \tag{10}$$

and

$$M_i = F^{-1}(PD_i) \tag{11}$$

wherein *F* is the cumulative probability function of the Gaussian normal. Based on earlier formulae, the default state then occurs when:

$$\alpha K + \sqrt{1 - \alpha^2} e_i < F^{-1}(PD_i) \tag{12}$$

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[32] This equation can be rewritten: $dS_i = S_i(t) r_i dt + S_i(t) \sigma_i dW_i$. Then, $X_i \sqrt{dt} = dW_i$: "Wiener process".

[33] cf. Desogus, Casu, 2018.

Where e_i is unique to each company and therefore not predictable, the inequality in formula [12] is solved in relation to the macroeconomic environment variable:

$$K < \frac{F^{-1}(PD_i) - \sqrt{1-\alpha^2}e_i}{\alpha} \tag{13}$$

Given a fixed e_i, this formula indicates the probability that enterprise *i* will default based on the macroeconomic environment conditions ($PD_i|e_i$). Returning to [2]:

$$TL_n = \sum_{i=1}^{n} U_i LGD_i EAD_i$$

U_i can then be defined as:

$$U_i = \begin{cases} 1 & if\ K < \frac{F^{-1}(PD_i) - \sqrt{1-\alpha^2}e_i}{\alpha} \\ 0 & otherwise \end{cases} \tag{14}$$

such that

$$TL_n = \sum_{i=1}^{n} U_i(K, e_i) LGD_i EAD_i \tag{15}$$

As e_i, PD_i, LGD_i e EAD_i are known *a priori*, our attention once again returns to *K*.

Focusing on the bank-enterprise relationship, these entities should be invested in maximizing *K*: banks to minimize losses and capital absorption, and enterprises to gain credit for sustainable and profitable operations. Naturally, *K* can be divided into the macroeconomic components of conceptual structure, economic and monetary policy, international economy, credibility and trust of the country, among others.

While we discuss some of these features broadly in the introduction, we focus mainly on the dynamics of the bank-enterprise system and the positive effects of an efficient banking sector that finances well-performing factors of production appropriately. We also consider the negative impacts arising from the absence of such relations.[34]

Within a given portfolio, Z_1 is the population of banks and Z_2 the population of enterprises. There are only two feasible strategies for banks:

a. to continue managing credit according to conservative and restrictive policies; or
b. to reactivate relationships, trust and cooperation with customers.

While strategy 'a' would appear to improve savings on provisions, calculations on the Italian data indicate that the perceived effect is only short term. *K* is then negatively conditioned by this strategy,[35] and a correlation observed between the reduced credit for enterprises, the higher rates of mortality of entities in Z_2 and the declining performance of banks in Z_1. The formal basis of strategy 'b' will also help to explain the negative results produced by the current model.

If we take Z_1 and Z_2 and posit $z_1 = z_1(t)$ and $z_2 = z_2(t)$ as evidence of *bonis* performance at time *t* [36]:

[34]The reduced availability of credit would have a significant impact on the real economy: it is estimated to have caused approximately one fifth of the fall in Italian production in 2009. This apparent contradiction can be explained by the structural weaknesses in the Italian financial system, particularly banks, where debt and equity markets are insufficiently developed and therefore unable to provide alternate resources to enterprises. In such a system, it is not surprising that a fall in lending volume would hamper, not marginally, investment and productive activities (Panetta, Signoretti, 2010).

[35]Negative economic shocks, even as menial as the end of an expansion phase, can worsen access to credit, forcing those with greater financing needs in these phases to reduce consumption and investment, and propel the negative phase of the cycle (cf. Bernanke et al., 1996).

[36]Where the reasoning could also be developed in opposite terms, namely based on default levels, the result would be the same.

$$\begin{cases} \frac{dz_1}{dt} = z_1 f_1(z_1, z_2) \\ \frac{dz_2}{dt} = z_2 f_2(z_1, z_2) \end{cases} \quad (16)$$

This series of differential equations indicates that the number of *bonis* in each population is dependent on the number in the other:

$$\frac{\partial f_1}{\partial z_2} > 0 \quad \text{and} \quad \frac{\partial f_2}{\partial z_1} > 0 \quad (17)$$

such that an increase in the performance of Z_2 would correspond with an increase in Z_1.

The model would reach mathematical zeros either in total absence of *bonis*, resulting in the extinction of the two populations,[37] or at limits imposed by the idiosyncratic e_i, characteristic of each company in Z_2, to give z_2a logistical trend that consistently peaks at a point less than the totality of that population.

Since high values of z_2 are affected by $K \geq \frac{F^{-1}(PD_i)-\sqrt{1-\alpha^2}e_i}{\alpha}$, for which U_i—and hence TL_n—tend to zero, a more expansive credit strategy with proactive screening and reciprocated cooperation between banks and customers is needed to win the game.

Figure 7 below shows the utility functions of each strategy:

Figure 7:

players \ strategy	**a**	**b**
banks	*u(η)*	*u(ϑ)*
companies	*u(v)*	*u(ξ)*

In other words, the pay-off for banks will be $\theta > \eta$ in the medium to long term, and for enterprises $\xi > v$ at all times. It is thus clear that non-cooperative Z_1 bank players, who decide the strategy, dominate the game. The only win-win solution (Figure 8) is then a shift to the cooperative, as reinforced by the rational axioms of von Neumann-Morgenstern.

Figure 8:

strategy \ ↓ Z_1 Z_2→	**a**	**b**
a	*u(η),u(v)*	
b		*u(ϑ),u(ξ)*

[37]This holds only in the mathematical model that posits the two entities as supported solely through their interdependence. There is also a need for a complete separation of commercial and investment bank activity. While not undermining the conceptual framework of the given model, speculative operations to diversify bank assets (such as in sovereign bonds) change the events considered and introduce additional risk to the system.

4. On the Development of Relationship Banking

4.1. General

Moving on from historical forms of banking, we now look to parabanking cooperation and the substantial changes that have occurred in this field recently.

It is worth reiterating that interrelations and interdependencies between actors in polymorphic markets have been changing significantly in the past two decades as the world economic order has continued to transform. The real-time dissemination of information and delocalization of transactions are just some of the roots of this change, as they amplify normal commercial distribution and relational rules. From a purely business perspective, these shifts have stimulated capitalist systems, with the consequent dysfunction of value transfers. On the other hand, the gradual abstraction of banking relations towards verticalism and inelasticity has stunted regional relations. In Italy, for example, there is a trend towards concentrating power in a few large groups, sometimes within a transnational matrix, with branches increasingly unable to make decisions as they have inadequate discretionary power for the specific needs of economic operators. That the system has neither contributed to nor resolved the generation of economic discontinuities characteristic of the last two decades means that it has instead stimulated reactively the re-centralization of banking and parabanking instruments on the ecological level.

Despite being identified in the severe economic crises of 1929 and 2009, detrimental limitations of the current conventional commercial banking model repeatedly resurface. Oriented around transactional and speculative activities to more rapidly achieve profit maximization, this model favors financial operations, with a parallel disinterest in productive activities and the real economy. In periods of recession, these orthodox financial and credit institutions are, in fact, sensitive to systemic problems, recording accounting losses and severe reserve shortages that undermine, pro-cyclically, their capacity to support businesses and families.

This scenario, however, originates in a fundamental double-entry accounting error. Credit for production does not require previous coverage as the needed deposit is formed in the same instant in which salaries are paid. *Quantum* credit,[38] defined by the payment of wages, is valuated by a loan equal to the income generated by workers (W) and in favor of the enterprise. The result is that workers hold a claim against the bank (Bq), covered by a debt contract between the bank and the company (C). The role of the bank is then to mediate between W and C: Bq gives to W what C needs give to Bq. Benefiting directly from the loan to workers, the company must take responsibility for the cost of production. The widespread and procedural unawareness of this fault has allowed problems to continue and credit policies to keep contracting. Burdened by the constant interference of intermediaries, various regions have called increasingly for local and localist, as well as relational and proximal redevelopments.

We have seen how the onset and continuation of credit restrictions can severely slow down productivity and investment and potentially consolidate in default. It is therefore significant to follow the theoretical and empirical principles that have manifested from banking localism, historically more attentive to local development and supportive of the *genii loci* and proximity principle.

4.2. Asymmetric Information and Transaction Costs

Information asymmetries and transaction costs are basic concepts of financial intermediation. Information is asymmetric when considerable knowledge is not adequately divided between those who participate in the exchange, namely when *principal* parties—the entrepreneurs—have more information than investing *agents*.

While information asymmetries are intrinsic to financial exchanges, the lower availability of information for the investors means that the negative effects of this imbalance are not limited to the

[38]cf. Cencini, 2010 and Desogus, Casu, 2018.

scope of the contract.[39] Where only the entrepreneur is aware of the real risks and possible returns on investments, the negative effects of asymmetric information for investors increase when the required funding is finalized and new projects launched. In fact, until the loan period ends, the investor is vulnerable to profiteering.

In order to address these circumstances, the investor would need to choose an appropriate interest rate to screen potential principals whose projects may not return the sum awarded. Interest rates can also be used to monitor bank performance; an excessive increase in the rate would suggest a possible reduction of profits from the bank. Those who are willing to pay higher rates consider their project, *ipso facto*, to be characterized by a high level of risk. The effect of this adverse selection, as conventionally defined, is the acceptance of customers subject to high risks of default, and therefore higher uncertainty for the full restitution of loan funding.

Adverse selection is summarized as the process by which information asymmetries can be found *ex ante*, before granting the loan. In this case, information asymmetries are entirely related to the difficulties that proposed lenders encounter in understanding their potential customers, in terms of business skills *stricto sensu* and determination to create fully sustainable investments following a loan. As such, a guarantee of the protection of potential defaulting borrowers is given to the customer alongside the loan, as a deterrent to any non-performing behavior.[40] The warranty also demonstrates the credibility of the debtor, whose signature reflects their confidence in the value of the project.

There are, however, contraindications to the use of collateral. Rather than an agreement and proof of support by the investor, the guarantee may act merely as a surface resolution to asymmetrical information. Additionally, collateral may be critical to enabling selective effort or a moral hazard.[41] If the guarantee offers higher revenues than the investment itself, the investor, *in extrema ratio*, may voluntarily lead customers to bankruptcy, thereby bypassing significant risk and the time required for the refund to mature. For traditional channels, a more general concern lies in the contingent relationship between the initial wealth required for the release of warranty agreements and the resulting access to reserved credit; this issue is resolved barely with hedge funds as screening tools. It instead magnifies the possibility that quality projects that cannot secure appropriate collaterals are excluded from the market.

Stiglitz and Weiss (1981) studied systematically the main implications of information theory and contractual genesis in capital markets, which takes on particular significance when applied to declining situations in developing countries, due to the characteristics of their credit markets. Their analysis can be summarized in three basic principles:

a) for each possible interest rate,[42] a loan will only be accepted by individuals situated above a statistically correlated level of risk;
b) as financial charges rise, the share of borrowers promising variable returns will predictably increase and the portfolio of investors will inevitably be riskier; and
c) at a certain interest rate, an increased level of risk will reduce the profit of the lender.

This indicates that an increase in interest rates has a dual effect on the profits of the creditor. On the one hand, higher interest rates will increase the potential yield of the amount lent. On the other hand, adverse selection will cause more reliable entrepreneurs to leave the market, and only those considered high risk will be willing to accept further financial charges, even if there is a significant probability of outstanding or substandard loans.

For the lender, this increase in financial expenses shifts the composition of potential borrowers unfavorably. The result they may expect is therefore not a monotonic function of the interest rate with

[39] cf. Mottura, 1991.

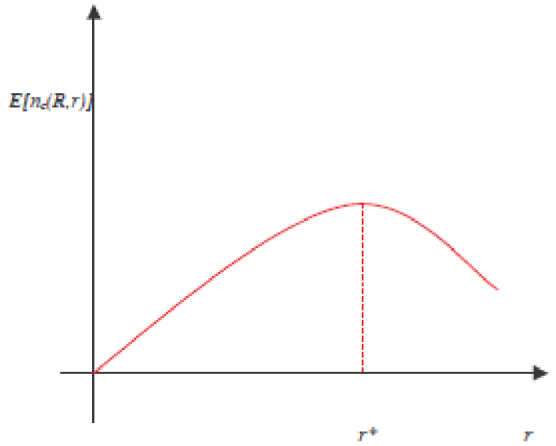
[40] For example, the activation of suboptimal due diligence on the launch of a project or the (self-) provocation of a strategic failure.

[41] A moral hazard is a form of post-contractual opportunism taken up by the insured—the investor—to behave in ways that stimulate the onset of adverse events, thus increasing the value of reimbursements or payments foreseen by the agreement.

[42] The rate of interest represents the percentage of remuneration of a loan, decided by the lender.

respect to risk (R). Figure 9 represents how, at relatively low levels of interest rate *r*, the first effect dominates the second, and the expected profit *E[n(R,r)]* increases by *r*.[43] The function, however, is incremental and follows a decreasing trend, reaching a maximum at *r**. Where the consequences of adverse selection arise as the interest rate increases, the expected return takes a decremental trend. The rate *r** (first derivative of the function at point = 0) will therefore be the optimal level, chosen by the lender.

Figure 9: the function of the expected return of the lender



At the rate *r**, the demand for loans may also exceed supply, unless interrupted *ab origine* by the traditional microeconomic mechanism, wherein excess demand causes an increase in price, until demand and supply reach equilibrium. If, in fact, individuals who are excluded for perceived excessive risk also offer to pay a higher interest rate, the creditor would not accept. In this scenario, credit rationing is a phenomenon of equilibrium and not of a contingent and precarious disequilibrium. It is precisely in this sense that the model differs from the classical literature, according to which commercial credit relationships should be considered and evaluated like other markets, and the interest rate should be a price like any other, able to balance supply and demand.

The financial deepening theory, introduced by Gurley and Shaw (1960), must also be mentioned for its pioneering focus on the relationship between financial activity and information. The need to minimize transaction costs, especially those involving information asymmetries, justifies the intervention of financial intermediaries in imperfect markets that have limited and uncertain information and rationality. Such intervention would likely spur spending, relative to transaction costs, which is attributable to the acquisition of information, the perceived reliability of potential counterparties, evaluation, management and the execution of the exchange.[44]

4.3. Other Contrast Tools: Screening, Monitoring and Enforcement

While, *in primis*, information asymmetries (as well as adverse selection and moral hazard) are most related to the financing processes of small and micro enterprises,[45] the established role of the bank as financial operator of a community is also advantageous for the attenuation and solution of this disparity. This is due to attributes of credit organizations that help sustain a precise and spatially determined system:

a) screening of actual and potential customers;

[43] *Nc* = not commutative.
[44] cf. Boscia, 2002.
[45] A longer history and/or formal tracking of larger enterprises means that more information is available to significantly reduce counterparty risk, facilitate decision making and determine the accuracy of results and adequacy of pricing. (cf. Mishkin, Eakins and Forestieri, 2007).

b) constant monitoring of credit positions; and
c) enforcement through the implementation of geographically specific investment protections, conventional and otherwise.

These management tools and the consequent achievement of significant degrees of operational efficiency are, of course, related to bank governance.[46] Their implementation is, in fact, at the discretion of external bodies and corporate governance functions from the bank, with their suitability depending on their allocative abilities through:

1) the technology used, which diversifies distribution channels and makes the most liquid forms of debt based on personal relationships, in addition to stimulating the innovation of financial products;
2) the range of services offered, whose variety contributes considerably to competitive advantage; and
3) the local presence with sales market, which, according to the bank intermediation model of relationship banking, allows banks to establish unique and lasting implicit contracts with local borrowers, allowing for obvious advantages for cost.[47]

The full integration of the bank with its geographical and operational jurisdictions elevates the significance of financial interactions, shifting from simple forms of lending and savings to more stable long-term prospects structured by strong cognitive and communicative relationships and a circular and interdependent nature. We must therefore adjust from a mere monetary exchange ratio to a project collaboration. The bank must be a partner in an entrepreneurial project, as conceived by an entrepreneur, and funded, in whole or in part, by the bank.[48]

4.4. Relationship Banking

Specializing further, we begin by distinguishing between two opposing models: transaction-based lending and relationship lending.[49] Their substantial differences lie only in their degree of structuring and informative formalization.

The first type is based on the processing of estimates according to public documentation (hard information) and additional assessments of other information (accounting, income, trends, etc.).[50] Conversely, relationship banking requires guidelines and long-term planning between the bank and the enterprise, combining sustained communication with confidential information. This requires interpreting interactions occurring within the relationship (soft information), alongside the plurality of signals received from the local community.[51]

In addition to the improved efficiencies discussed for the granting institutions, empirical statistics reveal further benefits for the reduction of selection, logistics and control costs from this second approach, including:

- improved contractual conditions regarding the cost of financing, amount of credit available and smaller guarantees necessary[52];
- an anti-cyclical capacity to support companies in both facility maintenance during temporary growth and for protection when setting loan pricing conditions;
- flexibility and re-negotiability of terms[53]; and
- gradual progress for the reputation of the client-enterprise at the commercial level.[54]

[46]cf. Bodega, 2005.
[47]cf. Zamagni, 2011.
[48]cf. Petrulli, 2007.
[49]cf. Stefanizzi, 2009.
[50]Oriented to mitigate the feared opacity of the counterparty and to reduce the operation risk, even by requesting collateral.
[51]cf. Cosma, 2002 and Stefanizzi, 2009.
[52]cf. *ex multis* Scott, Dunkelberg 1999.
[53]cf. Machaeur, Weber, 2000; Fernando, Chakraborty, Mallik, 2002; and Ferri, Messori, 2000.
[54]cf. Petersen, Rajan, 1995.

However, because of the necessary information investment, which depends mainly on the lender, the relational structure almost paradoxically exposes the borrower to dangers and drawbacks, the most important of which should be mentioned:

a) risk of information monopoly (hold-up), wherein the customer is essentially captured by the bank and imprisoned by the knowledge transferred to it, devoid suddenly of alternatives that could have been implemented, for instance, to address onerous modifications to credit conditions; and
b) soft-budget constraint, when the budgeting process leads to recovery or restitution during situations of potential company precariousness, often with the introduction of new forms of real or public guarantees, which may also encourage—in extreme cases—preferential bankruptcies.

Relationship lending is a procedural scheme, adopted primarily by small organizational structures, mainly Credit Consortia and Cooperative Credit Banks (CCB). In order to connect this model to superordinate bank governance activities, it should be noted that there is a risk of cognitive centralization if information is concentrated among key persons of a short deliberative chain of loan officers, such as the branch manager or credit manager. This information saturation could result in a divergence from the optimal practice of expected operational behaviors, arising, for example, in loan concessions not supported by objective considerations.[55]

The dilemma is then in the necessity to strengthen the potential of loan officers, particularly to contract certain agency costs, while retaining quality decision-making power, only partially resolvable by monitoring deliberations.

Strongly rooted in localist principles and the proposed relationship banking patterns, it is believed that the credit cooperative model could represent a relational financial plan that better protects the overall health of the bank-enterprise relationship and better outlines the vocational territory of each. In Italy, as well as in other countries where it has taken significant root, a cooperative banking environment has proven beneficial to local communities and SMEs, offering better access to credit conditions than those currently and conventionally available, greater territorial specificity and a flexible humanistic, procedural and documentary dialectic.[56] *A latere*, but equally significant, is the emergence of peer surveillance, through mutual control, as well as automatic mechanisms for social sanctions.[57]

These premises assume particular importance for the strengthening (and reform) of cooperative credit. In Italy, the cooperative credit system should first be separated from the ICCREA,[58] in order to maintain its objective to provide financial support to economic operators, and its parallel propensity towards merceological sectors with lower capital absorptions, such as crafts and agriculture, which results in a lower return per unit of credit and a greater presence in suburban or para-urban areas.[59]

We therefore continue with an historiographic overview of cooperative credit archetypes to explain the circular and relational loan operations of banking and parabanking.

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[55]cf. Andreozzi, Angelini, Di Salvo, Ferri, 2004.
[56]Also due to soft-information processes.
[57]cf. Di Salvo, Lopez, Pezzotta, 2004.
[58]The Central Institute of Rural Banks and Artisans (acronym in Italian) is the body representing Italian cooperative credit unions. Since the passage of Legislative Decree no. 18 in 2016, however, the Ministry of Economy and Finance and the Bank of Italy changed the ICCREA to the Cooperative Banking Group—that all CCB members are obliged to join—which, however, detracts from the foundational precepts of the Institute to some degree. By virtue of a 'cohesion contract,' the directive is now to form a capital company, with the following objectives: (a) to support the service capacity of the CCB for members and customers, (b) to coordinate the development of territories and their ability to generate income, (c) to ensure stability, liquidity and compliance with new regulations from the Banking Union. All these factors indicate a subordination of mutualistic activity to a vision in line with traditional financial intermediation.
[59]cf. Cipolloni, 1995.

4.5. Rural Banks, MAGs and CCBs

The first record of credit cooperation can be traced back to Friedrich Wilhelm Raiffeisen in mid-nineteenth century Germany,[60] whose rural loans system inspired urban banks. Gathering small farmers together for mutual aid, Raiffeisen saw to the creation, rotation and regeneration of permanent and indivisible funds, collated from provisions arising from the autogenic savings, dividends and premiums from financing operations. In addition to offering to work free of charge, the members declared personal responsibility for actions performed by the institute and for its possible insolvency. Today, such mutual aid associations fall under cooperative credit banks and are distinguishable from ordinary credit banks only by their strong local roots and their option for customers to become voting members of the corporation.[61]

The Raiffeisen model reached Italy in subsequent years, integrating rapidly into secular circles by the end of the century. Established by Venetian jurist Leone Wollemberg in 1883 in northeastern Italy,[62] the first Italian bank of this kind only issued loans to farmers to help stimulate their savings and promptly became an effective tool for development and curbing peasant usury. Aside from the key features inherent to the model, the maturation of this bank was corroborated by the instability of the socio-political period, which inevitably stimulated and increased a sense of solidarity. This allowed for[63]:

1. the implementation of structures of corporate mutualism;
2. the duality of management and borrowing roles shared by all parties involved;
3. the simple, streamlined and transparent procedures for appraisal and lending; and
4. the favoring of spontaneous 'social guarantees' to minimize the growing danger of informational asymmetries, highly specific to restricted geographic areas.

A recent and successful Italian model based on these protoforms of cooperative finance is the Mutual Self Managing Cooperative, or MAG (acronym in Italian).[64] In the context of its associative platform, MAG stimulates its savings portfolio (which, alongside third-party grants from mostly private sources, represents its operational funding) and manages short and medium term financial services and loans for the purchase of capital goods, and residually, for working capital assistance. Admission is generally dependent on the outcome of a preliminary procedure, supplemented by an evaluation commission, which gives its opinion on the overall quality and economic and social sustainability of the project, as well as the general relational and socio-geo-economic dynamics. The resolution is then formalized by the elected representatives on the Board of Directors.

Procedures include mentoring, counselling and supervision, often with in-house companies that have separate juridical identities. Also important are the training services and specialist financial education offered. The most remarkable results are related to a greater awareness of saving, including through cooperative socialization tools, and the establishment of new parabanking activity systems, which can pave the way for broader financial support for those excluded or otherwise neglected by conventional programs. The MAG is a useful model for understanding the role of money in society over time, from its symbolic associations with human exploitation and environmental contamination

[60]The burgomaster of Weyerbusch, a small mountain village in the Westerwald region, during the economic and food crisis of 1846–1848, Raiffeisen founded the "Commission of assistance for the poors" based on a liberal subsidy system involving wealthier residents, and introducing, as a cover, the principle of unlimited liability for partners. In December 1849, he created the "Mutual Aid Society of Flammersfeld to assist farmers without means." The wide reputation of the institution resulted in several deposits from more affluent citizens for a system of deposits and loans to farmers and artisans that represents a sort of prototype for Rural Banks.

[61]cf. Borghi, Cencini, 2010.

[62]Precisely, in Loreggia of the Padua province.

[63]cf. Vinci, 2008.

[64]Developed over the last three decades of the twentieth century, the MAG was born in 1978 Verona, as workers responded to the critical and near-bankrupt states of their companies. Since traditional banks were not willing to finance their projects, the workers assembled their own credit union.

typical of capitalist systems, to a pragmatic instrument through which a wider social goal may be accomplished.[65]

In Italy, the financial sector has finally achieved a favorable balance of Cooperative Banks and Popular Banks on the national scale. The substantially equal distribution that has been achieved is foregrounded by years of work to instill the fundamental principles of cooperative credit organizations. Local development, including the encouragement and support of production by artisans, farmers and small traders has been a long-term priority, alongside more general support for the people involved and overall social progress. Focused on a more effective screening of credit applicants and the reduction of operating costs, this innovation means that the industry now has the capacity to directly serve product segments that are less attractive to the traditional credit system.

As we have stated, and as the literature indicates, methodological and operational reforms for such entities require the reduction of the risks of moral hazard and adverse selection, particularly for smaller principals. In addition, evidence of their progressive tendency to attract funds and produce positive economic internalities is remarkable.

However, while such cooperative banking models have influenced many legislative changes, recent reforms to integrate these historical peculiarities into a more orthodox banking model undermine such progress and perpetuate the difficulties outlined above.[66]

4.6. The Credit Consortia

As the systemic changes proposed will be difficult to implement, we take a moment to discuss the role of the credit, or guarantee, consortium. Currently, these companies act as clearing houses for high-risk procedures between banks—which are clearly subordinated to traditional models, the Basel rules and IFRS principles—and the production sector, and more broadly, macroeconomic systems. Beginning as offshoots of business trade associations, these consortia have operated in Italy for over 60 years and are recognized as financial institutions by the Italian Banking Act.[67] The relationship between banks and credit consortia is governed by specific covenant agreements.

Cooperative in nature, credit consortia in Italy are supported by entrepreneurs and economic operators who contribute, through registered shares and common internal funds, to the allocation of resources in order to guarantee other members who request financial leverage from banks. Broadly, the main function of consortia is to seek the best performance of the financial circuit, by releasing monetary and/or property guarantees as loans to members to attenuate the possibility of LGD. This prerogative has given these institutions a prominent role in raising financial resources for SMEs, who are at an inherent disadvantage in terms of assets, capital and contractual power when negotiating with lenders. This is evidenced by a trend that has seen cooperatives strengthen in periods of negative economic conditions: economic crisis, recession, inflation and other events that cause a restriction on productive credit leverage. In particular, the 1970s saw a strong growth in credit consortia that coincided with the financial and economic imbalances caused by the oil crisis. The recent negative macroeconomic state has once again called for a reassessment of credit cooperatives.[68]

Responding to the growing significance of credit unions in the last decade, however, has been a concerted stream of rules and regulatory superstructures. Increasingly burdened by the same expectations of traditional financial intermediaries and subjected to prudential assessments for TIER 1 and 2 capital—and therefore only on quantitative aspects, consortia have strayed from their

[65]Cf. Vinci, 2008.

[66]This reform focuses on the amendment of nationwide regulations for the legal structure and governance of credit institutions. The reform introduces size restrictions, such that a transformation into a joint-stock entity is required for all cooperative banks with assets exceeding 8 billion euros, while also diminishing statutory discretion over extraordinary corporate events (transformations and mergers). Other mandates include the possible issuance of financial instruments containing specific capital and voting rights; loosening of constraints for appointments of corporate governance bodies; restriction of per capita voting; and allowance of more than one vote for legal entities.

[67]Legislative Decree no. 385 of 1993.

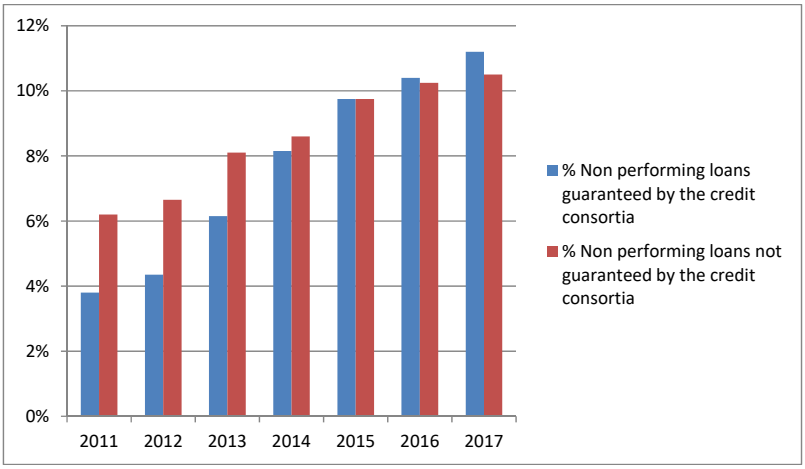
[68]cf. Schena, 2004.

fundamental values of mutuality and territoriality. These distortions influence their behavior and intervention procedures.

As such, the *myopic* understanding of the mitigating effect of consortia on the LGD is insufficient. Formulae [14] and [15], in fact, only produce lasting and systemic effects with the maximization of *K*, to which the apparatus of credit consortia can certainly contribute due to their shared characteristics and what is presented in this research. This contribution, however, is conditional on the expression of the essential values and elements of consortia, unaffected by conventional commercial financial functions.

In addition, the shift has altered governance practices. Following a change in management,[69] we observe a dangerous deviation from the expected participatory democracy towards managerialism (apologetic) and all its implications for operations. The result of these 'corrections' is observable in the figure below.

Figure 10:



Of note is the increase in NPLs guaranteed by credit consortia, which exceeds the proportion of those not involving their intervention. In practice, the consortia have been stripped of their qualitative and relational aspects, which impedes their functions and allows conventional credit entities to hand off their deteriorating status. This phenomenon confirms our reasoning.

Yet the significant role of credit consortia was also highlighted in a recent reform bill by the public Italian Central Guarantee Fund,[70] which has implemented new methods for accessing the state guarantee and rewards—in terms of more loss coverage and less capital absorption—for banks that employ consortia for the provision of business loans. A pattern of mutual guarantee institutions for such loans, as public or parabanking entities, is also observable across Europe and the world.[71] Examples in France, Spain and Luxembourg are most similar to the Italian system, founded in mutuality and cooperation.

We believe that (re)orienting business credit systems to their original philosophy of mutual solidarity is one of the first steps for the necessary reorganization of financial and economic systems. Freed from the isolated suggestion that consortia mitigate only quantitative losses, the relational and qualitative effects of their guarantees are then enhanced, such that mutual interference may assist in the positive reactivation of credit and the macroeconomic system.

[69]See note 15.
[70]March 2019.
[71]We find interesting models in South Korea and Japan, although strictly public in nature.

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