

2009

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Recommended Citation

Padgett, John and McLean, Paul D., "Economic Credit in Renaissance Florence" (2009). *Working Papers*. Paper 9.
http://opensiuc.lib.siu.edu/pn_wp/9

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Economic Credit in Renaissance Florence¹

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May 2006
Revised draft: December 2007
Revised draft: September 2008

Current status: R&R at Journal of Modern History

Word count:
Texts and endnotes = 11,793
Tables and figures = 1,840
Appendices (electronic publication only) = 4,064

INTRODUCTION

“It has been rarely remarked how seldom a competitive spirit comes into play in the relations among these [Renaissance Florentine] merchants. The vast correspondence of Datini and of the Medici themselves (the largest collections of business letters to survive before the sixteenth century) yields hardly a hint of competition... However individualistic the Florentine world appears in contrast with the tight corporate structures elsewhere – the Venetian senate, the Hanseatic league, the south-German cartels, the London regulated companies – it was still permeated with something of the spirit of medieval corporatism. This is what the *fiducia* Florentine business historians make so much of really comes down to – that sense of trust in one another that in a way also kept everyone in line.”²

What were the social and institutional factors that led to, and reinforced, the precocious emergence of Florentine commercial capitalism,³ especially in the domain of international merchant-banking? The dominant stream of answers, emphasized by economic historians and by economists, focuses on the invention in late-medieval and Renaissance Italy of a variety of innovative business techniques – bills of exchange, double-entry bookkeeping, partnership contracts, commercial courts. If these impressive organizational inventions are interpreted as facets of a broader rise of impersonal market rationality, then a tension emerges in Florentine, and indeed in European, historiography between economic historians and the work of social and political historians, who emphasize the deeply personalistic – mainly familial and clientelist – character of social relationships of the period. But were early-capitalist business techniques really the leading edge of a breakthrough of the market from its traditional social shackles, as the master narrative of modernization would have it? Or instead were economic relations in the market embedded in, and hence reflective of, trends in the surrounding social and

political networks of the time, as anthropologically and sociologically oriented economic historians like Karl Polanyi⁴ have argued? Renaissance Florentine businessmen were not only businessmen, after all, they were also fathers, neighbors, politicians, friends and enemies, and patrons of the arts. But what implications, if any, did this overlap in roles have for the organization and operation of economic markets?

In this article, we address these historical questions through both statistical and textual analyses of Florentine commercial credit in the early Quattrocento. Our conclusion will be that commercial credits among Florentine companies were indeed highly correlated with a wide range of non-economic, social relationships among the partners of these companies. Correlations between economic and social relations were highest in the merchant-banking pinnacle of the Florentine economy – precisely in the industries where reliance upon advanced capitalist business techniques was greatest. New capitalist business techniques thus did not displace the oligarchic social networks of the time, but rather built upon and formalized these relationships into markets. In particular, family and neighborhood provided strong ‘traditionalist’ foundations to Renaissance Florentine credit markets. But then republicanism, especially in the institutional form of its elected city council, provided the political scaffolding for personalistic social networks (and thus the economic credit networks built upon them) topologically to ‘open out’ toward expansive liquidity and growth, instead of to close inward into cliques and corruption. Three mechanisms for this institutional impact of republicanism on the emergence of credit markets are discussed: public certification of reputation (*onore*) through co-optative elections, and both performative and network incorporations of carefully filtered newcomers into relatively open elites⁵ of merchant-politicians.

We shall develop this thesis about the structure and operation of the Renaissance Florentine economy through the following steps: After describing our comprehensive quantitative data on commercial credit from the 1427 tax census (*catasto*), we shall first document the magnitude of reliance on commercial credit among Renaissance Florentine companies, in various industries and markets. We shall then analyze these commercial credits statistically, in order to measure correlations between business credits and various social and political relations among the partners of paired companies. Finally, a small sample of business letters from the period will be examined in order to illustrate the cultural *mentalité* through which these statistical effects were produced. Florentine businessmen's frequent use of the language of friendship (*amicizia*) and of honor (*onore*) in their letters to each other illustrates both how the language of social obligation deeply infused their economic relations, and how business credit (in parallel to political clientage) expanded the range of application of such personalistic mental models well beyond the family and neighborhood social matrices of their origins. We conclude with some implications for contemporary economic theory.

THE INDUSTRIAL STRUCTURE OF FLORENTINE COMMERCIAL CREDIT

The statistical part of this study is possible because of the 1427 *catasto* or tax census, described at length in the path breaking book of David Herlihy and Christiane Klapisch-Zuber.⁶ Herlihy and Klapisch computerized large portions of this rich archival source and analyzed their data primarily from a demographic and family-history perspective. In addition to the data those authors coded, however, the *catasto* also contains extensive lists of debtors and creditors, with amounts owed, for each household

tax return, which McLean has coded.⁷ Business *debitori* and *creditori* were included within the household tax return of the lead partner in the company – an indicator of the incomplete separation of personal and business domains in the Florentine world. Such lists of debts existed in the *catasto* because this very innovative taxation procedure systematically assessed taxes on the basis of net wealth – that is, assets minus liabilities. Debts, in other words, were tax deductible. Florentine law required the itemization of outstanding credits as well as debts in order to give tax officials the ability to disallow deductions, if one person's declared debit did not equal the other person's declared credit.

This remarkable breakthrough in public finance was possible only because of the highly commercialized character of Florence's underlying economy. Florentine merchants filled out the business parts of their 1427 tax returns by copying summaries of their account books into their tax declaration, as those account books existed as of the date of the tax submission. Later *catasti* in Florence became notoriously unreliable, but this first *catasto* seems to have been fairly accurate in the financial data it contained.⁸ Hence the 1427 *catasto* provides a high-resolution snapshot of the credits and debits of the entire Florentine economy at one specific, fleeting moment in time. Virtually all of the account books, out of which this information originally was drawn, subsequently have been lost.⁹ This Florentine source therefore is remarkable: no other comparably comprehensive data set about economic transactions exists for so early in modern or pre-modern history.¹⁰

The details of our coding of these *creditori* lists were reported in a previous publication; hence that description will not be repeated here.¹¹ Both business and personal debts were coded, even though only business debits and credits will be analyzed

in this article. The main coding rules relevant to this article were these: only debts of value greater than or equal to 10 florins were coded, and only debts to other Florentines were coded. An effect of the first coding rule is mostly to exclude artisans from our data set. An effect of the second coding rule is that trading among Florentines (even when they were resident abroad) is the focus of the data set, rather than trading between Florentines and foreigners. The joint effect of both constraints is that the data describe, with great richness, the structure of the export-oriented segment¹² of the Florentine economy, as of 1427. This was the core of the Florentine economy, including both merchant-bankers and cloth manufacturers.

Within these constraints, coverage is thorough. Numerous passes through the *catasto* were performed, in order to code a high percentage of companies' accounts or *bilanci*. Ultimately, 65.4% of the *bilanci* of active companies in our core industries were coded. Comprehensive coding was least successful for international merchant companies located abroad,¹³ for small low-quality wool companies whose accounts were hardest to distinguish from the credits and debits of the household, and for a number of companies who were connected to the export-oriented sector but were not formally located within any of the key industries we targeted. For Florence- and Pisa-based banks, merchants, merchant-banks, silk manufacturing, high-quality wool manufacturing, and cloth-retail companies, the *bilanci* coding rate approached 80%. Debts were coded not among a predefined list of all companies (which list did not exist until this study), but rather among all companies and people meeting the above standards. As a result of our procedure of coding credits to Florentine companies outside of previously coded *bilanci*, however, even the debits of companies whose accounts were not coded directly often

were found indirectly in the credit accounts of coded companies. Because of such cross-referencing, we were able to compile, for the first time, a complete census of companies active in the year 1427. A tabulation of this census, industry by industry, is presented in table 1. The detailed list of the companies underlying table 1 is publicly available on Padgett's web page: <http://home.uchicago.edu/~jpadgett>.

-- table 1 about here --

We estimate, through procedures explained in an earlier version of this article¹⁴ that 33.4% of the total number of all debits and credits of companies participating in the export-oriented industries of the Florentine economy were finally included in our data set. And we estimate that 62.3% of the total monetary value of all such debits and credits are included in our data set.¹⁵

The first stage in our analysis is descriptive: How important was commercial credit to the Renaissance Florentine economy? In which markets did it figure most centrally? In what types of economic exchanges was credit used? What was the ratio of transactional to (multi-transactional) relational credit in various markets?

One common way in finance of measuring the magnitude of credit is leverage: the ratio of outstanding debt to assets. The higher the ratio, the more important is credit in the operation of the company. Higher leverage can generate higher profits, but at greater economic risk. 'Assets' in the Florentine context primarily means the startup capital specified in the partnership contract, called *corpo*. Table 2 reports leverage so defined, and it also provides two more liberal definitions of 'assets', which progressively add to *corpo* the partners' reinvestments of past profit and company inventory.¹⁶

-- table 2 about here --

Using the strict definition of leverage, our findings are that Florentine merchant-banks were leveraged on average at 5:1 of their *corpo*; that Florentine cloth retail and dyeing companies were leveraged at a little over 2:1 of their *corpo*; and that Florentine cloth production companies, wool and silk, were leveraged at about 1:1 of their *corpo*. These leverage ratios are not really comparable to modern figures, because modern firms borrow for the most part from specialized banks, whereas these companies borrowed for the most part from their trading and exchange partners. Nonetheless, the ordering of these ratios is consistent with the known facts that merchant-banks were generally more profitable as personal investments, but also more risky, than were wool and silk production companies.¹⁷ In general, it is fair to say that virtually all Florentine companies, but especially merchant-banks, were highly leveraged and that most of their business was conducted on credit.

On average, larger and wealthier companies operated on higher leverage than did smaller companies.¹⁸ The most extreme example in our data set was Cosimo de' Medici's bank branch in Rome, which had the highest outstanding debt of any company in Florence, yet its startup capital was zero, generating a leverage ratio of infinity.¹⁹ Such an extreme case makes it clear that name, reputation, and connections were more central in the generation of commercial credit in fifteenth-century Florence than were economic assets, narrowly defined as security. Given the pervasiveness of doing business on credit, without other firms being willing to extend credit to a given firm, that firm could not really be in business at all.²⁰ This was the mechanism that "kept everyone in line."

Figure 1, in the on-line electronic version of this article, presents a computerized visualization of our commercial credit data, using a network visualization program called

Pajek. Figure 2 visualizes these company-credit data differently, as Leontief input-output flows of credit between and within industries. In particular, figure 2 shows observed deviations of credit flows from randomly expected credit flows, the latter calculated on the basis of aggregate volumes of industry credit alone. Four specific trading patterns are worth highlighting in this global macroeconomic picture of inter-industry credit flow:

- (a) Credit flow among merchant-banks of all three sorts (Florentine merchant-banks located in foreign countries, Florentine merchant trading companies located in Pisa, and domestic banks and merchant-banks located in Florence) was massive. Metaphorically speaking, the merchant-banking sector was a whirlwind of products, bills of exchange, and credits cycling around.
- (b) Woolen-cloth consignments, from woolen-cloth manufacturers (*lanaiuoli*), flowed more to local cloth retailers (*ritagliatori*) in 1427 than to merchant-bankers.²¹
- (c) Silk-cloth consignments, from silk-cloth manufacturers (*setaiuoli*), flowed more to merchant-bankers in 1427 than to local cloth retailers.²² In reverse direction, *setaiuoli* received a higher flow of credits (including raw silk) from domestic merchant-banks, relative to statistical expectation, than did *lanaiuoli*.²³
- (d) Silk firms in 1427 exchanged with and gave credit to each other, whereas wool firms for the most part did not.

-- figure 2 about here --

Credit pattern (a) documents statistically the observation of Goldthwaite in the opening quotation that Florentine merchant-banks were not an industry of independent

firms in competition. They were instead a cooperative banking and trading network *system*, with ‘competing’ merchant-bankers providing much liquidity and business to each other. This is the central economic fact that we seek to understand.²⁴

Credit/trade patterns (b), (c) and (d) reflect recent trends in the Florentine economy in the early fifteenth century. The core of the Florentine economy in the fourteenth century had been the finishing, production, and export of woolen cloth. In the late 1200s and early 1300s, Florentine merchant-bankers in the *Calimala* guild imported unfinished cloth from Flanders and exported finished and dyed woolen cloth. By the mid 1300s, Florentine merchant-bankers in the *Cambio* and other guilds imported raw wool and exported completely manufactured woolen cloth. The Florentine wool-production industry, however, suffered serious and protracted contraction between 1373 and 1437, due primarily to aggressive expansion of woolen cloth production in England.²⁵ The raw-material flow of prized English wool, upon which the high-end *San Martino* segment of woolen cloth production in Florence had depended, diminished, forcing a higher percentage of production of lower-quality woolen cloth, called *garbo*. The *San Martino* woolen cloth still left was sold both to merchant-bankers – especially those with warehouses in Pisa – and to *ritagliatori*, whereas *garbo* woolen cloth in this period was sold overwhelmingly to *ritagliatori*.²⁶

The Florentine merchant community and government, under the political control of the *popolani*-based Albizzi oligarchy at the time, responded to this economic crisis by trying aggressively to develop silk-cloth production,²⁷ in order to substitute for declining woolen-cloth production. The mechanism of this sponsorship was liberal credit and investment from upper-class merchant-bankers to new-men silk manufacturers.²⁸

Woolen-cloth production still exceeded the newer silk-cloth production in total volume, and also in total employment, but our data show that this centrally encouraged industrial transformation from wool to silk was well underway in 1427. The credit mechanisms analyzed in this article help to explain how the Florentine economy successfully adapted to its challenging international situation.²⁹

What was the transactional content of the cross-industry company-credit flow depicted in figure 2? Table 3 provides information about the specific goods funded through credits, broken down by aggregated industrial clusters and by transactional versus relational credits, to be explained shortly. Unfortunately only 11% of our credits had their content or purpose listed in the *catasto*. No doubt all of these purposes were described in detail in the original account books, but there was no tax reason for businessmen or their accountants to copy this text into their summary tax returns. Nonetheless, even an 11% sample gives an adequate picture, as long as one is content with coarse-grained resolution.

-- table 3 about here --

The modal activities reported in table 3 are what any knowledgeable historian would expect. Namely, among merchant-banks, the modal type of credit was the current account (*conto corrente*). In these cases, a single recorded “credit” in the tax returns summarized many underlying business transactions.³⁰ As per their monikers, merchant-banks engaged in both merchant and banking activity, hence the content of these transactions was diverse. But the primary international banking transaction was the bill of exchange.³¹ As such, bills of exchange were transactions, and *conti correnti* were the formalized economic relations containing these and other transactions. Between

merchant-banks and other companies, the primary credit activity was trading raw material for cloth on consignment. Banking services also were provided on credit by merchant-bankers to textile producers. Accounts called *conti di esercizio* orchestrated recurrent trade among such trading partners.³² *Conti di esercizio* between merchant-bankers and textile manufacturers were not as common as were *conti correnti* between merchant-bankers. Among other mostly cloth-producing companies, the modal credit activity was lending raw materials and cloth to each other, on a transactional basis.

‘Current accounts’ and ‘accounts of use’ were the accounting vessels that contained and measured strong economic credit relationships among Florentine companies. Double-entry bookkeeping slowly percolated throughout northern Italy during the first half of the fourteenth century, but it became widespread in Florence only in the late fourteenth century.³³ Bilateral format in Florentine merchant account books – the physical layout of the pages often associated³⁴ with double-entry bookkeeping – became widespread in the 1380s, precisely in conjunction with the invention and rapid diffusion of the partnership system.³⁵ From the point of view of credit, the most significant aspect of that accounting change is its instantiation of the current account,³⁶ which visually was displayed so neatly in bilateral-format pages. Simplifying a bit,³⁷ to open up an account book in bilateral format was to place into clear sight the writer’s own economic relationship with a single person or company. Credits (both monetary amounts and descriptions of content) between the writer and that person or company were listed on one side of the open account book, and debts of the writer with that same person or company on the facing page. Such accounts usually were initiated with an opening deposit or a credit of some sort, but after that initiation a whole series of transactions

ensued, with accounting money (not necessarily physical money³⁸) flowing both in and out, all registered neatly and precisely in parallel columns. Earlier more primitive single-entry account books, in contrast, were registers of the writer's transactions, ordered by date irrespective of date, each described in paragraphs with complicated systems of cross-reference to help figure out whether the credit was ever repaid.³⁹ To put this accounting development simply: the foundational organizing unit of single-entry bookkeeping was the transaction, while the organizing unit of bilateral double-entry bookkeeping was the economic relationship.⁴⁰ *Conti correnti* between merchant-bankers and *conti di esercizio* between merchants and manufacturers were the most advanced technical means in Florence through which economic credits were managed.

At the international level, where different currencies were involved, current accounts could become quite complex, internally differentiating into four separate financial components: *nostro*/our and *vostro*/your accounts for each merchant-banking side of the ongoing economic relation.⁴¹ Essentially paired companies began to maintain complementary and quasi-permanent 'bins' within each other into which their credits and debts could be transferred at will on an ongoing basis. Such networks of open-ended credit involved both partnership systems, with legally separate branches linked through common partners, and separately owned companies who did frequent business with each other – so-called *corrispondenti*. In our section on business letters, we shall have occasion to see *corrispondenti* relations more closely in action.

Anticipating the statistical results of next section about social embeddedness, we point out here that paired current accounts, implementing *corrispondenti* relations, are not inconsistent in form from reciprocity in anthropological social exchange.⁴² Both in

primitive social exchange and in the mathematically sophisticated *conti correnti*, one party offers a ‘gift’ to the other, thereby ‘making’ or constructing that person (or his business), and is repaid not by cash but by reciprocal gifts, which thereby ‘make’ in turn the initiating person (or his business). A credit or loan, in this social-exchange understanding, is just an unreciprocated gift. Much recurrent business was conducted by Florentine companies in this open-ended gift-exchange manner of reciprocity, without requiring cash,⁴³ even though of course serious risks of bad debts and cheating were incurred thereby.

By pointing out the homology between early-capitalist and traditional social exchange, we are not claiming that Renaissance Florence was no different from New Guinea. The level of mathematical sophistication is vastly different. But we are claiming that, despite the absence of personal information in Florentine account books, many of these accounts (particularly the most elaborate of them) represented the formalization of personal relations, not their displacement by impersonal relations. Sometimes the social preceded in time the development of the economic relation; sometimes the economic preceded in time the development of the social; but either way economic and social relational logics had a strong tendency to bleed into each other in Renaissance Florentine markets.⁴⁴

An important subsidiary message in table 3 about exchange content is its diversity. We have tabulated on the right-hand column of table 3 the dispersion of multiple credits across content categories, between specific exchange partners, in those pairs of companies where we were lucky enough to have more than one instance of content reported. With the exception of trading among cloth producers and *ritagliatori*,

which was fairly specialized in character, the goods and services exchanged among merchant-banks and between merchant-banks and other companies were remarkably wide ranging in content. In recurrent exchange relationships between Florentine companies, merchant activities, banking activities and account activities (which really could cover anything: merchandise, bills of exchange, even daughters' dowries) were all mixed up. While distinct in terms of guild membership, therefore, upper-tier Florentine companies were not sharply specialized in terms of actual exchange behavior. On the margins, Florentine industries blended into one another, with a single company quite capable of morphing its business into another 'industry'.⁴⁵ Such company plasticity, we believe, was a macro-industrial-structure consequence of the generalist social exchange instantiated (and precisely measured) within *conti correnti* and *conti di esercizio*.

Motivated by our knowledge of current accounts, in table 4 we move on to disaggregate overall credit flows into transactional and relational credits. "Relational credits" we define as credits between companies who had more than one cross-sectionally observed credit between them. "Transactional credits," in complement, are those credits between companies who had only one observed credit between them.⁴⁶ Relational credits in turn are of two types: (a) reciprocal credits, where credits flowed in both directions, and (b) multiple credits, where more than one outstanding credit existed in a single direction. Reciprocal credits are our observable proxies for *corrispondenti* relationships.⁴⁷

-- table 4 about here --

It is not correct to interpret relational credits as "personal" and transactional credits as "impersonal," because any credit at all implies that the creditor knew the debtor at least well enough to judge him credit-worthy. But relational credits go beyond mere

knowledge of credit-worthiness to connote a social relationship of trust. “Multiple credits” either means extending to someone a second (or more) credit even before they have paid off their first debt, or it means maintaining multiple accounts with the other. Some sort of trust in or deep character assessment of the debtor by the creditor seems virtually a prerequisite for this intense a level of repeated lending behavior.

Reciprocity epitomizes the anthropological logic of social exchange, discussed above, in which ‘gifts’ flow open-endedly back and forth between the exchange parties, both in order to create social obligations and in order economically to help to ‘make’ each other. It is notable in the Florentine case that such credits flowed back and forth (for example, two credits one way and three credits the other way), without them being aggregated into a net balance (for example, into one net credit owed). Each credit account ultimately had to be cleared separately, even if not necessarily in cash. Sometimes in our data reciprocal credits occurred through two-way transactions being itemized and recorded individually, but more commonly they occurred through paired current accounts that each party held in the books of the other, as has already been mentioned.

Within the high-volume merchant-banking sector, table 4 shows that 45% of the credits in our data were reciprocal credits, that 50% of the credits were multiple credits, and that 63% of the credits were relational credits of either version. Relational exchange, in other words, was fundamental to the operation of Florentine merchant-banks.

Between banks and other companies, and among other companies, the proportion of total credits in relational form was not as high as it was among merchant-banks themselves, but it was still substantial. 33% of the credits in our data between banks and

other companies were relational credits, and 29% of the credits among non-bank companies were relational in character.

By these measures, credits within merchant-banking industries were on average more ‘personal’, both in relational-credit style and in embedding in non-economic social networks (see below), than were credits involving the textile-manufacturing and cloth-retail industries. Relational credit was the non-specialized social-exchange logic through which the highest volume of Florentine commercial credit flowed, precisely recorded in account books through *conti correnti* and *conti di esercizio*. Regardless of whether credit was relational or transactional, however, commercial credit was crucial to the operation of all advanced sectors of the Renaissance Florentine economy.

STATISTICAL ANALYSIS OF FLORENTINE COMMERCIAL CREDIT

Florentine businessmen were not just businessmen. They were also fathers, brothers, neighbors, in-laws, republican office-holders, faction fighters, humanists, and patrons of the arts. The colloquialism “Renaissance man” reflects the Florentine social reality that the intellectual, economic, and political activities of its elite merchant-republicans were remarkably diverse.⁴⁸ Among their many activities, the pursuit of business did not necessarily assume first place in their career ambitions or in their biographies. The average number of years that a Florentine banker was actually doing banking was only 8.2 years.⁴⁹ Success in business often was a stepping stone toward other elite activities, like becoming a city councilor, an ambassador, a *rentier*, or even an art patron or humanist scholar.⁵⁰ Cosimo de’ Medici was not unique in this regard. In such a social context, it should come as no surprise that “there is scant reason to expect

that Renaissance economic exchanges, occurring within dense and multi-textured social networks, to lack broader cultural meanings shared by other Renaissance exchange systems: gift giving, hospitality, the exchange of greetings, or the exchange of women.”⁵¹ The strategic implication of this dense social-network overlap is that “single actions [such as the granting of business credit] are moves in many games at once.”⁵²

Renaissance Florence was not a large city by modern standards – in 1427 only 37,246 people.⁵³ Thus most Florentine businessmen knew much about each other, both in business and outside of business, if only through reputation. Even were a Florentine businessman to desire to shut the doors of his office and to withdraw from the inquiring eyes of the social networks around him,⁵⁴ reputation and the subsequent flow of business credit and business opportunities would force him to stop that, or else he would fail in his business. In this section, we shall analyze more specifically exactly which social networks were important for which commercial credit behaviors in which industries.

In statistical analyses to follow, the commercial credits already described will become the dependent variables. For social-context independent variables, Padgett and his assistants have collected and computerized a wide variety of primary-source and secondary-source data about the attributes and networks of these businessmen and others:⁵⁵ namely, patrilineage,⁵⁶ marriage,⁵⁷ neighborhood,⁵⁸ personal wealth,⁵⁹ political office-holding,⁶⁰ voting,⁶¹ social-class membership,⁶² and factional affiliation.⁶³ These data will be used to reconstruct the “dense and multitextured social network” context within which Florentine commercial credit operated.

In an appendix in the on-line version of this article, we present our full logit-regression statistical analyses of commercial credits among our 1427 companies, using

various social attributes and social networks of the Florentine partners who owned them as independent variables. For each separate market, logit regressions were run on dichotomized credits as dependent variables⁶⁴ – first for all commercial credits, and then for credits subdivided into reciprocal-credit and asymmetric-credit⁶⁵ subsets. In the interest of saving publication space, we extract only salient statistically significant coefficients from that more complete appendix to present in table 5. Asterisks in the table refer to degrees of statistical significance.⁶⁶ Details on variable construction are presented both in the on-line appendix and in table 5.

-- table 5 about here --

For those readers who do not consult the full appendix, it is important to note that more variables were included in the full logit regressions than have been extracted to highlight in table 5. As statistical controls, five variables were included to correct for tautologies and sample biases in the data: (a) baseline null expectations of numbers of credits between companies, based on the sizes of the companies alone,⁶⁷ (b) two dummy variables for whether company accounts were coded directly from the *catasto* or were inferred indirectly from trading partners' accounts, and (c) the total taxable personal wealth of all partners in creditor companies and in debtor companies, as reported in the *catasto*. Not surprisingly the first three of these control variables were almost always statistically significant. In addition, eight other substantive variables were analyzed but are not reported in table 5, because we failed to find more than random⁶⁸ statistical significance in their estimated coefficients: namely, (a) neighborhood at the coarse-grained level of quarter (above and beyond the more fine-grained *gonfaloni*), (b) three social-class endogamy variables (percentage 'upper class' *popolani* and magnate

partners, percentage ‘middle class’ new-men and new-new-men partners, and percentage ‘lower class’ families-never-admitted-to-Priorate partners), and (c) four political offices other than Priorate or city council – namely, the *Buonnomini* (or *dodici*), the *Gonfalonieri* (or *seidici*), the guild consuls, and members of the *Mercanzia* or commercial court. It is therefore a substantive finding, albeit a negative one, that quarter, social class,⁶⁹ and political offices other than Priorate did not consistently affect commercial credit in 1427. A ninth variable not included in table 5 – namely in-law marriage among partners in different companies – was frequently statistically significant, but that is not highlighted because the number of documented partners across different companies who were direct in-laws, at the nuclear family level, was quite small.⁷⁰ Finally, the cluster option within STATA’s logit-regression procedure was employed, using company ID as the fine-grained categorical variable, in order to control for potentially important missing factors for which we do not have data.⁷¹

To facilitate later comparison with business letters, the findings in table 5 will be discussed within categories that our Florentines would understand – namely *famiglia*, *amicizia*, *onore*, and finally partnership systems.

Famiglia:

Instead of taking an essentialist position on the historiographically sensitive question of what was the Florentine family,⁷² we chose to measure this four ways and “let the data decide.” Two companies were measured to have a “nuclear family” relation with each other by the percentage that partners in the two different companies were members of the same nuclear family (that is, father and sons, or brothers). Two companies were measured to have a “patrilineage family” relation by the percentage that partners in the

two companies were members of the same patrilineage, above and beyond nuclear family (that is, cousins or uncles with same last name). Two companies were measured to have an “in-law” relation by the percentage that one set of partners married into the nuclear families of the other set. And two companies were measured to have a “*parentado* family” relation by the percentage that one set of partners had the same last names as the other set of partners’ wives.

Not very surprisingly, family relations among partners in different companies, when they were present, exerted frequent and strong effects on those companies’ credit behavior toward each other. Indeed pooling across the three ways of running the regressions (namely, all credits, reciprocal credits, and asymmetric credits) reveals the relative frequency of “family” statistical effects to be rank ordered in the intuitive way – namely, nuclear family (14 significant coefficients) > patrilineage family (7 significant coefficients) > *parentado* family (5 significant coefficients).⁷³ All versions of Florentine “family,” in other words, affected Florentine commercial behavior.

These statistical effects are not surprising because when family relations interpenetrated commercial relations, credit exchanges between companies became as much social obligations as economic investments. “Social obligations enforcing economic investments” or “economic investments enacting social obligations”: either way of interpreting the empirical correlation is consistent with our data. Thus insisting on the causal priority of one side over the other is probably a mistake. We shall see in our business letters that even non-kin sometimes evoked fictional-kinship language with each other, which strengthened the obligatory connotations of economic exchange. In all

domains, not excluding the economic, kinship was central in Renaissance Florentine thinking and behavior.

While true in almost⁷⁴ all Florentine markets, there is a remarkable density of nine significant family coefficients in the four reciprocal-credit markets involving international merchant-bankers. Reciprocal credits are our observable proxies for *corrispondenti* relations, often implemented through paired *conti correnti*. When Florentine businessmen were resident outside of their native soil, they relied even more than they did otherwise on family as the social ligaments upon which they constructed their *corrispondenti*. Apparently in their most risky business climates, Florentines tended to close ranks within intimate social relations for their deepest credit connections. Since Florentine families in international business were spread geographically all over Europe, some of the heaviest early fifteenth-century flow of international finance throughout Europe coursed through upper-class⁷⁵ Florentine families' veins, making them very wealthy indeed.⁷⁶

Amicizia:

Our imperfect proxy for 'friends' is 'neighbors'. We acknowledge the imperfection of the match, but neighbors are measurable in our data whereas friends are not. The social intimacy of Florentine neighborhoods has been documented extensively in the literature,⁷⁷ so the assumption is well grounded that neighborhood was highly correlated with social-interaction frequency, even though close interaction could lead to hostility as well to friendship within neighborhoods.⁷⁸

Gonfaloni were the sixteen administrative districts or wards into which Florence was divided geographically. We measured a "same *gonfalone*" relationship between

companies as the percentage of times that the partners in two different companies lived in the same *gonfalone*. “Same quarter” (excluding same *gonfalone*) relations were measured similarly.

The statistical findings regarding “same *gonfalone*” are remarkably sharp: At very high significance levels, markets involving domestic merchant-banks, resident in Florence, almost always relied on neighborhood socially to structure their commercial credit relations. Put simply, Florentine banks and merchant-banks resident in Florence disproportionately extended commercial credit to those wool-manufacturing companies, silk-manufacturing companies, international merchant-banks, and other domestic banks and merchant-banks, whose partners lived in the same *gonfaloni* as partners of the focal company. We interpret this as *amicizia*. Whereas Florentine international merchant-banking business was organized substantially through family relations, Florentine domestic-banking business was organized substantially through friends. As was the case with the association between family and international *corrispondenti*, moreover, domestic merchant-bankers and their recurrent exchange partners frequently referred to each other in business letters as friends, whether or not they ‘really’ were. Causality went as much from business to friends as it did from friends to business.⁷⁹

In another article,⁸⁰ Padgett has demonstrated that the effect of neighborhood on marriage, while always statistically significant, declined in absolute importance from 1300 to 1500. Whether a similar temporal decline in Florence was true for economic credit cannot be assessed with data on 1427.

Onore:

The Italian word *onore* means both “honor” and “political office,” reflecting the historical reality in Italian republics that to be elected to a public office was conceived to be an honor, bespeaking respect from one’s fellow citizens. Office-holding in the Florentine republic was not a matter for professional politicians. Many normal ‘amateur’, but respected and articulate, citizens were elected to serve short stints⁸¹ in Florentine public office, taking temporary and unpaid time out from their normal business or other pursuits. It is surprising to modern eyes to see how anxious and honored Florentine republican citizens were to be elected by their social superiors and peers to high political office, with no overt reward or payment other than prestige.⁸²

As mentioned above, no political office other than the top office – namely, the Priorate or city council – had consistent statistical effects on commercial-credit behavior among Florentine companies. But republican service in this very top office of Priorate, measured as percentage of both companies’ partners serving in the Priorate prior to 1427, had frequent and strong consequences for commercial credit in all markets involving domestic merchant-banks.⁸³ This was especially true for reciprocal credits, but it was true also for all credits and for asymmetric credits as well. In this regard the variable “Priorate” behaved statistically just like “same *gonfaloni*.” In addition to *amicizia*, the social logic of *onore*, conceptualized as personal honor but manifest as republican office-holding, was at the core of commercial credit among companies dealing with merchant-banks resident in Florence.

The concentration of strong statistical Priorate effects on commercial credit especially in markets related to domestic banking and to domestic merchant-banking makes sense. Florentine international merchant-bankers were scattered all over Europe,

far away from Priorate service back home. And the density of social ties observing and calibrating *onore*, measured in scrutiny voting, was higher at home in Florence than it was abroad. Public reputation could not really be ignored anywhere, but it was especially salient and observable at home.

It has been shown previously that political office-holding had effects on business and wealth, via state finance, at the very highest echelons of the elite.⁸⁴ However, this is the first demonstration of a pervasive office-holding effect on business throughout wide segments of Florentine society. Perhaps this widespread causal effect is related to the fact that eligibility for the Priorate had increased substantially from 1343 to 1427.⁸⁵

In table 5, we also report statistical results for scrutiny voting and for political factions. Scrutiny voting in 1433, measured as the votes received by the sum of the highest vote receivers in each company, had numerous statistical effects on commercial credit in 1427, but these effects were scattered among international and domestic merchant-banking markets. Likewise factional membership in the Medici and Albizzi parties of 1433 had numerous statistical effects on commercial credit in 1427, but these also were scattered among merchant-banking markets. These independent variables from 1433 were included to predict dependent-variable outcomes in 1427 under the presumption of stability in political attitudes over time. The lack of clear market patterning may be related to this empirically unavoidable slipperiness in dates.

At the very least, we can conclude that “politics mattered” in economic credit markets in 1427. It is even clearer that “economics mattered” in the early 1430’s construction of the Medici political party or faction.⁸⁶ In Renaissance Florence,

commercial behavior, especially in merchant-banking, was no more segregated from political partisanship than it was from kinship or friendship or republican office-holding.

Partnership systems:

The partnership system was a new organizational form in the history of financial capitalism, invented in Renaissance Florence.⁸⁷ Partnership systems were sets of legally autonomous companies, with their own account books, linked in ownership through single persons or through a holding company of controlling partners. Usually, though not necessarily, the linked companies in question were diversified across industries, with international merchant-banks and domestic merchant-banks dominating in number, and with domestic merchant-banks serving as the managerial headquarters. Padgett and McLean (2006) documented the rapid diffusion of this organizational form, after its Ciompi-revolt induced birth in 1383.

Table 5 reveals strong credit interconnections in 1427 among companies linked in partnership systems throughout the merchant-banking sector and occasionally in other sectors as well. This is not surprising, for companies linked through common owners presumably were ordered to cooperate, even though they were legally autonomous.⁸⁸ In addition, within the domestic-banking industry, partnership systems themselves cooperated strongly and significantly among each other through reciprocal credits. This demonstrates coordination among titular ‘competitors’ at the very apex of the Florentine economy. Senior-partner leaders of these partnership systems became captains of finance in Florence, monitoring and managing large credit flows across multiple markets through their visible hands.

Unlike had been the case before the Ciompi revolt by lower-class wool workers in 1378, international and domestic merchant-banking industries became organizationally interconnected through this innovative organizational mechanism of the diversified partnership system. Such concentration of ownership of multiple companies into fewer hands is hard to understand without placing it into its political context: namely, the consolidation of a city-wide oligarchy among elite Florentine merchant-republicans, in response to the Ciompi revolt.⁸⁹ Economic market restructuring through partnership systems was one aspect of this broader political and social transformation in elite structure. Through this elite-transformation process, economic partnership systems took their place among the social-network constituents of that elite, transforming merchants on the one side and republicans on the other even more deeply into multi-faceted merchant-republicans.

Volume of social-context effects:

Statistical significance is a necessary but not sufficient criterion for assessing the volume of any factor's impact. "Nuclear family," for example, frequently exerted a significant impact on companies' commercial credit to each other, when such close family relations linked those companies. But there are not really enough brothers to go around to organize an entire credit market. Table 6, therefore, reports the percentage of commercial credits affected by the significant social-context variables reported in table 5. We report volume only for markets involving merchant-banks, because retail *ritagliatori* markets were shown in table 5 mostly to have operated "impersonally," that is, independently of our social-context variables.

-- table 6 about here --

Firstly, the “All [variables] together” column on the right-hand side of table 6 reinforces our interpretation of reciprocal credits as social exchange. In merchant-banking markets (except for “International M-B / Silk”), from 42% to 96% of reciprocal commercial credits were rooted in “dense and multi-textured social networks.” Reciprocal credits were the inner skeleton of merchant-banking markets in Renaissance Florence, and these were constructed largely out of social-network materials.

Secondly, non-reciprocal or asymmetric credits were on the whole not as socially embedded as were reciprocal credits. But in two out of three markets internal to the merchant-banking sector, they were: 76% and 89% of the non-reciprocated commercial credits in the “Domestic M-B / International M-B” market and in the “among Domestic M-Bs” market could be correlated with measurable social contexts, respectively.

Putting both the reciprocal and the non-reciprocal sides together, the global economic-network portrait that emerges is roughly one of concentric circles: (a) within the Florentine export-oriented economy as a whole, the merchant-banking sector was the credit core (see figure 1), (b) within the merchant-banking sector itself, reciprocal credits, often instantiated in *corrispondenti* relations, were the credit core (see tables 4 and 6), and (c) reciprocal credits, in turn, were built upon social-network foundations (see table 5). Conversely, as one moved away from the merchant-banking inner core of the Florentine economy, out toward its *ritagliatori* periphery, commercial credit relations became more non-reciprocal and “impersonal,” in the sense of not having correlations with observable other social networks. In general, the Florentine economy was socially embedded. But more specifically Florentine merchant-banks – in their commercial

relations both with each other and with other companies – were embedded in, and regulated by, the social networks of a politically open republican oligarchy.

Even in 1427, Florentine commercial credit markets stood very firmly on the ‘late-medieval’ social foundations of family and neighborhood. Yet two ‘Renaissance’ institutional innovations – partnership systems and republican electoral reforms – pushed families and neighborhoods into greater network intercalation with each other, at least within the political *reggimento*,⁹⁰ thereby spanning previous deep cleavages and divides. The complementary consequences of this increased social-network connectivity were greater liquidity in credit markets⁹¹ and greater elite consolidation in politics.⁹²

At the elite pinnacle of the economy, diversified partnership systems bridged not families but industries. This new post-1383 type of Florentine economic network emerged out of political reaction to the Ciompi revolt, and breached the previously sharp segregation of business partnerships into distinct guilds.⁹³ At the micro level of organizational role, senior partners in partnership systems evolved from being primarily industry-specific entrepreneurs into being primarily cross-industry financiers.⁹⁴

Republicanism did not affect the organization of Florentine credit markets in as direct a way as did partnership systems. But ex-members of the city council provided a pool of highly respected citizens, certified⁹⁵ to have honor (*onore*). Such persons were a filtered subset of citizens whose past behavior was judged to be exemplary, as citizens but also, as we shall see in the Dati example below, as businessmen. They were elected in the first place because they were deeply enmeshed in Florentine networks and institutions – hardly the types to cut and run. Arguably such electoral filtering became stronger on the individualistic and elite defined grounds of “character” after the post-Ciompi electoral

reforms than before, when voting had been based more on group membership.⁹⁶ Of course, being a good citizen was not necessarily the same thing as being a reliable businessman. But our modernist distinction between generalist ‘honor’ or ‘character’ and economically specialized ‘credit worthiness’ was not one that the Florentines shared. For them, a person was worthy of credit, economic or social, because he was honorable.⁹⁷

In addition to its public certification function, republican election into the *reggimento* provided direct-access benefits to budding businessmen: (a) linguistic performance in verbally oriented political councils increased the level of direct observation that merchant-republicans had of each other, and (b) indirect introductions, recommendations, and gossip about reputation functioned far more efficiently within the republican elite than outside it. Thus although the direct material rewards for businessmen joining the Priorate were non-existent, the indirect payoffs were substantial for Florentine businessmen trying to operate in commercial credit markets.

A dramatic example of this Florentine link between economic credit and republican election is provided in the diary of Gregorio Dati, edited by Gene Brucker. Goro Dati was one of the successful, new-man silk merchants in our 1427 data set, but earlier in 1408, after twenty-four years of partnerships in the silk business, he suffered this fate:

“As a result of the adversity which overtook us in Barcelona, and of the lawsuits which followed it, and of the suspicions concerning [my brother’s] ventures and the calumnies that were spread around, we were very short of credit. So we were forced to withdraw from business and collect whatever we could to pay our creditors, borrowing from friends and using all our ingenuity, suffering losses,

high interest, and expenses in order to avoid bankruptcy and shame. Although my partner was in favor of going bankrupt so as to avoid some losses and expenditures, I was resolved to face ruin rather than loss of honor.”⁹⁸

After four years of financial hardship but also of demonstrable integrity,

“I was in debt for over 3,000 florins. That same year 1412, my name was drawn to be Standard-bearer of Justice, and I served in that office. That was the beginning of my recovery.”⁹⁹

This financial recovery through revived commercial credit was healthy enough to allow Dati to report a taxable wealth of 3,368 florins in the 1427 catasto.¹⁰⁰ This placed him among the wealthiest 7% of Florentine households at that time, rebounding from less than nothing.

Table 6 shows that, out of all of our various social-context effects, “political embedding,” and in particular past Priorate membership, had the largest volume of impact on commercial credit. Family and neighborhood provided strong traditionalist foundations, upon which Florentine commercial credit could grow. Partnership systems newly coordinated the cross-industry apex of the commercial-credit system. But previous election to city council induced the broadest reach and connectivity in Florentine credit markets.

One common criticism of personalistic markets is that they are inherently self-limiting in extensibility and scale, compared to impersonal markets. This criticism has less force when discussing topologically open-ended social networks, like porous elites, than it does when discussing topologically closed and fragmented social networks, like families. Florentine merchant-banking credit markets were very personalistic. Yet they

geographically radiated all over Europe and brokered much of Europe's international trade, without reliable judicial support. The organizational secret of the Florentines in their markets was their blending of multiple personalistic social networks into dense but socially open merchant-republican elites, who reciprocally offered commercial credit to each other, not as competitors, but as 'honorable' Renaissance men. Using gossip, ostracism and reputation to discipline their wide extension of credit to each other, such men "kept everyone in line" through the same "dense and multi-textured social networks" that had created them in the first place.

BUSINESS LETTERS AND THE MENTALITÉ OF CREDIT

We close this article with a textual analysis of business letters from roughly our time period, in order to illustrate the discursive framings and the cognitive *mentalité* of the Florentine businessmen who produced the commercial-credit behavior documented above. Because of the importance of relational credits in our statistical analysis, we focus on letters between *corrispondenti* – that is, between legally autonomous companies that had extensive and recurrent two-way business with each other.¹⁰¹ In particular, we examine published business letters to and from the Francesco Datini company in Milan¹⁰² and unpublished business letters to and from the Andrea de' Bardi company in Florence.¹⁰³ Other relevant sources are occasionally mentioned as well. Within this small sample of business letters, we highlight Florentine businessmen's use of the language of friendship (*amicizia*) and of honor (*onore*) in discussing deals with each other.

An important theoretical point in our discussion will be the two-way causal relationship between language and behavior: On the one hand, linguistic expressions

reference ‘real’ social relationships and obligations in the writers’ past experience. On the other hand, Florentine linguistic tropes and learned cognitive models, like ‘family’ (*famiglia*) and ‘friends’ (*amici*), were extended far beyond their objective references, as businessmen sought to frame and interpret each others’ market actions in such terms. This loose-coupling or ambiguity between Florentine language and behavior enabled both the creative construction of new social relationships¹⁰⁴ and the creative construction of lies.¹⁰⁵ On the whole, the benefits of the former apparently outweighed the correlated costs of the latter.¹⁰⁶ Linguistic ambiguity was the medium through which economic and social relational logics bled into each other (or conversely, emerged out of each other).

Examples of *corrispondenti* relations, in Florentine businessmen’s own words, are these:

“Of the affairs you still have to complete here, point yourself still towards Pisa with my company there, and also write often to me in Bruges, because I am going to live there, and in three days I am leaving here to go there. With the grace of God I will stay there a little while, and if there is anything I can do for you, write to me of it and I will do it, for you and for your whole company, as if it were for myself alone.”¹⁰⁷

“Anything that comes to you for us, you may commit to Paris or London, if it be to your own [company] there, to ours in Barcelona, in Lucca to Bartolomeo Belbani & co, and in Venice to the Medici: continue in this way if no one instructs you otherwise. We do not wish you to lend [*credere*] our money, nor the money of our company to any Venetian or Lombard, nor to Antonio Quarti & co,

nor to Niccolao Tonghi, nor to Filippo Rapondi or others that might bring business to you from Dino Rapondi of Paris. Follow these instructions, and with the others [with whom you correspond] do as you wish and as if it were for yourself, having always due regard to lending well and, again, not to get yourself too indebted with anyone, and especially with Diamante degli Alberti & co.”¹⁰⁸

Within very explicitly stated constraints, partners in *corrispondenti* relationships both offered to do whatever each other requested and were authorized to take discretionary action on behalf of each other, taking advantage of local opportunities. The accounting methods for keeping tabs on these discretionary actions were the paired *conti correnti* and *conti di esercizio* discussed above. To spell out the mechanics of this: correspondent A would take discretionary action on behalf of correspondent B, charging B’s current account in A’s book, and recording therein A’s actions taken and B’s financial commitments.¹⁰⁹ This was really A giving credit to B, since this was B’s account money but A’s disposable cash being used. Typically B would do likewise for A, thereby paying back the “loan” not with cash but with reciprocated discretionary actions. If all went well, which it did not always, each side actively made money for the other.

The word “to lend” in these and other Renaissance business letters is *credere*, which normally means “to believe” or “to believe in.”¹¹⁰ The language of medieval and Renaissance Italian expresses the idea that to offer someone credit typically meant having confidence in them, not only financially but also morally. “To give credit” and “to believe in someone” were essentially the same idea. Having credit was a sign that others trusted you to record your debts accurately, regard them seriously, and pay them

promptly. It was also a sign that you were a person of character and honor, in more domains than just the economic.

Amicizia:

While fifteenth-century Florentine business letters overwhelmingly focus on the day-to-day details of transactions, spelling them out monotonously and repetitiously, it is also true that they are inflected sufficiently often with the rhetorics of friendship and fictive kinship to see these framings as constitutive of commercial interaction. This is how Andrea Bardi could directly link the terms *mercantivolemente* (in a merchant-like way) and *amichevolmente* (in a friendly way) in a letter¹¹¹ concerning the resolution of a *differenza* to the Orlandini company in Bruges on March 26, 1405. Consider the following additional examples:

“Your offer we accept like dear friends (*chari amici*), and we see that by your Tommaso you have written concerning our condition and company: this he did as a worthy (*valente*) person and out of courtesy... And although you have many friends here who serve you, nonetheless we offer ourselves to all of your pleasures and, wanting advice concerning one thing or another, tell us and I will do it willingly (*faròllo volentieri*).”¹¹²

“As much as you offer to do with love in this matter, all of it we have observed, and we thank you for it, and we are certain you would do even more; and if anything occurs in Avignon or here that needs to be done, we will commit ourselves to you loyally (*con fidanza*), advising you of it first... As for us, you may do with us as you would with your own, and we will do all we can. Thus we

have told your Tommaso and prayed him to have such confidence in us as one could with you.”¹¹³

“I will take confidence with you as I believe I may, and I would like that this confidence remain between us.”¹¹⁴

In part, the language in these passages may reflect important concerns of the theologians who elaborated the Church’s usury doctrine and whose ideas appeared in the confessional guidebooks consulted by the laity.¹¹⁵ Here we have in mind specifically the idea that the economy was constituted by a community of the faithful linked together in love, and the theologians’ emphasis on the importance of a completely, unconditionally free will for an economic transaction to be considered legitimate.¹¹⁶ But the language here also recalls the language of patronage letters – itself undoubtedly shaped by religious themes and imagery, but also existing as an autonomous mode of mutually supportive social interaction. The final sentence of the Borromei letter is a common concluding element of much correspondence, but appears with particular regularity in patronage-related letters where writers assure recipients of their loyalty to each other.¹¹⁷ *Amicizia* was not a word that had a single, clear-cut meaning: it could be understood in religious, in political, in economic, or even in humanistic inflections,¹¹⁸ depending on the context or the multiple contexts.

Florentines saw no contradiction between friendship and making money. Theirs was an instrumental conception of friendship.¹¹⁹ One purpose of helping each other was to make money, but also one purpose of making money was to make friends, through generosity or ‘liberality’ with gifts.¹²⁰ Profit and friendship were paired concepts in the

Florentine understanding, both facets of the same social-exchange mentality of constructing each other through reciprocity.

Leon Battista Alberti put this idea this way, through the mouth of his businessman character Giannozzo:

“I should be glad to remain here with you as long as you like, but I see my friend whom I must help at the Palace. We made an appointment early this morning, and it will soon be time to appear there. I do not wish to fail my friend, for I have always liked helping others rather than asking for help myself, and I have always preferred having others under obligation to me rather than the opposite. I like doing him a favor, helping him as much as possible with words and deeds, not so much because I know he loves me, but because I know he is a good and just man. You must always regard good people as friends and you must always love and help the just even though you may not know them.”¹²¹

An actual businessman from a later period phrased the idea as follows:

“With regard to Galilei and company, I see that there is no more need of blandishments for in truth they do things like gentlemen. The letter which I have from them now is so full, so much to the point, and so agreeable that I feel under a permanent bond of obligation to them... Maintain close relations with them and we over here will always perform our part duly as we do every day; of this you and they will be the judge.”¹²²

Out of context, one might not realize that these are businessmen talking.

Interpreting business relations as friends occurred not only when business was going well but also when business went bad, even very bad:

“We want only what is owed to us. May it please you also to want to do thus, and truly, for in good faith not a little have we discussed this dispute between us. May you or yours also wish to settle it as is done between friends. And so let it please you that not having sent these letters [i.e., business correspondence germane to the dispute] to [your office in] Florence, to send them without further delay.”¹²³

“I am advised by many letters that Basciano [da Pessina] is not there. You will have spoken with him about these blessed accounts that, by his shortcomings, are not settled, and truly it is a great wrong; this is not the friendship (*amicizia*) and brotherhood (*fratelanza*) that I had with him, and he has not done well in clamming up with me (*pigliare gozzo*), and I don’t know why... And I must observe that when he made accounts with me in Avignon, that amounted to 40,000 pounds or so, there was not even a penny missing, we had such a great relationship, so that one could go so far as to say that if I owed him 1000 florins, I would approach him and say to him how I considered him more than a brother, and I still do. And despite what he has done to me, I will never forget the love and brotherhood that was between him and me.”¹²⁴

The ambiguous meanings of *amicizia*, or even of *amore*, were in no way precise enough to imply what exactly to do in markets. The invocation of *amicizia* in business was instead an attempted negotiation in joint cognition of empathetic understanding of each others’ interests and an attempted negotiation in joint behavior of social-exchange reciprocity. Words by themselves could not enforce reliable economic behavior. For that, the social anchoring of language in actual families and in actual neighborhoods, with

third-party observers and enforcers, was helpful. But ambiguities in shared language were essential for the creative relational extension and groping of Renaissance businessmen beyond the limits of their social inheritance. The language of *amicizia* was an important first step in this Florentine relational extension from family and neighborhood into markets, but by itself that dyadic trope was not sufficient for scaling up into large, far-reaching and highly connected credit networks.

Onore:

Like *amicizia*, the word *onore* did not have a single unambiguous meaning in Renaissance Florence. As was evident in our statistics, the republican conception of *onore* as “public office” or “service to the state” was alive and well in the Florence of 1427. But medieval conceptions of *onore* as ancient lineage or as martial glory had hardly vanished, especially among magnates. And sober guildsmen conceptions of *onore* as thrift, discipline and hard work maintained their appeal, especially among new men. Newer conceptions of *onore* as patronage, in the senses of liberality and *magnificenza*, so prominent in the Medici regime soon to come, were starting to gain traction. Many of these alternative meanings of *onore* and nobility were put into debate with each other in the humanist dialogues of the time.¹²⁵ Such multiple meanings could co-exist, because all of them entailed the imperative of meeting all of one’s social obligations and expectations, in one’s own eyes (character) and also in the eyes of others (reputation). Disagreement existed, however, about the exact content of those obligations and expectations. To the extent that the inflection was on the republican conception of *onore*, service to the community was highlighted, with commercial credit flowing in recognition of that.

Regardless of precise inflection, business-letter discussions of honor came up most often in times of economic trouble. Thus, for example, in a dispute concerning a thousand florins missing because of the actions of a certain Michele, Andrea de' Bardi wrote to both Antonio di Sandro Cittadini and Domenico Pazzi in May of 1405 that they should take action "for the honor of said Michele."¹²⁶ And in a letter of March 31, 1404, Bardi wrote to Alberto Aldobrandini in Paris urging him to settle a particular deal because it redounded to both his honor (*onore*) and his advantage (*utile*).¹²⁷ In the same letter quoted above about the Basciano deadbeat, Datini went on to assert that "I would come back a thousand miles to do my duty towards him and every other good affair; and it concerns his honor not to do likewise to me, even if I did not merit it."¹²⁸

In this context, complimenting someone about their honor might gain overtones of a veiled threat about loss of that honor:

"Dearest friend, ... When I was there I spoke to you many times about the money that you owe to the heirs of your partner Antonio di Tuccio Manetti. And now Andrea di Buonaventura has arrived there, who comes there for this reason and for other business of his, and he has begged me that I write to you concerning this matter, and that I pray of you that you should wish to act towards him as the worthy man that you are. And I am quite certain it need not be said to you, that you will pay your debt to him in this matter, both out of duty, and also to lighten the burden on your heart. And I pray of you that you should wish to do this for them like the worthy man that you are."¹²⁹

Indeed the question of honor was always tied, overtly or covertly, to the issue of reputation (*fama*). *Fama* typically refers to other merchants' collective evaluation of

one's interior character or soul. Gossip – either orally or through letters – was the mechanism through which such collective evaluations were made. Such gossip could help you:

“I, Andrea, have received letters from Ciandrello. I have told him so much about you, and that you have done him such honor, that if something pertained to you alone it would suffice [to obtain his help]. And if it were not already the case that I were obligated (*obrighato*) to you in every respect, now I am [obligated to you] that much more, and I thank you.”¹³⁰

Or such gossip could hurt you:

“We have heard via letters from Montpellier that this Guglielmo Pigniolo has lost the confidence [of others: *avea perduto la fede*]. We do not know if this is true. These times are too dangerous. Tell us what you hear of it, and similarly how the affairs of the Bocci are proceeding, having seen these fail and how many evils have come this year to merchants.”¹³¹

Tommaso Spinelli provides a clear example of the link between merchant gossip and personal anxiety about honor. In his letter to his friend Gherardo Maffei about the setbacks he received as a Papal banker,¹³² Spinelli referred to his honor – as Jacks and Caferro put it, the banker's most precious commodity – fully six times in this letter, sometimes in salvific terms. He wrote that the Pope “has found out the truth and has recognized that I did my duty, and he has endorsed me as a faithful man and a good merchant, and it is clear that I have done the greatest service to the Church of God for a long time, and thus he absolves me and imposes silence on whosoever would speak to the contrary.” The last part of the absolution pleased him the most, as it would clear his name

“in the presence of merchants, and I greatly desire this strictly for honor’s sake... I will have lost my [goods], but I will at least have conserved my honor.” All of this was driven by Tommaso’s strong desire to leave the Pope’s employ with a good reputation for himself (*ch’io lassi buona fama di me*).

The establishment and measurement of honor through gossip among businessmen was important to the discipline of Florentine markets. But in social exchange there is also the deeper idea of making each other through gifts. “For Paolo da Certaldo, ‘a man without a friend is like a body without a soul’ and ‘a man who loses his friends is worse than dead’.”¹³³ This was no mere metaphor in Renaissance Florentine markets. Because credit was the lifeblood of Florentine business, fellow businessmen made you by extending credit and business to you, and they could destroy you by withdrawing that from you. Social exchange was not orthogonal to markets; it was the discipline that made personalistic markets work.

Republican elections to Priorate did not substitute for this process of intense gossip among merchants about each other’s honor. Rather they built upon it by measuring and certifying gossip about character into a public status observable by all. Election to Priorate was not an automatic guarantee of one’s economic credit-worthiness. But it was an institutionalized signal, backed by dense third-party networks, that even someone not known directly by you might be worth taking a business chance on. Thereby cliquish personal networks based on private *amicizia* opened out into elitist personal networks based on public *onore*.

Our emphasis on the blending of economic and political logics in interpersonal interaction in Renaissance Florence is reinforced by the widespread presence of the same

language of *raccomandazione* in both business and patronage letters.¹³⁴ By *raccomandazione*, Florentines did not simply mean being recommended to others, and certainly not only being recommended to others for specific tasks or opportunities. *Raccomandazione* was equally, but more profoundly, a plea for recognition. To recommend oneself to another, as Florentines so formulaically did in the conclusions of their letters, was to ask *to be remembered* by another, to respect and be respected by another. To be in a circle of *raccomandazione* definitely yielded material benefits, but it also signified one's membership in a community of people who promised to act responsibly and supportively towards each other, in a manner similar to explicit claims to honor. To deny the need for *raccomandazione* was not to deny its value, but to uphold the certainty of its being offered. This is the cultural meaning behind Bartolomeo Rustichi's assertion to the Datini company in Genoa that

“We do not recommend to you very much our own affairs: it does not seem to us necessary, but we consider you will undertake them employing such diligence as were they your own; and this we remind you, and pray of you and we will do the same for you.”¹³⁵

Florentine businessmen in markets and Florentine politicians in state offices did not do the same things, but they communicated in similar ways. This is perhaps not surprising since, during the Albizzi regime of 1382-1433 in particular, there was so much dual-role overlap between these two sets of actors.

CONCLUSION

Neo-classical economic theory is constructed on the assumption of impersonal markets – choices are made on the basis of goods and their prices, not on the basis of the identities of the persons transacting. Renaissance Florentine markets did not operate like this, especially in the most technically advanced sectors of the Florentine economy. There is, therefore, historical need for the development of an economic theory of the operation and evolution of personalistic markets.¹³⁶

The case of Florence suggests the following elements for such a theory:

- (a) Social exchange and reciprocity are the micro-mechanisms of economic exchange, with credit being the currency. Capitalist inventions like double-entry accounting and partnership systems formalized and perfected personal exchange, not displaced it.
- (b) Gossip about reputation provides discipline to the market, as much as do prices.
- (c) The network structure of economic exchange in the market grows on the lattice of other social networks that provide its context. Economic networks can be cliquish and incestuous, or they can be open and expansive, depending upon how multiple-network feedback is arranged. Porous political-cum-social elites are helpful for open and expansive economic markets.
- (d) Political institutions are important for the development of markets not only because of enforcement of rule of law. Depending upon details, republican political institutions may add public transparency and efficiency to the operation of private gossip; and they can induce the overlay of multiple social roles, such as merchant and politician.

(e) Linguistic and network ambiguity induces creative exploration and innovation in social relationships, even as it enables free riding and lies. Policing the latter should not be so strict as to squelch the former.

How much these findings generalize to other historical and comparative settings remains to be explored in depth, but we suspect their widespread applicability.

Endnotes:

¹ We would like to acknowledge and to thank those who have directly contributed invaluable research labor to this project, over the years: Christopher Ansell, Nicoletta Baldini, Skye Bendor-deMoll, Nick Collier, Matteo Columbi, Sasha Goodman, Michael Heaney, Doowan Lee, Peter McMahan, Piera Morlacchi, Pip Pattison, Katalin Prajda, David Sallach, Ethel Santacroce, Douglas White, and Xing Zhong. McLean also appreciates the valuable comments of Chip Clarke, Frank Dobbin, Neha Gondal, Ann Mische and Tom Rudel. Padgett acknowledges the generous financial support of this project from the Santa Fe Institute, the Hewlett foundation, and the National Science Foundation's program on Human and Social Dynamics.

² Pp. 23-24 in Richard A. Goldthwaite, "The Medici Bank and the World of Florentine Capitalism," Past and Present 114 (1987): 3-31.

³ For an overview, see Raymond de Roover, "The Organization of Trade," pp. 42-118 in The Cambridge Economic History of Europe. Vol. 3. Organization and Policies in the Middle Ages. (Cambridge, England, 1963). See also Richard A. Goldthwaite, The Economy of Renaissance Florence (Baltimore, Md.: forthcoming).

⁴ See for example, Karl Polanyi, "The Economy as an Instituted Process," pp.243-269 in Trade and Markets in the Early Empires, edited by Karl Polanyi, Conrad M. Arensberg, and Harry W. Pearson (Glencoe, Illinois, 1957). See also Mark Granovetter, "Economic Action and Social Structure: The Problem of Embeddedness," American Journal of Sociology 91 (1985): 481-510.

⁵ John F. Padgett, "Open Elite? Social Mobility, Marriage and Family in Renaissance Florence, 1282-1494," Renaissance Quarterly, forthcoming, and <http://home.uchicago.edu/~jpadgett>.

⁶ David Herlihy and Christiane Klapisch-Zuber, Tuscans and their Families: A Study of the Florentine Catasto of 1427 (New Haven, Conn.: 1985). The Herlihy-Klapisch data set is publicly available on line at www.stg.brown.edu/projects/catasto.

⁷ Archivio di Stato di Firenze [hereafter A.S.F.], Catasto 64-85 contain scribal summaries (*campioni*) of all Florentine households' tax declarations in 1427. A.S.F, Catasto 15-63 contain the original tax submissions (*portate*) of the Florentine households. The latter set of documents was consulted whenever the first set of

documents did not itemize the entire list of debtors and creditors for any given business. Very frequently these lists were so lengthy that governmental scribes took recording shortcuts in the *campioni*.

⁸ Historians have often found examples of cheating on Renaissance Florentine tax returns, but mostly these refer to *catasti* after the original one in 1427. For example, Raymond de Roover, *The Rise and Decline of the Medici Bank, 1397-1494* (New York: 1966), pp. 25, 30, 73-4, 99, 236, 312-3; William Caferro, “The silk business of Tommaso Spinelli, fifteenth-century Florentine merchant and papal banker,” *Renaissance Studies* 10 (1996), pp. 421-22. In contrast to these undoubted cases of cheating, we find that accurate reporting in the 1427 catasto was the norm. In our commercial-credit data set, out of the debts where cross-checking was possible due to both *bilanci* being coded, debtor and creditor reports matched xx% of the time. A study with similar findings is Rebecca Emigh, “Loans and Livestock: Comparing Landlords’ and Tenants’ Declarations from the Catasto of 1427,” *The Journal of European Economic History* 25 (1996): 705-23. Apparently, while Florentines eventually learned how to cheat on their taxes quite effectively, they did not do so immediately, perhaps because of the cross-checking design of the system. In any event, below we analyze existence versus nonexistence of a credit, not the reported value of the credit.

⁹ Richard Goldthwaite has brought to our attention three surviving account books, which overlap with our *catasto* summaries of them: those of Andrea Banchi, silk manufacturer; Alamanno di Jacopo Salviati, wool manufacturer; and Lorenzo di Palla Strozzi, merchant-banker.

¹⁰ The only other published study of pre-modern credit on this scale of which we are aware is Philip T. Hoffman, Gilles Postel-Vinay and Jean-Laurent Rosenthal, *Priceless Markets: The Political Economy of Credit in Paris, 1660-1870*. (Chicago: 2000). That excellent study of Parisian bankers covers a period two centuries after ours. Soon, however, there will appear a quantitative analysis of all of the outstanding notary contracts in medieval Genoa. Quentin Van Doosselaere, “From Feudal to Modern: Social Dynamics and Commercial Agreements in Medieval Genoa,” (Ph.D. dissertation, Department of Sociology, Columbia University, 2007). While not as rich cross-sectionally as our data set, the Van Doosselaere data set has more temporal depth than does ours. His study and ours are compatible in many ways.

¹¹ Paul D. McLean and John F. Padgett, “Was Florence a perfectly competitive market? Transactional evidence from the Renaissance,” *Theory and Society* 26 (1997): 209-244. The full data set, including both personal and business debts, contains 15,317 debts; the company subset analyzed here contains 4,992 debts.

¹² The export sector was comprised of the following industries: (a) Florentine international merchant-banks resident in non-Tuscan locations; (b) Merchant trading companies in Pisa; (c) Domestic banks and merchant-banks in Florence; (d) Silk manufacturers; (e) Wool manufacturers in San Martino district (high quality cloth); (f) Wool manufacturers, other districts (lower quality cloth); (g) Cloth retailers (*ritagliatori*); and (h) Cloth dyers (*tintori*). Companies were coded into industries based on their location and their primary transactional content. As demonstrated in table 3, however, some companies participated in more than one industrial activity.

¹³ The compliance of these firms with *catasto* requirements evidently was handled with some flexibility, perhaps due to the special difficulties they faced in preparing and submitting their books for examination in Florence.

¹⁴ John F. Padgett and Paul D. McLean, "Economic and Social Exchange in Renaissance Florence," Santa Fe Institute working paper 02-07-032 (<http://www.santafe.edu/research/publications/publications-working-papers.php>; 2002), pp. 45-46.

¹⁵ These numbers may appear low for what purports to be a comprehensive picture of the Florentine economy, but these reported percentages are somewhat deceptive. Two types of transactions, present in our complete data set, are systematically excluded from analysis in this article: credits and debts with most firms and artisans working outside the export-oriented economy, and credits and debts with individuals rather than with companies. Had it been possible to calculate the more correct denominator of "all debts and credits among companies in export-oriented industries," percent coverage would have been very much higher than the conservative numbers reported here.

¹⁶ Fixed-cost assets in this setting were low. Cloth manufacturing occurred in the home through the putting-out system, and hence required low assets. Warehouses or *fondaci* were more valuable assets, but even these were not so large as to require depreciation (cost-accounting being an invention of the future).

¹⁷ Federigo Melis, Aspetti della vita economica medievale: Studi nell'Archivio Datini di Prato (Siena: 1962), tavola LXIX. Raymond de Roover (1966), pp. 47, 55, 69. Richard A. Goldthwaite, Private Wealth in Renaissance Florence (Princeton, N.J.: 1968), p. 48. Tommaso Spinelli in the second half of the fifteenth century earned profit rates in silk comparable to those among merchant bankers, but his profit rates were

very high. Philip Jacks and William Caferro, The Spinelli of Florence: Fortunes of a Renaissance Merchant Family (Univerity Park, Pa.: 2001), pp. 78-79.

¹⁸ Of course they were larger and wealthier in the first place in part because of their success with credit.

[Add a correlation here?]

¹⁹ The rather astonishing total debt figure for this one branch was 158,238 florins. The corresponding total credit figure was 147,987 florins. Cosimo's companies, like others but even more so, relied on massive volumes of two-way turnover and credit flow, organized through a partnership system.

²⁰ A dramatic example of this will be discussed in quotations below from the diary of Gregorio Dati, one of the successful silk manufacturers in our data set.

²¹ Since figure 1 is based on number of debts, rather than value of debts, one could conceivably challenge this statement on the ground that the value of average woolen-cloth sales to merchant-bankers was much greater than value of such sales to *ritagliatori* (Goldthwaite, personal communication). Statement (b), however, remains true even when re-calculated on basis of total florin value. Namely, the total monetary value of Wool, San Martino credits to all merchant-banks combined (that is, international merchant-bank, plus Pisa merchant, plus domestic bank) was 40,592 florins, compared to credits of 58,392 florins to *ritagliatori*. And the total value of Wool, Other credits to all merchant-banks combined was 18,247 florins, compared to credits of 32,260 florins to *ritagliatori*. In fact, within our coding constraint of greater-than-or-equal-to 10 florins, there was not much difference in average value of woolen-cloth sales to *ritagliatori*, as compared to those made to export-oriented merchants in Pisa and to domestic bankers. There was a substantial difference in the average value of wool credits offered to *ritagliatori* compared to international merchant-bankers, however.

²² Merchant-bankers still received roughly twice as much in volume of their cloth input from wool manufacturers as from silk manufacturers. Even though wool was on the decline, and silk on the rise, the older wool industry was still much larger in 1427 than the newer silk industry.

²³ Again to measure this in terms of monetary value, rather than in terms of numbers of debts, domestic banks gave 33,662 florins of credits to *setaiuoli* in our data set; whereas they gave 27,080 florins to Wool, San Martino *lanaiuoli* and 15,682 florins to Wool, Other *lanaiuoli*. As baseline comparison, there were over two-and-a-half times more *lanaiuoli* companies than *setaiuoli* companies in 1427 (see table 1).

²⁴ These data imply economically healthy banking and merchant-banking industries in 1427. This is not inconsistent, however, with a soon-to-come recession in 1430-33 induced by the fiscal crisis caused by war with Lucca. See De Roover (1966), p. 230; Anthony Molho, Florentine Public Finances in the Early Renaissance, 1400-1433 (Cambridge, Mass.: 1971), pp. 153-63; Elio Conti, L'imposta diretta a Firenze nel Quattrocento, 1427-1494 (Roma: 1984), p. 34. The 1427 *catasto* indeed had to be redone in 1431 and 1433, because of economic stress. The high leverage rates documented in table 2 help to explain the vulnerability of an otherwise healthy economy in 1427 to recession in 1430-33, since exorbitant tax extractions needed to be paid in cash, not in credits. Any simultaneous calling in of massive numbers of credits induces a liquidity crisis. Ironically, the 1427 *catasto*, the source of these credit data, made all-too-efficient tax extraction possible, thereby inducing its own demise. In understandable reaction to fiscal expropriation, Florentine businessmen learned to lie in subsequent *catasti*.

²⁵ The Florentine wool industry suffered a 72% decline in production from 1373 to its nadir of 1437. See Franco Franceschi, Oltre il "Tumulto": I lavoratori fiorentini dell'Arte della Lana fra Tre e Quattrocento (Firenze: 1993), p. 13; Hidetoshi Hoshino, L'Arte della Lana in Firenze nel basso medioevo (Florence: 1980), pp. 227-31; Sergio Tognetti, Un'industria di lusso al servizio del grande commercio: il mercato dei drappi serici e della seta nella Firenze del Quattrocento (Florence: 2002), p. 16. Debates continue about the causes of this decline, but the argument in the literature that seems the most compelling to us is the rapid growth of English woolen-cloth production in this same period, which deprived Florence of much of its primary input – high-quality English raw wool. Hoshino (1980), p. 233; E.M. Carus-Wilson and Olive Coleman, England's Export Trade, 1275-1547 (Oxford: 1963), pp. 122, 138.

²⁶ Eventually Florentine *garbo* woolen cloth found favor in international trade with the Levant, when the Ottomans conquered Byzantium. For this among other reasons the Florentine wool industry recovered in the second half of the fifteenth century. Hoshino (1980), pp. 239-44, 268-75.

²⁷ Bruno Dini, "L'industria serica in Italia. Secc. XIII-XV," pp. 91-123 in La seta in Europa, Secc. XIII-XX, edited by S. Cavaciocchi (Florence: 1993). Franco Franceschi, "Florence and Silk in the Fifteenth Century: the Origins of a Long and Felicitous Union," Italian History and Culture 1 (1995): 3-22. Tognetti (2002), pp. 11-42.

²⁸ The percentage in 1427 of merchant-bankers of all types (international, Pisa, and domestic) who were upper-class *popolani* or magnates was 66.4%. Padgett and McLean (2002), p. 48. Conversely the percentage of *setaiuoli* who were middle- and lower-class in social background (i.e., new men, new-new men, and never admitted to Priorate) was 64.6%. Hence the economic sponsorship of silk-manufacturing by merchant-bankers through liberal credit had the social-class overtones of patron-client relations. [For comparison, the percentage of wool manufacturers in 1427 who were *popolani* or magnates was 48.8%; the percentage of *ritagliatori* or cloth retail who were *popolani* or magnates was 39.7%; and the percentage of *tintori* or cloth dyers who were *popolani* or magnates was 14.8%.] See also Tognetti (2002).

²⁹ There is a long and contentious literature about whether or not there was a “depression in the Renaissance.” One end of the debate was anchored by Robert S. Lopez and H.A. Miskimin, “The Economic Depression of the Renaissance,” *Economic History Review* 14 (1962): 408-26. They pointed to the decline of the wool industry, among other things. The other end of the debate was anchored by Carlo M. Cipolla, “Economic Depression of the Renaissance,” *Economic History Review* 14 (1962): 519-524, and by Richard A. Goldthwaite, *Wealth and the Demand for Art in Italy, 1300-1600* (Baltimore, Md.: 1993), pp. 13-39. They pointed to the rise of the silk industry, among other things. Judicious overviews of this debate are provided by Judith C. Brown, “Prosperity or Hard Times in Renaissance Italy?” *Renaissance Quarterly* 42 (1989): 761-80, and by Franco Franceschi, “The economy: work and wealth,” pp. 124-144 in *Italy in the Age of the Renaissance*, edited by John M. Najemy (Oxford: 2004). No study based on a one-year cross-section like this one can resolve a debate about economic trends. We do regard the fifteenth-century adaptation of the Florentine economy as a success story, however, in the narrow sense that the silk industry was developed to offset decline in the wool industry. Whether the successful development of silk was quantitatively enough to offset the sharp contraction of wool is a topic we leave to others to decide.

³⁰ Because of this fact, our statistical summary actually under-represents the significance of recurrent transactions funded through credit. When single unreciprocated credits (coded here as “transactional”) actually were current accounts, then “relational” would have been a better linguistic description of that. We could have cleaned up this source of measurement error in our data if content information had been recorded for more than 11% of the credits.

³¹ De Roover (1966), pp. 108-141.

³² Federigo Melis, “La grande conquista trecentesca del ‘credito di esercizio’ e la tipologia dei suoi strumenti sino al XVI secolo,” pp. 307-24 in his La Banca pisana e le origini della banca moderna, edited by M. Spallanzi (Firenze: [1972] 1987).

³³ Raymond de Roover, “The Development of Accounting prior to Luca Pacioli according to the Account Books of Medieval Merchants,” pp. 143-46 in his Business, Banking, and Economic Thought in Late Medieval and Early Modern Europe, edited by Julius Kirshner (Chicago: [1956] 1974).

³⁴ Double-entry bookkeeping could be done without bilateral format, through an elaborate system of cross-references, but it was more cumbersome to do it that way. De Roover (1974), p. 132n2.

³⁵ For documentation of the timing and rate of bilateral-format-accounting diffusion, see pp. 1539-42 in John F. Padgett and Paul D. McLean, “Organizational Invention and Elite Transformation: The Birth of Partnership Systems in Renaissance Florence,” American Journal of Sociology 111 (2006): 1463-1568. For example, a fragment of Averardo de’ Medici’s 1395 account books explicitly states they were being kept “a partita doppia” (A.S.F., Mediceo avanti il Principato [hereafter M.A.P.] 133, p. _). And a fragment of the main ledger of the partnership of Francesco and Niccolò di Simone Tornabuoni from 1425 (A.S.F., M.A.P. 84, p. 9) clearly indicates that company’s adoption of an accounts-centered organization of their books.

³⁶ In today’s Italian Civil Code (chapter 26, articles 1823-24) *il conto corrente* refers to a contract between two private parties in which no money is exchanged but rather in which reciprocal credits are recorded. We thank Alessandro Lomi for bringing this modern descendent to our attention.

³⁷ The complication is that there could be more than one account linking the same pair of persons, if multiple startup deposits or credits were made for whatever reasons. We use this fact statistically below.

³⁸ In the 1416 founding contract of a company with partners Giovanni de’ Medici, Benedetto and Larione de’ Bardi, and Matteo di Andrea Barucci (A.S.F., M.A.P. 94, p. 116), Matteo promised “to keep good accounts, as if they were money in cash.”

³⁹ De Roover (1974), pp. 121-125.

⁴⁰ There was a third transitional form of accounting in which credits were collected in the first half of the account book and debts in the second half, with elaborate cross-referencing between the two halves. De Roover (1974), pp. 132-34. This form permitted double-entry profit calculations without making current accounts the fundamental unit of the system. A good example of this intermediate form is found in the

Alberti *libri mastri* of 1348-59, published and analyzed by Richard A. Goldthwaite, Enzo Settesoldi, and Marco Spallanzani (eds.), Due libri mastri degli Alberti: una grande compagnia di Calimala, 1348-1358 (Firenze: 1995). In particular, “Accounts with other firms or outside persons were opened, for the most part, for single transactions. If later a client presented himself another time, the accountant of the Alberti preferred to open new accounts.” (p. 113) Truly on-going current accounts did exist in the 1348-59 Alberti *libri mastri*, but only for Alberti family members and for company employees (so-called *conti interni*).

⁴¹ Raymond de Roover, “Early Accounting Problems of Foreign Exchange,” The Accounting Review 19 (1944): 381-407. The Bardi correspondence of 1404-05 and the *bilanci* in the 1427 *catasto*, discussed below, more commonly used the expressions *per noi* (for us, on our account) and *per voi* (for you, on your account).

⁴² Marcel Mauss, The Gift: Forms and Functions of Exchange in Archaic Societies (New York: [1925] 1967). Alvin Gouldner, “The Norm of Reciprocity,” American Sociological Review 25 (1960): 161-78. Andrew Strathern, The Rope of Moka: Big-men and Ceremonial Exchange in Mount Hagen, New Guinea (Cambridge, England: 1971).

⁴³ Hence “A French satirist, in the fifteenth century, marveled at the ability of the Italians to do business without money. In dealing with them, he said, one never sees or touches any money; all they need to do business is paper, pen, and ink.” De Roover (1944), p. 381. Goldthwaite in his forthcoming book, The Economy of Renaissance Florence, chapter 6, discusses the use of “offset” among private Florentine individuals, as a form of “banking” outside of banks, without making any reference to anthropological social exchange. We thank Richard Goldthwaite for pre-publication access to this impressively broad and deeply researched work, the capstone of a brilliant career. We would add that “offset” (or as we would say “relational credit”) behavior was characteristic of the core of Florentine merchant banking, as well as of Florentines as private citizens. The fact that the same lending behavior was characteristic both of businesses in markets and of private people in their friendships reinforces our point about the homology between capitalist business *corrispondenti* and social-exchange.

⁴⁴ The converse of economic logic bleeding into the social domain is evident in the famous Florentine family diaries or *ricordanze*, which rhetorically mix family narrative histories and family account books.

⁴⁵ Three well documented examples of this company plasticity are these:

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- (a) On the subject of domestic banks, Sergio Tognetti usefully has corrected one of Raymond de Roover's few mistakes. Sergio Tognetti, "L'attività di banca locale di una grande compagnia fiorentina del XV secolo," Archivio Storico Italiano 155 (1997): 595-648. De Roover (1966), p. 14-15, had argued, very influentially, that Florentine banks were sharply divided into three distinct and unrelated types: *banchi di pegno* (pawnshops), *banchi a minuto* (small domestic banks), and *banchi grossi* (large international banks). De Roover himself studied only the latter. Based on a careful study of the extensive account books of the Cambini bank, Tognetti instead argued that overlap of the latter two types was substantial: international banks frequently had domestic bank branches, and domestic banks frequently were involved in lucrative international business. Our *catasto* data, based on 100% of the banks extant in 1427, strongly supports the position of Tognetti. On the other hand, Goldthwaite's study of the small Cerchi *banco a minuto* in the 1450s reinforces de Roover's original description. Richard A. Goldthwaite, "Local Banking in Renaissance Florence," The Journal of European Economic History 14 (1985): 5-55. The resolution of this confusion is simple: there were two types of 'domestic banks', one of which was involved intimately in international business, and one of which was not. Our data on credits to and from the Domestic Bank industry are dominated by the former type of bank, because those banks were much bigger and more central in the Florentine economy than were the *banchi a minuto*, in 1427 at least.
- (b) The fifteenth-century business and career of Andrea Banchi, thoroughly studied by Florence Edler de Roover, is a clear example of this industrial fluidity of Florentine firms: Florence Edler de Roover, "Andrea Banchi, Florentine Silk Manufacturer and Merchant in the Fifteenth Century," Studies in Medieval and Renaissance History 3 (1966): 223-85. Banchi without any doubt was a silk manufacturer (*setaiuolo*). Nonetheless, as Banchi went around all over Europe searching for silk-cocoon raw materials to buy and silk cloth to sell, he sometimes was paid in wool or other commodities, of which then he had to dispose (p. 271). Banchi also acted like a banker, giving loans at interest to other *setaiuoli* "competitors" and to merchant-bankers (p. 227).
- (c) The Maringhi correspondence (Richards, Gertrude (ed.), Florentine Merchants in the Age of the Medici: Letters and Documents from the Selfridge Collection of Medici Manuscripts. Cambridge,

Mass.: 1932) similarly has numerous examples of how the core woolen-cloth-for-raw-silk exchange was augmented with all sorts of other goods flowing between the parties: various types of cloth, ribbons, cotton, rugs, pepper, rhubarb, drugs, fox pelts, horses, cheese, sausage, even caviar (the latter four items seeming very close to personal gifts). Indeed in the Maringhi correspondence it seems clear that the stronger the personal relationship between the traders, the wider the range of commodities exchanged.

⁴⁶ Having only one outstanding debt at a time, of course, does not preclude that debt being part of an iterated sequence of debts, which we cannot measure with cross-sectional data. We can offer one piece of anecdotal evidence from the *catasto* records to support our strong sense that many of our so-called “transactional” credits were iterated. Parigi di Tommaso Corbinelli’s *bilanci* stand out for reporting the dates on which credits were initiated. One entry, a credit he had with the firm of Zanobi di Gherardo Corigiani & Co. for fifty-three florins, is crossed out and marked *pagato* on May 20. Subsequently, he records a credit with the same firm dated November 14. It is certain, therefore, that these reported relational-credit figures underestimate the ‘true’ rate, were it possible to include ‘repeat business’ in our operational definition of relational exchange.

⁴⁷ This is a conservative indicator in the sense that stochastically it could happen that *corrispondenti* had only one *conto corrente* outstanding between them at a given moment in time. Reciprocity would have been observed had the observation time been longer.

⁴⁸ Vespasiano da Bisticci, Renaissance Princes, Popes and Prelates. The Vespasiano memoirs: Lives of illustrious men of the XVth century (New York: [~1480] 1963). Jacob Burckhardt, The Civilization of the Renaissance in Italy (New York: [1860] 1990).

⁴⁹ Data compiled from the annual guild censuses of banks from 1340 to 1399 contained in Archivio di Stato di Firenze [hereafter A.S.F.], Arte del Cambio 11, 14.

⁵⁰ Vespasiano da Bisticci ([~1480] 1963). Lauro Martines, The Social World of the Florentine Humanists, 1390-1460 (Princeton, N.J.: 1963). Richard A. Goldthwaite, Private Wealth in Renaissance Florence (Princeton, N.J.: 1968). Francis William Kent, Household and Lineage in Renaissance Florence (Princeton, N.J.: 1977). Gene Brucker, The Civic World of Early Renaissance Florence (Princeton, N.J.: 1977). John F.

Padgett and Christopher K. Ansell, “Robust Action and the Rise of the Medici, 1400-1434,” American Journal of Sociology 98 (1993): 1259-1319. Jacks and Caferro (2001).

⁵¹ Ronald E. Weissman, Ritual Brotherhood in Renaissance Florence (New York: 1982), p. 35.

⁵² Padgett and Ansell (1993), p. 1263 [parenthesis added].

⁵³ Herlihy and Klapisch-Zuber (1985), p. 56.

⁵⁴ As arguably Francesco Datini, the “merchant of Prato”, would have liked to have done. Iris Origo, The Merchant of Prato: Daily Life in a Medieval Italian City (New York: 1957), pp. 82-83. Richard C. Trexler, Public Life in Renaissance Florence (Ithaca, N.Y.: 1980), p. 134.

⁵⁵ These data, collected over twenty years, were coded for purposes of Padgett’s larger research project, which is documenting and studying the co-evolution of political, economic, and kinship networks in Florence over two centuries, from 1300 to 1500. Currently there are 53,152 Florentines in Padgett’s ACCESS social-network database: 40,381 males and 12,771 females. Padgett gives special thanks to the people cited in acknowledgements for helping him with this very large task.

⁵⁶ Parent-child relations were inferred (a) from last and middle names, since Florentine males took the name of their father as their own middle name: as in Giovanni di Francesco, and (b) from numerous collateral sources of dating information. Douglas White kindly wrote a computer matching algorithm that assisted in this linkage task, during our collaboration at the Santa Fe Institute, for which we thank him. This task was complicated by the fact that names are often not consistent across archival sources. Currently there are 1,732 genealogically linked families in the dataset, each visually displayable into computerized family trees by the network-drawing program Pajek.

⁵⁷ Dated marriages were coded from numerous sources, the most important being the fourteen volumes of the Carta dell’Ancisa, located in the Archivio di Stato in Florence. Pierantonio dell’Ancisa was a seventeenth-century antiquarian who devoted his life to extracting and recording Florentine marriages out of extant dowry contracts. Most of the original dowry contracts, from which dell’Ancisa worked, have now been lost. There are 11,039 marriages in the current Padgett data set, estimated to comprise about 40-50% of all marriages between 1350 and 1500 of Florentines with last names. See Padgett, “Open Elite? Social Mobility, Marriage and Family, 1282-1494,” Renaissance Quarterly (forthcoming) for data details and statistical analysis of these marriages, over time.

⁵⁸ Florence was divided administratively into four quarters – Santo Spirito, Santa Croce, Santa Maria Novella, and San Giovanni. Each quarter in turn was subdivided into four *gonfaloni* or wards, making sixteen *gonfaloni* in all. Herlihy and Klapisch-Zuber (1985) also coded residence in parish, when that information was registered in the *castasto*. Unfortunately parish information was registered too sporadically in the *castasto* to be useful, there being no official tax reason to do so.

⁵⁹ Information on both neighborhood and taxable personal wealth is contained in the 1427 *castasto* itself and is publicly available online at www.stg.brown.edu/projects/catasto. In addition to integrating this online dataset into his relational dataset, Padgett has coded and computerized other Florentine tax censuses as well: namely, the 1351 *estimo*, the 1378 *prestanza*, the 1403 *prestanza*, and the 1458 *castasto*. Padgett thanks Sam Cohn for providing him microfilm copies of the 1351 *estimo* and the 1378 *prestanza*. Padgett also has integrated the 1480 *castasto* dataset of Molho and Kirshner, generously provided by Molho.

⁶⁰ All members of the Priorate or city council from 1282 to 1500 (11,312 members in all) were coded by Padgett from an early eighteenth-century copy of the *Priorista Mariani* (A.S.F., *Manoscritti* 248-252) located at the Newberry Library in Chicago – namely, *Priorista descritto a Tratte riscontro con quello delle riformazioni e con alter scritture pubbliche*. All members of the Mercanzia or commercial court from 1310 to 1500 (3,316 member in all) were coded by Astorri, McLean, Padgett, and Prajda from the *Fondo della Mercanzia* located in the Archivio di Stato in Florence. Subsequent to our independent coding efforts, the *Tratte* office-holding data coded by David Herlihy before he died became available on the web, thanks to the labors of R. Burr Litchfield and his assistants: www.stg.brown.edu/projects/tratte. From these online resources, the political offices of *Buonumini*, *Gonfalonieri*, and various guild consuls have been integrated into the relational dataset, with the valuable assistance of Xing Zhong. With coding help from Ethel Santacroce and Michael Heaney, and with computer assistance from Xing Zhong, the scrutiny votes in the elections of 1382, 1393, and 1411 also have been coded, computerized and integrated, although these data were not used in this article. All speakers in the *Consulte e Pratiche* from 1349 to 1500 are currently in the process of being coded and computerized by Katalin Prajda.

⁶¹ Scrutiny votes in 1433, secret to citizens at the time, were recorded in A.S.F., *Tratte* 359 for Tre Maggiore public offices.

⁶² Social class background, in the Florentine context, refers to the date of first entry of a patrilineal ancestor to the Priorate, and hence can be reconstructed from Priorate office-holding data, together with family

genealogies. *Popolani* were Florentine patrilineages who first were elected to the Priorate from 1282 to 1342; new men were Florentine patrilineages who first entered the Priorate from 1343 to 1377; ‘new-new men’ (our label, not theirs) were Florentine patrilineages who first entered the Priorate from 1378 to 1433. Magnates were old ‘feudal’ families specifically prohibited from holding Priorate office in 1292. Carol Lansing, *The Florentine Magnates : Lineage and Faction in a Medieval Commune* (Princeton, N.J.: 1991), pp. 239-240. Subsequently some of the branches of these families were rehabilitated through specific legislation. Christiane Klapisch-Zuber, *Retour à la cité: Les magnats de Florence, 1340-1400* (Paris: 2006), pp. 453-457. The subcategory of “ex-magnates” was created to cope with such rehabilitations. Any Florentine patrilineage not included in the above categories is here labeled “families never admitted to Priorate” (by 1433).

⁶³ Membership in the 1433-4 Medici and Albizzi political factions, previously analyzed in Padgett and Ansell (1993), were originally reconstructed and reported in Dale Kent, *The Rise of the Medici: Faction in Florence, 1426-1434* (Oxford: 1978), pp. 352-357.

⁶⁴ “Dichotomized credits” simply means collapsing the number of observed credits between companies into the binary “gives credit or not.” Zero-inflated Poisson regression would have been the statistical procedure had dichotomization not been employed, but unfortunately that approach suffered from erratic convergence problems, at least within the STATA computational package we used, probably because multiple credits often were too truncated to be distributed as Poisson.

⁶⁵ In a previous version of this paper, we further subdivided “asymmetric credits” into “single asymmetric” (or transactional) and “multiple asymmetric” (or multiple), but unfortunately the latter subtype in many markets had too few cases to sustain reliable statistical inquiry.

⁶⁶ In particular, * = ($p \leq .05$); ** = ($p \leq .01$); *** = ($p \leq .001$). The more the asterisks, the greater the statistical certainty.

⁶⁷ This computed like an expected count in a contingency table – namely, (total number of dichotomized credits of giving company) * (total number of dichotomized debits of receiving company) / (total number of dichotomized credits in the entire market interface that the giver and receiver are operating within).

“Market interface” is the intersection of the set of companies in the industry of the giver and set of

companies in the industry of the receiver. Given the eight industries analyzed here, there are 64 market interfaces, or more simply “markets”, within the Florentine export-oriented economy.

⁶⁸ “More than random” refers to fact that randomly one will find one out of twenty variables statistically significant at $p < .05$, even if nothing is going on. An argument can be made that we should also have rejected the “Between partnership system” variable on this ground, but here the one significant coefficient we found seems very substantively meaningful. Plus that was significant at the very strong $p < .001$ level.

⁶⁹ In an earlier version of this paper and in Padgett and McLean (2006), p. 1513, we reported that social-class endogamy was statistically significant for domestic-banking partnerships, for all three social classes. This social-class-endogamy effect remains true for partnership (namely for how banks were formed), even though it is not true for commercial credit (namely for what those banks subsequently did).

⁷⁰ Again to compare with the findings in Padgett and McLean (2006), p. 1513, in-law effects on partnership within (not across) domestic-banking companies was both statistically significant and common.

⁷¹ This conservative technique makes it more difficult to detect statistical significance by correcting/increasing observed coefficients’ estimated standard errors.

⁷² In particular on the debate between Goldthwaite (1968) and F.W. Kent (1977).

⁷³ For what it’s worth, the coefficients for nuclear in-law relations were statistically significant six times. Even though not common, marrying the sister of another company’s partner definitely affected the two companies’ lending behavior toward each other when that occurred.

⁷⁴ “Almost” refers to the relative paucity of significant family coefficients in the markets involving *ritagliatori* – namely, between *ritagliatori* and wool, between *ritagliatori* and silk, and among *ritagliatori*. Indeed almost none of our social-context variables are significant in these relatively “impersonal” markets.

⁷⁵ See social-class data in footnote 28.

⁷⁶ Lorenz-curve analyses of income inequality among Florentine merchant-bankers, relative to the rest of the population are presented in Padgett and McLean (2006), p. 1536. These analyses show that Florentine merchant-bankers reached their peak of relative wealth in 1427, compared to 1351, 1378, 1403, 1458, and 1480.

⁷⁷ Samuel K. Cohn, *The Laboring Classes in Renaissance Florence* (New York: 1980). D.V. Kent and F.W. Kent. *Neighbours and Neighbourhood in Renaissance Florence: The District of the Red Lion in the*

Fifteenth Century (Locust Valley, N.Y.: 1981). Christiane Klapisch-Zuber, “Kin, Friends and Neighbors: The Urban Territory of a Merchant Family in 1400,” pp. 68-93 in her Women, Family, and Ritual in Renaissance Italy (Chicago: 1985). Francis William Kent, “Ties of Neighborhood and Patronage in Quattrocento Florence,” pp. 79-98 in Patronage, Art, and Society in Renaissance Italy, edited by F.W. Kent and Patricia Simons (Oxford: 1987). Francis William Kent, Bartolomeo Cederni and his friends: Letters to an Obscure Florentine (Firenze: 1991). Nicholas A. Eckstein, The District of the Green Dragon: Neighborhood Life and Social Change in Renaissance Florence (Florence: 1995).

⁷⁸ Gene A. Brucker, Florentine Politics and Society, 1343-1378 (Princeton, N.J.: 1962), pp. 126, 131. Dale Kent (1978), pp. 68, 178.

⁷⁹ Cf. Klapisch-Zuber (1985), p. 89.

⁸⁰ Padgett (2008), pp. 18-19.

⁸¹ For the nine-person Priorate or city council, elected tours of duty were for two months, during which time councilors physically moved into the *Palazzo Vecchio* or city hall, leaving their business to be run by trusted others. After electing a large number of eligibles through an oligarchic voting procedure called the scrutiny, successful name-tags were placed into a monastically controlled bag, from which actual office-holders were selected randomly every two months. Candidates did not know that they had been selected for city council until their name was drawn. The random component of this two-staged voting procedure was self-consciously designed to minimize self-reproducing control of the state by small factions. For the evolution of this republican voting procedure, see John M. Najemy, Corporatism and Consensus in Florentine Electoral Politics, 1280-1400 (Chapel Hill, N.C.: 1982), and Nicolai Rubinstein, The Government of Florence under the Medici, 1434 to 1494 (Oxford : 1966).

⁸² Gene Brucker (ed.), Two Memoirs of Renaissance Florence: The Diaries of Buonaccorso Pitti and Gregorio Dati (New York: 1967), pp. 125-6. Najemy (1982), pp. 299-300, 302.

⁸³ In his *ricordanze* or diary, Gregorio Dati noted: “I was in debt for over 3,000 florins. That same year 1412, my name was drawn to be Standard-bearer of Justice [i.e., chairman of city council], and I served in that office. This was the beginning of my recovery.” Brucker (1967), pp. 139-140.

⁸⁴ L. F. Marks, “The Financial Oligarchy in Florence under Lorenzo,” pp. 123-147 in Italian Renaissance Studies, edited by E.F. Jacob (London: 1960). Also Molho (1971), pp. 166-182.

⁸⁵ Anthony Molho, "Politics and the Ruling Class in early Renaissance Florence," Nuova Rivista Storica 52 (1968): 401-20; Ronald G. Witt, "Florentine Politics and the Ruling Class, 1382-1407," Journal of Medieval and Renaissance Studies 6 (1976): 243-67; Najemy (1982), pp. 263-76; Padgett and Ansell (1993), p. 1261; Padgett (2008), pp. 9, 47.

⁸⁶ Molho (1971), pp. 166-182; Anthony Molho, "Cosimo de' Medici: Pater Patriae or Padrino?" Stanford Italian Review 1 (1979): 5-33; Padgett and Ansell (1993), pp. 1276-7, 1305-6.

⁸⁷ See Padgett and McLean (2006) and references therein.

⁸⁸ The voluminous correspondence of the Milan branch of the Datini system, published by Luciana Frangioni, offers copious evidence of this coordinated cooperation. See Luciana Frangioni (ed.), Milano fine trecento: il carteggio Milanese dell'Archivio Datini di Prato (Firenze, 1994).

⁸⁹ Padgett and McLean (2006), pp. 1494-1522.

⁹⁰ Cohn (1980), pp. 52 and 118-23, has shown that greater rates of intermarriage across neighborhoods at the level of the elite was offset by decreased rates of intermarriage across neighborhoods at the level of working classes.

⁹¹ Percolation models in physics and biology exhibit sudden phase transitions in both aggregate flow and in autocatalytic self-organization once the density of ties in random networks reaches a threshold critical value, which induces "giant components." See for example Stuart A. Kauffman, The Origins of Order: Self-organization and Selection in Evolution (New York, 1993).

⁹² Cohn (1980), Najemy (1982).

⁹³ Padgett and McLean (2006), pp. 1474-85.

⁹⁴ Padgett and McLean (2006), pp. 1535-39.

⁹⁵ The public certification aspect of office-holding is clear from fact that Priorate memberships were statistically significant, even with the simultaneous inclusion of scrutiny votes in the regressions. Although there is a slight caveat to this conclusion due the 6-year slippage in dates, scrutiny votes for the Priorate are a better direct and more precise measure of 'reputation' of candidate in the minds of the voters. Scrutiny votes were secret to Florentines, however, whereas the random drawing of a candidate's name from the pouch containing the name-tags of the elected announced *onore* publicly.

⁹⁶ Marvin B. Becker, “The Renaissance Territorial State and Civic Perspective,” pp. 201-250 in his Florence in Transition, volume 2 (Baltimore, Md.: 1968). Najemy (1982), pp. 262-300.

⁹⁷ In the words of an anonymous fourteenth-century businessman: “One should not be ambitious or aspire to fame only in order to show off, but only because he leads a judicious life. A good name is always derived when one leads a moderate life, for it is a precious and praiseworthy thing. This kind of life often aids and defends a man in circumstances in which ordinarily he would not be appreciated. Man does not have a clearer or dearer friend than his good name. For, whoever enjoys a good reputation cannot help but be good, just, and upright. All the things on this earth under the sky are here for whoever enjoys this condition of life.” (Molho 1969, pp. 54-55)

⁹⁸ Gene Brucker (ed.), Two Memoirs of Renaissance Florence” The Diaries of Buonaccorso and Gregorio Dati (New York: 1967), p. 130.

⁹⁹ Brucker (1967), pp. 139-140.

¹⁰⁰ A.S.F., Catasto 66, pp. 421ff.

¹⁰¹ Because of this focus on reciprocal *corrispondenti*, the extensive economic-theory literature on asymmetric principals and agents is not really germane. Were we to examine letters between employers/partners and employees/factors, or between senior home-office partners and overseas branch managers, that literature would be more relevant.

¹⁰² Luciana Frangioni (ed.), Milano fine trecento: il carteggio Milanese dell’Archivio Datini di Prato (Firenze: 1994).

¹⁰³ A.S.F., Mediceo avanti il Principato [hereafter M.A.P.] 84, 87, 94. Andrea Bardi, like Goro Dati, was still actively in business in our 1427 data set.

¹⁰⁴ For Florentine examples see Padgett Ansell (1983) on the “robust action” of Cosimo de’ Medici; Paul D. McLean, The Art of the Network (Durham, N.C.: 2007), especially pp. 1-34; and Ronald Weissman, “The Importance of Being Ambiguous: Social Relations, Individualism, and Identity in Renaissance Florence,” pp. 269-80 in Urban Life in the Renaissance, edited by Susan Zimmerman and Ronald Weissman (Dover, Del.: 1989).

¹⁰⁵ Ronald Weissman (1982), pp. 1-42 on “Judas the Florentine,” cogently discusses the unavoidable dark side of the credit behavior analyzed here. We in no way wish to imply by our emphasis on the overall

success of the Florentine commercial credit system that lying and cheating were not pervasive. They were just not common enough to destroy the system.

¹⁰⁶ For a formal model that demonstrates analytically the possible coexistence of self-reproducing ‘life’ with many ‘parasites’, see John F. Padgett, Doowan Lee, and Nick Collier, “Economic Production as Chemistry,” *Industrial and Corporate Change* 12 (2003): 843-78. That model even demonstrates that tolerance and volume of parasites are correlated with complexity in evolution.

¹⁰⁷ Frangioni (1994), letter #657: Manno di ser Iacomo & co in Milan to the Datini company in Barcelona, March 24, 1397. This and all subsequent translations are by McLean.

¹⁰⁸ A.S.F., M.A.P. 87, p. 341r: Andrea Bardi to the Orlandini in Bruges, April 6, 1405. It is notable here that prohibited trade is specified more in terms of people than in terms of types of transactions. See also Andrea Bardi’s letter to Domenico and Poldeo Pazzi in Paris, March 27, 1405 (A.S.F., M.A.P. 87, 352r), where he instructs them to honor bills of exchange for any amount with the Tornabuoni of Bruges, the Medici of Venice, and the Bardi companies of Barcelona and Florence, but imposes limits of 500 or 1000 florins on exchanges involving certain other companies: the Sacchi, Antonio Grisolfi, Zanobi di Taddeo Gaddi of Venice, Guglielmo del Pontico of Lucca, and so on. Instructions written in 1441 for Gerozzo de’ Pilli, the Medici’s partner in London (A.S.F., M.A.P. 94, p. 214ff.) are more detailed and include a longer list of *corrispondenti*, but otherwise remain substantially the same as those written around 1400. These instructions are described in detail in de Roover (1966, p. 91).

¹⁰⁹ The expression “pay it and post it to our account” (*pagate e ponete a nostro conto*) became a common feature of business correspondence in the 1390s (Frangioni 1994, pp. xx). The earliest example we found in Datini’s Milan correspondence appears in late 1383 (Frangioni 1994, letter #334). A variant of the expression appears in a letter of March, 1387 from Lemo and Ghiselo and partners of Milan to the Datini company in Pisa (Frangioni, 1994, letter #137), the first occasion we find between companies not tied by a shared partner.

¹¹⁰ Florence Edler, *A Glossary of Medieval Terms of Business* (Cambridge, Mass., 1934), p. 34.

¹¹¹ A.S.F., M.A.P. 87, p. 339r.

¹¹² Frangioni (1994), letter #751: Giovanni Borromei to Datini and his company in Barcelona, April 1400.

¹¹³ Frangioni (1994), letter #606: Manno di ser Iacomo & co in Milan to the Datini company in Barcelona, December 16, 1396.

¹¹⁴ A.S.F., M.A.P. 87, p. 353r: Francesco Bardi to Francesco Mannini in Bruges, June 5, 1405.

¹¹⁵ For recent scholarship on the topic of usury, see for example Odd Langholm, The Legacy of Scholasticism in Economic Thought: Antecedents of Choice and Power (Cambridge: 1998); Joel Kaye, Economy and Nature in the Fourteenth Century: Money, Market Exchange, and the Emergence of Scientific Thought (Cambridge: 1998); Giacomo Todeschini, I mercanti e il tempo: La società cristiana e il circolo virtuoso della ricchezza fra Medioevo ed età moderna (Bologna: 2002); Giovanni Ceccarelli, Il gioco e il peccato: economia e rischio nel tardo Medioevo (Bologna: 2003); Lawrin D. Armstrong, Usury and Public Debt in Early Renaissance Florence: Lorenzo Ridolfi on the Monte Comune (Toronto: 2003); Giacomo Todeschini, “La riflessione etica sulle attività economiche,” in Roberto Greci, Giuliano Pinto, and Giacomo Todeschini (eds.), Economie urbane ed etica economia nell’Italia medievale (Laterza: 2005); and Diego Quaglioni, Giacomo Todeschini and Gian Maria Varanini, Credito e usura fra teologia, diritto e amministrazione (Rome: 2005). On guidance pamphlets, see Langholm (1998), p. 10, and Todeschini (2005), p. 184. While religious considerations are quite helpful for understanding the *mentalité* of Florentine businessmen, they are not as useful for explaining the evolution of Florentine business practices *per se*.

¹¹⁶ See Todeschini (2005), p. 185; Langholm (1998), pp. 61ff. We also find other similar sorts of language, such as when Andrea Bardi insisted that a transaction be undertaken *liberamente* or that settlements be agreed to with *gran volontà*. A.S.F., M.A.P. 87, p. 335r. Also perhaps the idea that all parties be “happy and in agreement” (*contenti e d’accordo*) about the way a deal got settled. A.S.F., M.A.P. 87, p. 342v. Recently scholars such as Ceccarelli and Todeschini have taken to using the terms “lexicons” and “languages” to explore the ways in which theological debates informed economic practice and vice versa.

¹¹⁷ See McLean (2007), particularly chapter 4.

¹¹⁸ Leon Battista Alberti in his Della Familia, [~1433], book IV, offers an extended debate on the various contemporary meanings of the idea of *Amicitia*. Della Familia is translated and published in its entirety in Guido A. Guarino, The Albertis of Florence: Leon Battista Alberti’s Della Familia (Lewisburg, Pa.: 1971).

¹¹⁹ As Ronald Weissman (1982, p. 40) puts it: “It is useful to remember that although personal relations in the Renaissance were often accompanied by demonstrations of strong affection, it was the perception of moral obligation, not the modern criterion of psychological intimacy, that distinguished relations between friends from relations between strangers.”

¹²⁰ Alberti ([~1433] 1971), pp. 263-73.

¹²¹ Alberti ([~1433] 1971), p. 253.

¹²² Richards (1932), p. 85: Giovanni Maringhi to ser Niccolo Michelozzi, May 4, 1501.

¹²³ A.S.F., M.A.P. 87, p. 339r: Andrea de’ Bardi to the Orlandini company in Bruges, March 26, 1405). In practically identical terms, Bardi also wrote to the Baldesi company in Bruges that “we have wanted, and still want, to settle this dispute as one must do between friends.” (A.S.F., M.A.P. 87, p. 346r: July 6, 1405). And several times in the same letter he claimed to have acted toward them “with love and faith, as one must do between friends.” According to another letter he wrote the same day to the Orlandini (A.S.F., M.A.P. 87, p. 347v), he believed that between friends “one may be more forthright in speech,” and remarked that “we hold it dear that you have spoken from your heart at length.”

¹²⁴ Frangioni (1994), appendix, letter #8: Francesco Datini to Tieri di Benci in Avignon, August 4, 1392.

¹²⁵ See Alberti ([~1433] 1971); McLean (2007), chapter 3; and Albert Rabil, Knowledge, Goodness and Power: The Debate over Nobility among Quattrocento Italian Humanists (Binghamton, N.Y., 1991)

¹²⁶ A.S.F., M.A.P. 87, pp. 343r and 343v. Honor, he noted elsewhere, required that *corrispondenti* look out for each other’s salvation (*salvezza*) as well as their own. (A.S.F., M.A.P. 87, p. 345v).

¹²⁷ [*need citation here*]

¹²⁸ Frangioni (1994), appendix, letter #8: Francesco Datini to Tieri di Benci in Avignon, August 4, 1392.

¹²⁹ Frangioni (1994), appendix, #18: Tommaso di ser Giovanni to Lorenzo di Tingo, May 28, 1400.

¹³⁰ A.S.F., M.A.P. 87, p. 337r: letter of October 1, 1404 from Andrea de’ Bardi to Orlandini company in Bruges. Honor typically communicated both an obligatory, internalized commitment and an expectation of assistance by others - a duality succinctly expressed by Bardi in a letter to Simone and Iacopo Covoni in the fall of 1404 (A.S.F., M.A.P. 87, p. 337v). Here he both expressed his obligation to them (*in su quello vi si scrisse esserne voi obrighato*), and urged them to honor their obligation to him: “as long as we both shall live I am certain you will do your duty” (*che quando viveremo sono certo farete il dovere*).

¹³¹ A.S.F., M.A.P., 87, p. 340r: Andrea de' Bardi to Lorenzo di Dinozzo & co in Avignon, April 4, 1405.

¹³² See Jacks and Caferro (2001), pp. 75-6 and 303-4. On the notion of *fama* in general, see Thelma Fenster and Daniel Lord Smail (eds.), Fama: The Politics of Talk and Reputation in Medieval Europe (Ithaca, N.Y., 2003).

¹³³ Weissman (1982), p. 28.

¹³⁴ See McLean (2007), chapter 6.

¹³⁵ Federigo Melis (ed.), Documenti per la storia economia dei secoli XII-XVI (Firenze: 1972), document #10: October 1395.

¹³⁶ For useful but incomplete steps in this direction, see Neil J. Smelser and Richard Swedberg (eds.), The Handbook of Economic Sociology (New York: 1994, 2005), James E. Rauch and Alessandra Casella (eds.), Networks and Markets (New York: 2001), and the many works cited in both of these surveys.

Table 1. CENSUS OF 1427 COMPANIES/PARTNERSHIPS IN MAJOR INDUSTRIES

	High Certainty Companies			Low Certainty Companies		
	Florence	Overseas	Old	Florence	Overseas	Old
International Merchant-Banks	0	45	7	0	10	2
Pisa Merchant trading companies	0	20	1	0	1	0
Domestic banks & Merchant-Banks	53	0	10	12	0	4
Cloth Retail	32	3	5	4	1	2
Silk Production	38	8	4	11	1	1
Wool Production						
San Martino	36	5	10	2	0	0
Via Maggio	27	0	2	1	0	0
San Pancrazio	8	0	0	0	0	0
San Pier Scheraggio	9	0	1	0	0	0
Unclear Location	34	4	9	21	4	4
All Wool Firms	114	9	22	24	4	4
Cloth Dyers	18	0	3	7	0	2
Other Industries (partial)						
Fur	6	0	0	4	0	0
Gold	3	0	0	5	0	0
Linaioli	6	0	0	10	1	0
Merciai	6	1	0	5	1	1
Rigattieri	7	1	0	4	0	1
Speziali	11	0	2	1	0	0
Miscellaneous	6	1	5	6	0	1
Unknown Industry	9	9	10	110	20	15
Totals	312	94	69	203	39	33

Table 2. **CAPITAL STRUCTURE OF 1427 CATASTO COMPANIES**A. Average Capital/Corpo Size of Companies, in florins:

	n	corpo1= <i>corpo</i> only	corpo2= corpo1 + profit + <i>sopraccorpo</i>	corpo3= corpo2 + inventory
Merchant Banks (Int'l. + Pisa)	23	5080	5751	6973
Domestic Merchant Banks	24	6375	9941	10119
Cloth Retail	21	4305	5348	7102
Silk Manufacturing	25	3568	3928	4851
Wool Manufacturing (San Martino)	30	3239	3654	4373
Wool Manufacturing (other)	24	2030	2233	2517
Cloth Dyeing	8	1095	1195	1595

B. Average Leverage = Σ_i (total debt) / Σ_i (capital):

	n	corpo1= <i>corpo</i> only	corpo2= corpo1 + profit + <i>sopraccorpo</i>	corpo3= corpo2 + inventory
Merchant Banks (Int'l. + Pisa)	12	5.42	4.98	3.62
Domestic Merchant Banks	14	4.93	3.29	3.20
Cloth Retail	14	2.20	1.66	1.15
Silk Manufacturing	19	0.94	0.86	0.66
Wool Manufacturing (San Martino)	23	1.17	1.04	0.84
Wool Manufacturing (other)	16	0.54	0.48	0.41
Cloth Dyeing	7	2.27	2.03	1.44

Table 3. **SUBSTANTIVE CONTENT OF CREDITS** (when known)A. Among Merchant-Banks and Banks:

Relational Credits:	Transactional Credits:	Specialization of Credits: (when two contents known)
70 Accounts	17 Accounts	51 Different categories
17 Banking activities	16 Banking activities	21 Similar: Accounts
19 Merchandise	6 Merchandise	45 Similar: Other categories
19 Cloth	6 Cloth	
16 Raw materials	3 Raw materials	
5 Other	4 Other	

B. Between Merchant-Banks and Others:

Relational Credits:	Transactional Credits:	Specialization of Credits: (when two contents known)
17 Accounts	10 Accounts	5 Different categories
8 Banking activities	27 Banking activities	7 Similar: Accounts
3 Merchandise	4 Merchandise	19 Similar: Other categories
45 Cloth	38 Cloth	
28 Raw materials	52 Raw materials	
0 Other	3 Other	

C. Among Others:

Relational Credits:	Transactional Credits:	Specialization of Credits: (when two contents known)
0 Accounts	2 Accounts	0 Different categories
3 Banking activities	4 Banking activities	0 Similar: Accounts
0 Merchandise	1 Merchandise	2 Similar: Other categories
15 Cloth	34 Cloth	
1 Raw materials	14 Raw materials	
0 Other	4 Other	

N.B.: “Merchant-Banks” = Florentine merchant-banks resident abroad, Florentine merchant trading companies resident in Pisa, Florentine merchant-banks resident in Florence, and domestic *cambio* banks resident in Florence.

“Others” = Cloth Retailers, Silk Producers, Wool Producers: San Martino, Wool Producers: Other conventi, and Cloth Dyers

“Specialization” = contents in similar or different categories, when two contents known.

Table 4. **VOLUME OF CREDITS: RELATIONS VS. TRANSACTIONS**A. Reciprocal Credits:

creditor companies:	debtor companies:		Total
	Banks	All Other Companies	
Banks	427/953 = .448	117/749 = .156	544/1702 = .320
All Other Companies	115/662 = .174	232/1959 = .118	347/2621 = .132
Total	542/1615 = .336	349/2708 = .129	891/4323 = .206

B. Multiple Credits:

creditor companies:	debtor companies:		Total
	Banks	All Other Companies	
Banks	474/953 = .497	169/749 = .226	643/1702 = .378
All Other Companies	160/662 = .242	400/1959 = .204	560/2621 = .214
Total	634/1615 = .393	569/2708 = .210	1203/4323 = .278

C. Relational Credits:

creditor companies:	debtor companies:		Total
	Banks	All Other Companies	
Banks	601/953 = .631	234/749 = .312	835/1702 = .491
All Other Companies	230/662 = .347	562/1959 = .287	792/2621 = .302
Total	831/1615 = .514	796/2708 = .294	1627/4323 = .376

N.B.: C is the union of A and B.

“Banks” equals {Int’l. m-banks, Pisa merchants, and Domestic m-b and banks}.

“All Other Companies” equals {Cloth Retail, Silk Producers, Wool producers:
both San Martino and other *conventi*, and Dyers}.

Table 6. Volume of “Personal” credits for all merchant-banking markets, by clusters of significant coefficients

Percentage merchant-banking credits with independent variables not equal to zero in significant coefficients listed in table 5:

	Partnership- system transfers:	Family embedding:	Neighborhood embedding:	Political embedding:	All together:
A. All credits					
Domestic Merch. Banking	3 / 260 = .012	29 / 260 = .112	79 / 260 = .304	232 / 260 = .892	239 / 260 = .919
Dom. M-B / Int'l. M-B	55 / 339 = .162	39 / 339 = .115	147 / 339 = .434	261 / 339 = .770	287 / 339 = .847
Dom. M-B / Wool	0 / 336 = .000	0 / 336 = .000	80 / 336 = .238	0 / 336 = .000	80 / 336 = .238
Dom. M-B / Silk	0 / 258 = .000	3 / 258 = .012	53 / 258 = .205	0 / 258 = .000	55 / 258 = .213
International Merch. Bk.	35 / 294 = .119	91 / 294 = .310	0 / 294 = .000	0 / 294 = .000	110 / 294 = .374
Int'l. M-B / Wool	0 / 359 = .000	27 / 359 = .075	0 / 359 = .000	10 / 359 = .028	36 / 359 = .100
Int'l. M-B / Silk	0 / 166 = .000	9 / 166 = .054	0 / 166 = .000	13 / 166 = .078	19 / 166 = .114
B. Reciprocal credits (single + multiple)					
Domestic Merch. Banking	63 / 107 = .589	2 / 107 = .019	33 / 107 = .308	0 / 107 = .000	72 / 107 = .673
Dom. M-B / Int'l. M-B	49 / 158 = .310	39 / 158 = .247	95 / 158 = .601	130 / 158 = .823	143 / 158 = .905
Dom. M-B / Wool	15 / 52 = .288	2 / 52 = .038	27 / 52 = .519	50 / 52 = .962	50 / 52 = .962
Dom. M-B / Silk	0 / 60 = .000	2 / 60 = .033	19 / 60 = .317	52 / 60 = .867	56 / 60 = .933
International Merch. Bk.	32 / 134 = .239	56 / 134 = .418	0 / 134 = .000	23 / 134 = .172	73 / 134 = .545
Int'l. M-B / Wool	0 / 41 = .000	17 / 41 = .415	0 / 41 = .000	0 / 41 = .000	17 / 41 = .415
Int'l. M-B / Silk	0 / 30 = .000	2 / 30 = .067	0 / 30 = .000	2 / 30 = .067	2 / 30 = .067

	Partnership- system transfers:	Family embedding:	Neighborhood embedding:	Political embedding:	All together:
C. Non-reciprocal credits (single + multiple)					
Domestic Merch. Banking	0 / 153 = .000	16 / 153 = .105	46 / 153 = .301	132 / 153 = .863	137 / 153 = .895
Dom. M-B / Int'l. M-B	0 / 181 = .000	0 / 181 = .000	52 / 181 = .287	118 / 181 = .652	137 / 181 = .757
Dom. M-B / Wool	0 / 284 = .000	0 / 284 = .000	0 / 284 = .000	0 / 284 = .000	0 / 284 = .000
Dom. M-B / Silk	0 / 198 = .000	3 / 198 = .015	0 / 198 = .000	6 / 198 = .030	9 / 198 = .045
International Merch. Bk.	0 / 160 = .000	0 / 160 = .000	0 / 160 = .000	0 / 160 = .000	0 / 160 = .000
Int'l. M-B / Wool	0 / 318 = .000	0 / 318 = .000	68 / 318 = .214	10 / 318 = .031	76 / 318 = .239
Int'l. M-B / Silk	4 / 136 = .029	1 / 136 = .007	0 / 136 = .000	11 / 136 = .081	15 / 136 = .110

N.B.: “Partnership-system transfers” includes samepart & between_part_sys > 0, when significant.

“Family embedding” includes samenuclnp & samefamnn & sameinlaw & sametado > 0, when significant.

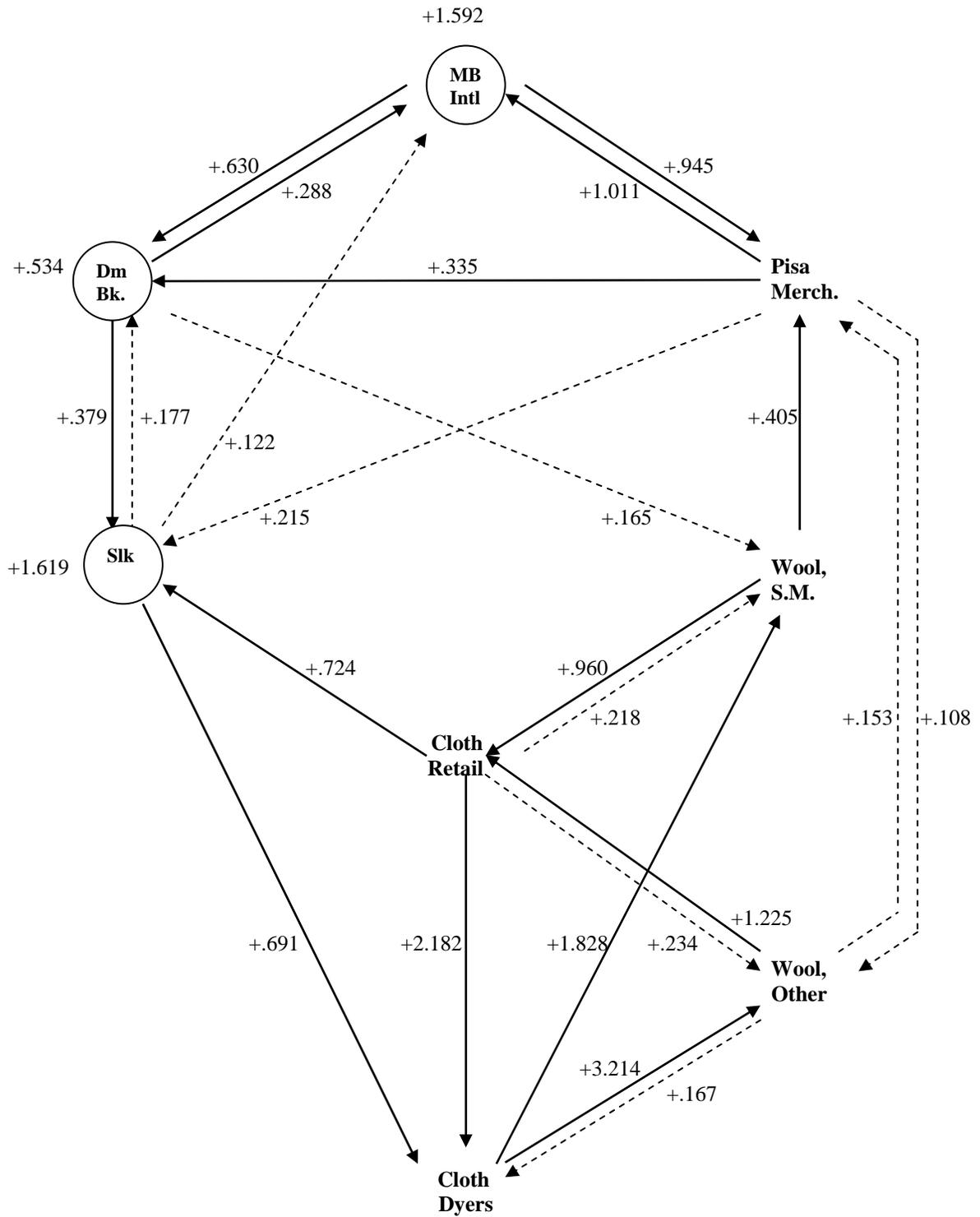
“Neighborhood embedding” includes samegonf > 0, when significant.

“Political embedding” includes cdprior_pct_lt427 & sammedici & samolig > 0, when significant. [Not scrutiny]

“All together” includes samepart & between_partsys & samenuclnp & samefamnn & sameinlaw & sametado & samegonf & cdprior_pct_lt427 & sammedici & samolig > 0, when significant.

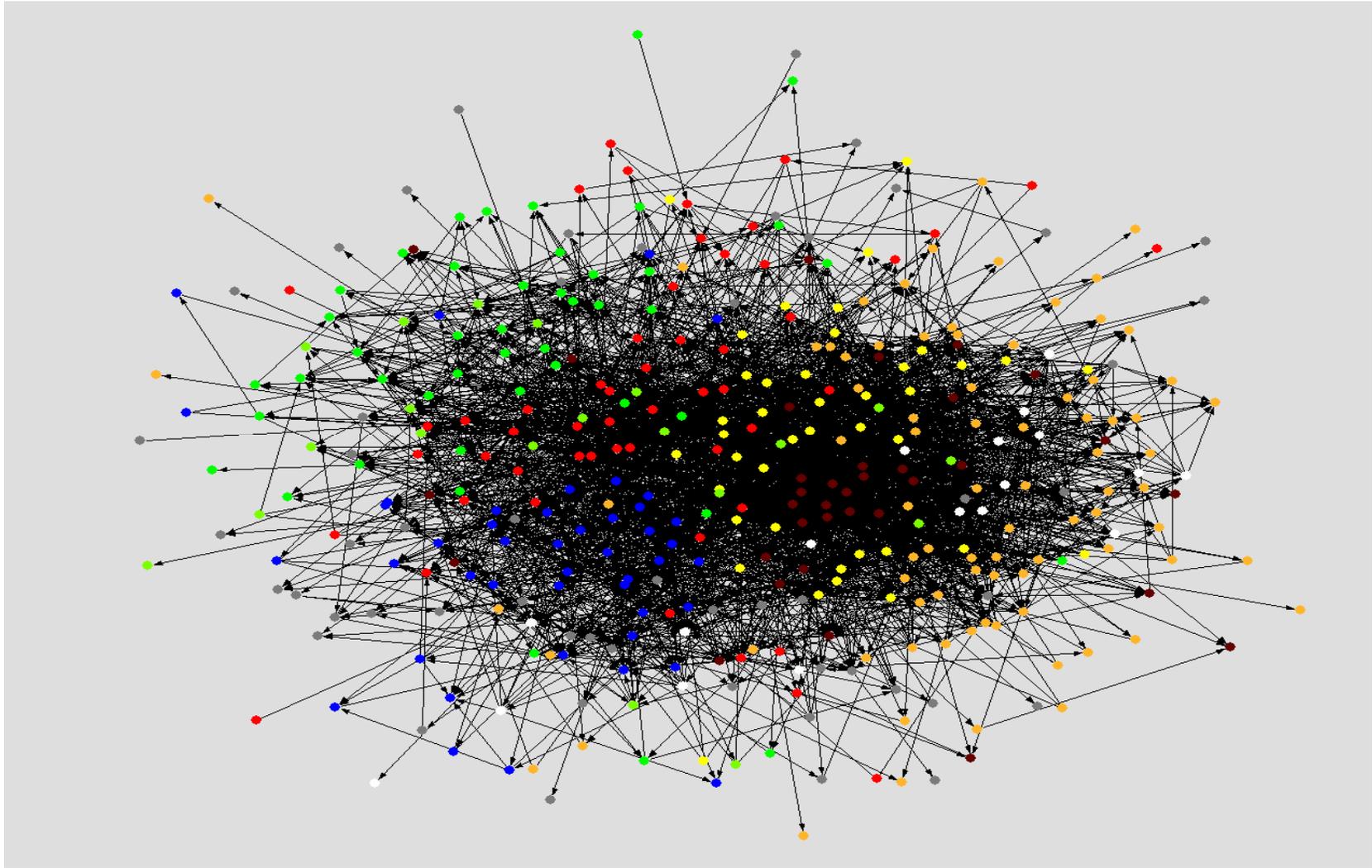
.000 entries indicate lack of statistical significance, in the first place.

Figure 1. **INPUT-OUTPUT VOLUME OF CREDITS BETWEEN INDUSTRIES:**
 shown if $[(\text{Observed Credits} - \text{Expected Credits}) / (\text{Expected Credits})] > .10$



N.B.: $[(O-E) / E]$ controls for raw volume of credit effects. Dotted lines show weaker ratios.

On-line Appendix: Figure 1. Pajek network visualization of 1427 commercial-credit data



Color code for figure 1:

Blue dots = Silk manufacturing companies

Yellow dots = Wool manufacturing companies, San Martino convento (higher quality)

Burnt yellow dots = Wool manufacturing companies other conventi (lower quality)

Brown dots = Cloth retail (*ritagliatori*) companies

White dots = Cloth dyeing (*tintori*) companies

Red dots = Domestic banks and merchant-banks, resident in Florence

Green dots = International Florentine merchant-banks, resident abroad

Light green dots = International Florentine merchant companies, resident in Pisa

Grey dots = Companies with unclear industrial affiliation

On-line Appendix: PREDICTING COMMERCIAL CREDIT: Logit Regressions

Dependent variable = dichotomized company credits (i.e., credits received or not)

A. Among Domestic Merchant-banker companies:

Independent variables:	all credit relations	= reciprocal credits	+ asymmetric credits (mult.+single)
<u>Partnership system:</u>			
Within system (shared partner)	5.291 *	10.831 **	[dropped]
Between systems	.302	1.110 ***	-.079
<u>Kinship:</u>			
Nuclear family (excl. self)	4.268 *	-1.717	5.182 **
Patrilineal family (excl. nuclear)	1.974 **	-2.941	2.148 **
In-law nuclear family	7.693 **	8.535 **	4.815
In-law parentado family	-.486	[dropped]	.827
<u>Neighborhood:</u>			
Same Gonfalone	1.486 ***	1.801 **	1.075 **
Same Quarter (excl. gonfalone)	.068	-.956	.353
<u>Social Class:</u>			
Popolani + Magnates	-.288	-.395	-.169
New men + New-new men	-.903	-3.042 ^(*)	-.255
Families not admitted to priorate	-.734	[dropped]	-.283
<u>Political Offices: (% first)</u>			
Priorate (pre-1427)	1.471 ***	1.232	1.861 ***
Buonuomini (pre-1427)	-.935*	.023	-1.401*
Gonfalonieri (pre-1427)	-.349	-.837	.260
Guild consuls (pre-1427)	.071	.570	-.455
Mercanzia (pre-1427)	-.286	1.043	-1.289
<u>Scrutiny votes (1433):</u>			
Max cred ptrn. + max debt ptrn.	.00133	.00202	.00096
<u>Political Factions:</u>			
Medici party (1433)	1.806 ^(*)	1.934	.857
Albizzi party (1433)	1.063	2.804	-5.591

Appendix: PREDICTING COMMERCIAL CREDIT: Logit Regressions

Dependent variable = dichotomized company credits (i.e., credits received or not)

A. Among Domestic Merchant-banker companies:

Independent variables:	all credit relations	= reciprocal credits	+ asymmetric credits (mult.+single)
<u>Statistical controls:</u>			
Expected credits, firm size only	4.922***	3.007***	3.568***
Creditor's accounts seen	.450	.891*	.362
Debtor's accounts seen	.506 ^(*)	.724	.619*
Creditor partners' wealth	2.95e-6	-2.88e-6	5.74e-6
Debtor partners' wealth	2.28e-6	3.87e-6	3.18e-6
<u>Constant:</u>	-4.994***	-7.200***	-5.091***
Number of observations (dyads)	2,756	2,756	2,756
Number of non-zero observations	186	62	124
Log likelihood	-502.8	-210.6	-419.7
Wald chi-square	913.1	566.5	317.7
Number of parameters	24	22	23
Probability > chi-square	.0000	.0000	.0000
Pseudo R-squared	.262	.290	.170

N.B: Cluster option in Stata used to control for unobserved company heterogeneity.

Number of trading ties	186	62	124
Number of credits in trading ties	260	107	153
Average number of credits per tie	1.40	1.73	1.23
Percentage of total credits	100%	41.2%	58.8%

Appendix: PREDICTING COMMERCIAL CREDIT: Logit Regressions

Dependent variable = dichotomized company credits (i.e., credits received or not)

B. Among International Merchant-banker companies: (International m-b + Pisa m-b)

Independent variables:	all credit relations	= reciprocal credits	+ asymmetric credits (mult.+single)
<u>Partnership system:</u>			
Within system (shared partner)	6.496^{***}	7.322^{***}	-.258
Between systems	.123	-.217	.315
<u>Kinship:</u>			
Nuclear family (excl. self)	3.662^{**}	5.937^{***}	.375
Patrilineal family (excl. nuclear)	2.721^{***}	3.526^{**}	.752
In-law nuclear family	-.940	-1.920	-.571
In-law parentado family	.322	1.784	.388
<u>Neighborhood:</u>			
Same Gonfalone	.714	.671	.648
Same Quarter (excl. gonfalone)	.100	.255	.002
<u>Social Class:</u>			
Popolani + Magnates	-.010	-.215	.025
New men + New-new men	1.764^{***}	1.996^{**}	1.472[*]
Families not admitted to priorate	-.160	.565	-.418
<u>Political Offices: (% first)</u>			
Priorate (pre-1427)	-1.248	-6.409 [*]	.463
Buonuomini (pre-1427)	.741	5.551[*]	-.744
Gonfalonieri (pre-1427)	.646	-2.007	1.007
Guild consuls (pre-1427)	-.756	-2.698	.876
Mercanzia (pre-1427)	.704	.747	.169
<u>Scrutiny votes (1433):</u>			
Max cred ptr. + max debt ptr.	.00145	.00494^{**}	-.00031
<u>Political Factions:</u>			
Medici party (1433)	-.176	2.499	-1.840
Albizzi party (1433)	-.191	2.276[*]	[dropped]

Appendix: PREDICTING COMMERCIAL CREDIT: Logit Regressions

Dependent variable = dichotomized company credits (i.e., credits received or not)

B. Among International Merchant-banker companies: (International m-b + Pisa m-b)

Independent variables:	all credit relations	= reciprocal credits	+ asymmetric credits (mult.+single)
<u>Statistical controls:</u>			
Expected credits, firm size only	4.215^{***}	3.659^{***}	2.652^{***}
Creditor's accounts seen	.810^{***}	.848[*]	.662^{**}
Debtor's accounts seen	.733^{***}	.732^(*)	.714^{**}
Creditor partners' wealth	0.06e-6	-4.63e-6	1.04e-6
Debtor partners' wealth	-0.75e-6	2.68e-6	-1.45e-6
<u>Constant:</u>	-5.309 ^{***}	-7.337 ^{***}	-5.005 ^{***}
Number of observations (dyads)	4,160	4,160	4,160
Number of non-zero observations	201	76	125
Log likelihood	-602.5	-248.2	-484.4
Wald chi-square	360.6	569.6	174.6
Number of parameters	24	24	23
Probability > chi-square	.0000	.0000	.0000
Pseudo R-squared	.252	.346	.137

N.B: Cluster option in Stata used to control for unobserved company heterogeneity.

Number of trading ties	201	76	125
Number of credits in trading ties	294	134	160
Average number of credits per tie	1.46	1.76	1.28
Percentage of total credits	100%	45.6%	54.4%

Appendix: PREDICTING COMMERCIAL CREDIT: Logit Regressions

Dependent variable = dichotomized company credits (i.e., credits received or not)

C. Between Domestic & International Merchant-banker companies:

Independent variables:	all credit relations	= reciprocal credits	+ asymmetric credits (mult.+single)
<u>Partnership system:</u>			
Within system (shared partner)	6.945**	6.881***	-1.216
Between systems	.199	.277	.255
<u>Kinship:</u>			
Nuclear family (excl. self)	2.023	3.202**	-.312
Patrilineal family (excl. nuclear)	1.211 ^(*)	1.075	1.218
In-law nuclear family	-2.714	-3.654	-.062
In-law parentado family	1.822*	2.542*	.782
<u>Neighborhood:</u>			
Same Gonfalone	1.374***	1.426**	1.232**
Same Quarter (excl. gonfalone)	.172	.227	.099
<u>Social Class:</u>			
Popolani + Magnates	.204	.269	.134
New men + New-new men	-.378	-.166	-.638
Families not admitted to priorate	.223	.482	-.012
<u>Political Offices: (% first)</u>			
Priorate (pre-1427)	2.118***	2.547*	1.796**
Buonuomini (pre-1427)	-1.169 ^(*)	.239	-1.724*
Gonfalonieri (pre-1427)	-1.116	-2.887*	-.284
Guild consuls (pre-1427)	.054	-1.167	.501
Mercanzia (pre-1427)	.339	-.138	.551
<u>Scrutiny votes (1433):</u>			
Max cred ptrn. + max debt ptrn.	.00094	.00094	.00117
<u>Political Factions:</u>			
Medici party (1433)	2.305***	3.793***	.921
Albizzi party (1433)	1.357	-.722	1.543

Appendix: PREDICTING COMMERCIAL CREDIT: Logit Regressions

Dependent variable = dichotomized company credits (i.e., credits received or not)

C. Between Domestic and International Merchant-banker companies:

Independent variables:	all credit relations	= reciprocal credits	+ asymmetric credits (mult.+single)
<u>Statistical controls:</u>			
Expected credits, firm size only	2.931^{***}	1.536^{***}	2.035^{**}
Creditor's accounts seen	.489[*]	.928^{**}	.397
Debtor's accounts seen	.670^{**}	.560	.832^{**}
Creditor partners' wealth	6.94e-6[*]	11.1e-6^{**}	6.08e-6
Debtor partners' wealth	6.15e-6^{**}	10.6e-6^{**}	5.16e-6[*]
<u>Constant:</u>	-5.435 ^{***}	-7.186 ^{***}	-5.684 ^{***}
Number of observations (dyads)	5,830	5,830	5,830
Number of non-zero observations	211	67	144
Log likelihood	-712.3	-267.2	-584.2
Wald chi-square	243.1	376.8	139.8
Number of parameters	24	24	24
Probability > chi-square	.0000	.0000	.0000
Pseudo R-squared	.215	.270	.135

N.B: Cluster option in Stata used to control for unobserved company heterogeneity.

Number of trading ties	211	67	144
Number of credits in trading ties	339	158	181
Average number of credits per tie	1.61	2.36	1.26
Percentage of total credits	100%	46.6%	53.4%

Appendix: PREDICTING COMMERCIAL CREDIT: Logit Regressions

Dependent variable = dichotomized company credits (i.e., credits received or not)

D. Between Domestic Merchant-banker companies and Wool manufacturing companies:

Independent variables:	all credit relations	= reciprocal credits	+ asymmetric credits (mult.+single)
<u>Partnership system:</u>			
Within system (shared partner)	8.340	12.763**	2.800
Between systems	.220	.208	.254
<u>Kinship:</u>			
Nuclear family (excl. self)	2.257	-3.144*	3.990
Patrilineal family (excl. nuclear)	.083	[dropped]	.863
In-law nuclear family	8.534	[dropped]	11.754
In-law parentado family	-4.213	3.739**	-6.332
<u>Neighborhood:</u>			
Same Gonfalone	.635*	2.266***	.202
Same Quarter (excl. gonfalone)	.219	1.332*	.067
<u>Social Class:</u>			
Popolani + Magnates	-.538**	-.568	-.566*
New men + New-new men	-.129	-2.476**	.042
Families not admitted to priorate	.786*	-.591	.890**
<u>Political Offices: (% first)</u>			
Priorate (pre-1427)	1.111	2.684**	.987
Buonuomini (pre-1427)	-1.185**	1.938*	-1.551***
Gonfalonieri (pre-1427)	-.620	-3.404*	-.314
Guild consuls (pre-1427)	.610	-.668	.921 ^(*)
Mercanzia (pre-1427)	.719	1.095	.520
<u>Scrutiny votes (1433):</u>			
Max cred ptrn. + max debt ptrn.	.00165**	.00198	.00166**
<u>Political Factions:</u>			
Medici party (1433)	1.123	4.351***	-.944
Albizzi party (1433)	-4.412	[dropped]	-2.593

Appendix: PREDICTING COMMERCIAL CREDIT: Logit Regressions

Dependent variable = dichotomized company credits (i.e., credits received or not)

D. Between Domestic Merchant-banker companies and Wool manufacturing companies:

Independent variables:	all credit relations	= reciprocal credits	+ asymmetric credits (mult.+single)
<u>Statistical controls:</u>			
Expected credits, firm size only	7.525^{***}	3.137^{**}	6.262^{***}
Creditor's accounts seen	.528	1.181 ^(*)	.544
Debtor's accounts seen	.435^{**}	1.832[*]	.373[*]
Creditor partners' wealth	5.93e-6[*]	5.83e-6	6.70e-6^{**}
Debtor partners' wealth	2.75e-6	13.2e-6 ^(*)	3.21e-6
<u>Constant:</u>	-5.798 ^{***}	-11.117 ^{***}	-5.706 ^{***}
Number of observations (dyads)	13,037	13,037	13,037
Number of non-zero observations	294	34	260
Log likelihood	-1022.8	-160.3	-994.6
Wald chi-square	431.7	436.6	355.9
Number of parameters	27	21	24
Probability > chi-square	.0000	.0000	.0000
Pseudo R-squared	.272	.321	.220

N.B: Cluster option in Stata used to control for unobserved company heterogeneity.

Number of trading ties	294	34	260
Number of credits in trading ties	336	52	284
Average number of credits per tie	1.14	1.53	1.09
Percentage of total credits	100%	15.5%	84.5%

Appendix: PREDICTING COMMERCIAL CREDIT: Logit Regressions

Dependent variable = dichotomized company credits (i.e., credits received or not)

E. Between Domestic Merchant-banker companies and Silk manufacturing companies:

Independent variables:	all credit relations	= reciprocal credits	+ asymmetric credits (mult.+single)
<u>Partnership system:</u>			
Within system (shared partner)	12.242	.875	14.831
Between systems	.097	.001	.140
<u>Kinship:</u>			
Nuclear family (excl. self)	6.284	13.902**	.567
Patrilineal family (excl. nuclear)	-1.133	-2.866	-2.066
In-law nuclear family	30.999**	[dropped]	30.347***
In-law parentado family	-4.762	[dropped]	-2.445
<u>Neighborhood:</u>			
Same Gonfalone	1.071***	2.303***	.229
Same Quarter (excl. gonfalone)	.390	-1.947**	.714*
<u>Social Class:</u>			
Popolani + Magnates	-.339	.441	-.619*
New men + New-new men	.082	-1.406	.207
Families not admitted to priorate	.550	.065	.728*
<u>Political Offices: (% first)</u>			
Priorate (pre-1427)	.554	2.969***	-.105
Buonuomini (pre-1427)	-.674	.226	-.861
Gonfalonieri (pre-1427)	.442	-1.497	1.158(*)
Guild consuls (pre-1427)	.319	-2.409*	.432
Mercanzia (pre-1427)	-.754	-2.219	-.302
<u>Scrutiny votes (1433):</u>			
Max cred ptrn. + max debt ptrn.	.00062	.00027	.00075
<u>Political Factions:</u>			
Medici party (1433)	2.825	[dropped]	4.301(*)
Albizzi party (1433)	2.544	[dropped]	4.010*

Appendix: PREDICTING COMMERCIAL CREDIT: Logit Regressions

Dependent variable = dichotomized company credits (i.e., credits received or not)

E. Between Domestic Merchant-banker companies and Silk manufacturing companies:

Independent variables:	all credit relations	= reciprocal credits	+ asymmetric credits (mult.+single)
<u>Statistical controls:</u>			
Expected credits, firm size only	5.982 ^{***}	4.190 ^{***}	4.794 ^{***}
Creditor's accounts seen	.883 ^{**}	.566	1.085 ^{**}
Debtor's accounts seen	.515	.983	.515 [*]
Creditor partners' wealth	-0.23e-6	7.75e-6	0.43e-6
Debtor partners' wealth	-2.31e-6	9.71e-6 ^(*)	-9.17e-6
<u>Constant:</u>	-5.365 ^{***}	-7.415 ^{***}	-5.639 ^{***}
Number of observations (dyads)	4,770	4,770	4,770
Number of non-zero observations	219	46	173
Log likelihood	-638.7	-175.6	-575.1
Wald chi-square	352.6	162.7	243.6
Number of parameters	24	20	24
Probability > chi-square	.0000	.0000	.0000
Pseudo R-squared	.281	.323	.227

N.B: Cluster option in Stata used to control for unobserved company heterogeneity.

Number of trading ties	219	46	173
Number of credits in trading ties	258	60	198
Average number of credits per tie	1.18	1.30	1.14
Percentage of total credits	100%	23.3%	76.7%

Appendix: PREDICTING COMMERCIAL CREDIT: Logit Regressions

Dependent variable = dichotomized company credits (i.e., credits received or not)

F. Between Int'l. Merchant-banker companies and Wool manufacturing companies:

Independent variables:	all credit relations	= reciprocal credits	+ asymmetric credits (mult.+single)
<u>Partnership system:</u>			
Within system (shared partner)	5.361	5.747	5.435
Between systems	.224	.021	.210
<u>Kinship:</u>			
Nuclear family (excl. self)	5.534 ^{***}	22.105 ^{***}	-3.981
Patrilineal family (excl. nuclear)	1.112	14.774 ^{***}	-2.220
In-law nuclear family	5.899 [*]	-3.503	7.809
In-law parentado family	-1.080	5.633 ^{**}	-2.589
<u>Neighborhood:</u>			
Same Gonfalone	.770	-10.064 ^{***}	1.080 ^{**}
Same Quarter (excl. gonfalone)	.493 [*]	2.013 ^{***}	.263
<u>Social Class:</u>			
Popolani + Magnates	-.101	-.029	-.080
New men + New-new men	.102	1.632	.027
Families not admitted to priorate	-.327	2.475 [*]	-.856
<u>Political Offices: (% first)</u>			
Priorate (pre-1427)	-1.069	.835	-1.225 ^(*)
Buonuomini (pre-1427)	-.327	-4.696 ^{**}	.027
Gonfalonieri (pre-1427)	-.566	1.831	-.913
Guild consuls (pre-1427)	.766	-2.929 ^{**}	1.074 [*]
Mercanzia (pre-1427)	1.378 [*]	4.633 ^{**}	1.129
<u>Scrutiny votes (1433):</u>			
Max cred ptrn. + max debt ptrn.	.00089	.00817 ^{***}	.00023
<u>Political Factions:</u>			
Medici party (1433)	-2.069	-5.466	-.998
Albizzi party (1433)	2.905 ^{***}	[dropped]	3.169 ^{***}

Appendix: PREDICTING COMMERCIAL CREDIT: Logit Regressions

Dependent variable = dichotomized company credits (i.e., credits received or not)

F. Between Int'l. Merchant-banker companies and Wool manufacturing companies:

Independent variables:	all credit relations	= reciprocal credits	+ asymmetric credits (mult.+single)
<u>Statistical controls:</u>			
Expected credits, firm size only	8.410 ^{***}	2.433 ^{***}	7.639 ^{***}
Creditor's accounts seen	.816 ^{***}	1.352 [*]	.755 ^{***}
Debtor's accounts seen	1.094 ^{***}	1.233 [*]	1.190 ^{***}
Creditor partners' wealth	0.50e-6	-3.42e-6	1.92e-6
Debtor partners' wealth	-10.0e-6 [*]	-1.23e-6	-11.1e-6 ^{**}
<u>Constant:</u>	-6.611 ^{***}	-11.912 ^{***}	-6.445 ^{***}
Number of observations (dyads)	15,990	15,990	15,990
Number of non-zero observations	300	30	270
Log likelihood	-743.5	-126.2	-724.0
Wald chi-square	983.6	315.9	776.3
Number of parameters	24	23	24
Probability > chi-square	.0000	.0000	.0000
Pseudo R-squared	.501	.422	.471

N.B: Cluster option in Stata used to control for unobserved company heterogeneity.

Number of trading ties	300	30	270
Number of credits in trading ties	359	41	318
Average number of credits per tie	1.20	1.37	1.18
Percentage of total credits	100%	11.4%	88.6%

Appendix: PREDICTING COMMERCIAL CREDIT: Logit Regressions

Dependent variable = dichotomized company credits (i.e., credits received or not)

G. Between Int'l. Merchant-banker companies and Silk manufacturing companies:

Independent variables:	all credit relations	= reciprocal credits	+ asymmetric credits (mult.+single)
<u>Partnership system:</u>			
Within system (shared partner)	6.083	[dropped]	9.182*
Between systems	-.480	-.795	-.683
<u>Kinship:</u>			
Nuclear family (excl. self)	12.963	[dropped]	18.013*
Patrilineal family (excl. nuclear)	3.128**	8.064**	1.502
In-law nuclear family	-.481	[dropped]	1.353
In-law parentado family	1.126	2.559**	.718
<u>Neighborhood:</u>			
Same Gonfalone	-.893	-4.296*	-.474
Same Quarter (excl. gonfalone)	.350	-1.684*	.602*
<u>Social Class:</u>			
Popolani + Magnates	.071	.212	.067
New men + New-new men	.682*	-.348	.819*
Families not admitted to priorate	.992*	2.181*	.731
<u>Political Offices: (% first)</u>			
Priorate (pre-1427)	-.546	.729	-1.033
Buonuomini (pre-1427)	.502	4.707***	-.781
Gonfalonieri (pre-1427)	-1.132	-4.686**	-.107
Guild consuls (pre-1427)	1.059	-2.323	1.826*
Mercanzia (pre-1427)	-.561	4.194*	-1.855
<u>Scrutiny votes (1433):</u>			
Max cred ptr. + max debt ptr.	.00225**	.00353	.00213*
<u>Political Factions:</u>			
Medici party (1433)	5.943***	6.380*	6.084***
Albizzi party (1433)	-1.196	[dropped]	-.789

Appendix: PREDICTING COMMERCIAL CREDIT: Logit Regressions

Dependent variable = dichotomized company credits (i.e., credits received or not)

G. Between Int'l. Merchant-banker companies and Silk manufacturing companies:

Independent variables:	all credit relations	= reciprocal credits	+ asymmetric credits (mult.+single)
<u>Statistical controls:</u>			
Expected credits, firm size only	8.217^{***}	4.246^{***}	8.009^{***}
Creditor's accounts seen	.469	.927	.475
Debtor's accounts seen	.601[*]	1.003	.517
Creditor partners' wealth	2.32e-6	5.55e-6	2.17e-6
Debtor partners' wealth	-14.7e-6[*]	2.73e-6	-17.8e-6^{**}
<u>Constant:</u>	-5.868 ^{***}	-9.021 ^{***}	-5.907 ^{***}
Number of observations (dyads)	5,850	5,850	5,850
Number of non-zero observations	146	24	122
Log likelihood	-455.7	-117.7	-396.2
Wald chi-square	362.1	235.0	339.7
Number of parameters	24	20	24
Probability > chi-square	.0000	.0000	.0000
Pseudo R-squared	.333	.245	.332

N.B: Cluster option in Stata used to control for unobserved company heterogeneity.

Number of trading ties	146	24	122
Number of credits in trading ties	166	30	136
Average number of credits per tie	1.14	1.25	1.12
Percentage of total credits	100%	18.1%	81.9%

Appendix: PREDICTING COMMERCIAL CREDIT: Logit Regressions

Dependent variable = dichotomized company credits (i.e., credits received or not)

H. Among Wool manufacturing companies:

Independent variables:	all credit relations	= reciprocal credits	+ asymmetric credits (mult.+single)
<u>Partnership system:</u>			
Within system (shared partner)	13.726***		14.484***
Between systems	-.409		-.628
<u>Kinship:</u>			
Nuclear family (excl. self)	3.288*		3.707*
Patrilineal family (excl. nuclear)	1.952		1.342
In-law nuclear family	2.800		2.665
In-law parentado family	-.792		-.473
<u>Neighborhood:</u>			
Same Gonfalone	-.201		-.313
Same Quarter (excl. gonfalone)	.191		.273
<u>Social Class:</u>			
Popolani + Magnates	-.013		-.040
New men + New-new men	.010		.093
Families not admitted to priorate	.227		-.016
<u>Political Offices: (% first)</u>			
Priorate (pre-1427)	.539		.534
Buonuomini (pre-1427)	.079		.094
Gonfalonieri (pre-1427)	-.276		-.089
Guild consuls (pre-1427)	-.410		-.567
Mercanzia (pre-1427)	-.476		-.786
<u>Scrutiny votes (1433):</u>			
Max cred ptrn. + max debt ptrn.	-.00020		-.00050
<u>Political Factions:</u>			
Medici party (1433)	-.206		.187
Albizzi party (1433)	[dropped]		[dropped]

Appendix: PREDICTING COMMERCIAL CREDIT: Logit Regressions

Dependent variable = dichotomized company credits (i.e., credits received or not)

H. Among Wool manufacturing companies:

Independent variables:	all credit relations	= reciprocal credits	+	asymmetric credits (mult.+single)
<u>Statistical controls:</u>				
Expected credits, firm size only	9.881 ***		i	9.430 ***
Creditor's accounts seen	1.071 ***		n	1.007 **
Debtor's accounts seen	.738 **		s	.642 *
Creditor partners' wealth	2.76e-6		u	3.34e-6
Debtor partners' wealth	2.34e-6		f	2.73e-6
<u>Constant:</u>	-6.195***		f.	-6.027***
			c	
			r	
Number of observations (dyads)	15,004		e	15,004
Number of non-zero observations	204		d	190
Log likelihood	-827.3		i	-790.6
Wald chi-square	243.3		t	249.7
Number of parameters	23		s	23
Probability > chi-square	.0000			.0000
Pseudo R-squared	.234			.224

N.B: Cluster option in Stata used to control for unobserved company heterogeneity.

Number of trading ties	204	14	190
Number of credits in trading ties	216	14	202
Average number of credits per tie	1.06	1.00	1.06
Percentage of total credits	100%	6.5%	93.5%

Appendix: PREDICTING COMMERCIAL CREDIT: Logit Regressions

Dependent variable = dichotomized company credits (i.e., credits received or not)

I. Among Silk manufacturing companies:

Independent variables:	all credit relations	= reciprocal credits	+ asymmetric credits (mult.+single)
<u>Partnership system:</u>			
Within system (shared partner)	[dropped]		[dropped]
Between systems	[dropped]		[dropped]
<u>Kinship:</u>			
Nuclear family (excl. self)	5.571**		5.942**
Patrilineal family (excl. nuclear)	[dropped]		[dropped]
In-law nuclear family	[dropped]		[dropped]
In-law parentado family	[dropped]		[dropped]
<u>Neighborhood:</u>			
Same Gonfalone	.038		-.244
Same Quarter (excl. gonfalone)	-.648*		-.539
<u>Social Class:</u>			
Popolani + Magnates	-.709		-.514
New men + New-new men	-.165		-.210
Families not admitted to priorate	-.703		-.576
<u>Political Offices: (% first)</u>			
Priorate (pre-1427)	.370		.961
Buonuomini (pre-1427)	-.445		-.516
Gonfalonieri (pre-1427)	.682		.600
Guild consuls (pre-1427)	-.224		-.421
Mercanzia (pre-1427)	-2.019**		-1.957**
<u>Scrutiny votes (1433):</u>			
Max cred ptrn. + max debt ptrn.	.00057		.00009
<u>Political Factions:</u>			
Medici party (1433)	8.621		8.979
Albizzi party (1433)	.950		1.357

Appendix: PREDICTING COMMERCIAL CREDIT: Logit Regressions

Dependent variable = dichotomized company credits (i.e., credits received or not)

I. Among Silk manufacturing companies:

Independent variables:	all credit relations	= reciprocal credits	+ asymmetric credits (mult.+single)
<u>Statistical controls:</u>			
Expected credits, firm size only	7.453^{***}	i	7.325^{***}
Creditor's accounts seen	.892[*]	n	.798
Debtor's accounts seen	.405	s	.318
Creditor partners' wealth	-9.76e-6	u	-6.83e-6
Debtor partners' wealth	-9.92e-6	f	-10.7e-6
<u>Constant:</u>	-4.450 ^{***}	f.	-4.328 ^{***}
		c	
		r	
		e	
		d	
Number of observations (dyads)	1,980	i	1,980
Number of non-zero observations	146	t	138
Log likelihood	-383.6	s	-370.5
Wald chi-square	468.5		332.6
Number of parameters	19		19
Probability > chi-square	.0000		.0000
Pseudo R-squared	.264		.260

N.B: Cluster option in Stata used to control for unobserved company heterogeneity.

Number of trading ties	146	8	138
Number of credits in trading ties	153	8	145
Average number of credits per tie	1.05	1.00	1.05
Percentage of total credits	100%	5.2%	94.8%

Appendix: PREDICTING COMMERCIAL CREDIT: Logit Regressions

Dependent variable = dichotomized company credits (i.e., credits received or not)

J. Among Ritagliatori companies:

Independent variables:	all credit relations	= reciprocal credits	+ asymmetric credits (mult.+single)
<u>Partnership system:</u>			
Within system (shared partner)	15.455**		9.361
Between systems	.373		.145
<u>Kinship:</u>			
Nuclear family (excl. self)	5.037 ^(*)		1.100
Patrilineal family (excl. nuclear)	.251		1.037
In-law nuclear family	6.224*		[dropped]
In-law parentado family	2.099		-.194
<u>Neighborhood:</u>			
Same Gonfalone	1.168		.140
Same Quarter (excl. gonfalone)	.336		.263
<u>Social Class:</u>			
Popolani + Magnates	.766		.950
New men + New-new men	.617		1.061*
Families not admitted to priorate	-1.216		-1.439
<u>Political Offices: (% first)</u>			
Priorate (pre-1427)	-.327		-.855
Buonuomini (pre-1427)	.651		.432
Gonfalonieri (pre-1427)	.106		.794
Guild consuls (pre-1427)	.603		.683
Mercanzia (pre-1427)	-1.260		-2.703
<u>Scrutiny votes (1433):</u>			
Max cred ptrn. + max debt ptrn.	-.00191		-.00156
<u>Political Factions:</u>			
Medici party (1433)	-4.209		-1.427
Albizzi party (1433)	[dropped]		[dropped]

Appendix: PREDICTING COMMERCIAL CREDIT: Logit Regressions

Dependent variable = dichotomized company credits (i.e., credits received or not)

J. Among Ritagliatori companies:

Independent variables:	all credit relations	= reciprocal credits	+ asymmetric credits (mult.+single)
<u>Statistical controls:</u>			
Expected credits, firm size only	7.141**	i	6.597**
Creditor's accounts seen	2.008**	n	1.993**
Debtor's accounts seen	.711*	s	.505
Creditor partners' wealth	0.10e-6	u	17.1e-6
Debtor partners' wealth	-13.2e-6	f	4.99e-6
<u>Constant:</u>	-6.033***	f.	-6.299***
		c	
		r	
		e	
		d	
Number of observations (dyads)	1,190	i	1,190
Number of non-zero observations	62	t	54
Log likelihood	-168.0	s	-164.6
Wald chi-square	2505.3		1211.7
Number of parameters	23		22
Probability > chi-square	.0000		.0000
Pseudo R-squared	.310		.251

N.B: Cluster option in Stata used to control for unobserved company heterogeneity.

Number of trading ties	62	8	54
Number of credits in trading ties	66	9	57
Average number of credits per tie	1.06	1.12	1.06
Percentage of total credits	100%	13.6%	86.4%

Appendix: PREDICTING COMMERCIAL CREDIT: Logit Regressions

Dependent variable = dichotomized company credits (i.e., credits received or not)

K. Between Ritagliatori companies and Wool manufacturing companies:

Independent variables:	all credit relations	= reciprocal credits	+ asymmetric credits (mult.+single)
<u>Partnership system:</u>			
Within system (shared partner)	-1.203	[dropped]	4.415
Between systems	.253	-.327	.320
<u>Kinship:</u>			
Nuclear family (excl. self)	4.384	8.542**	.138
Patrilineal family (excl. nuclear)	1.865	[dropped]	2.180
In-law nuclear family	[dropped]	[dropped]	[dropped]
In-law parentado family	-12.981	[dropped]	-9.552
<u>Neighborhood:</u>			
Same Gonfalone	-.023	-3.233*	.195
Same Quarter (excl. gonfalone)	.311 ^(*)	.284	.240
<u>Social Class:</u>			
Popolani + Magnates	-.006	.406	-.111
New men + New-new men	.179	.349	.241
Families not admitted to priorate	.032	-.438	-.060
<u>Political Offices: (% first)</u>			
Priorate (pre-1427)	.127	-.222	.249
Buonuomini (pre-1427)	-.254	-.738	-.240
Gonfalonieri (pre-1427)	.265	.353	.313
Guild consuls (pre-1427)	.049	-.585	.207
Mercanzia (pre-1427)	-.242	3.301*	-.988
<u>Scrutiny votes (1433):</u>			
Max cred ptnr. + max debt ptnr.	.00039	.00357*	-.00093
<u>Political Factions:</u>			
Medici party (1433)	-.458	-2.765	.365
Albizzi party (1433)	[dropped]	[dropped]	[dropped]

Appendix: PREDICTING COMMERCIAL CREDIT: Logit Regressions

Dependent variable = dichotomized company credits (i.e., credits received or not)

K. Between Ritagliatori companies and Wool manufacturing companies:

Independent variables:	all credit relations	= reciprocal credits	+ asymmetric credits (mult.+single)
<u>Statistical controls:</u>			
Expected credits, firm size only	5.997 ^{***}	1.563 ^{***}	5.268 ^{***}
Creditor's accounts seen	.245	1.241 [*]	.226
Debtor's accounts seen	.139	1.073 [*]	.097
Creditor partners' wealth	-6.24e-6	14.8e-6	-12.1e-6
Debtor partners' wealth	-0.54e-6	14.0e-6 [*]	-4.27e-6
<u>Constant:</u>	-4.010 ^{***}	-8.707 ^{***}	-3.744 ^{***}
Number of observations (dyads)	8,608	8,608	8,608
Number of non-zero observations	722	66	656
Log likelihood	-1588.2	-308.4	-1572.6
Wald chi-square	425.8	215.8	248.3
Number of parameters	22	19	22
Probability > chi-square	.0000	.0000	.0000
Pseudo R-squared	.360	.204	.322

N.B: Cluster option in Stata used to control for unobserved company heterogeneity.

Number of trading ties	722	66	656
Number of credits in trading ties	880	92	788
Average number of credits per tie	1.22	1.39	1.20
Percentage of total credits	100%	10.5%	89.5%

Appendix: PREDICTING COMMERCIAL CREDIT: Logit Regressions

Dependent variable = dichotomized company credits (i.e., credits received or not)

L. Between Ritagliatori companies and Silk manufacturing companies:

Independent variables:	all credit relations	= reciprocal credits	+ asymmetric credits (mult.+single)
<u>Partnership system:</u>			
Within system (shared partner)	[dropped]	[dropped]	[dropped]
Between systems	.059	[dropped]	.616
<u>Kinship:</u>			
Nuclear family (excl. self)	[dropped]	[dropped]	[dropped]
Patrilineal family (excl. nuclear)	[dropped]	[dropped]	[dropped]
In-law nuclear family	3.023	[dropped]	3.909
In-law parentado family	[dropped]	[dropped]	[dropped]
<u>Neighborhood:</u>			
Same Gonfalone	-1.124	-.439	-1.287
Same Quarter (excl. gonfalone)	-.713	-1.334	-.572
<u>Social Class:</u>			
Popolani + Magnates	.063	.480	-.311
New men + New-new men	.391	.131	.511
Families not admitted to priorate	1.141*	-.778	1.471**
<u>Political Offices: (% first)</u>			
Priorate (pre-1427)	.294	-.013	.528
Buonuomini (pre-1427)	-.617	-1.800	-.328
Gonfalonieri (pre-1427)	.748	1.425	.587
Guild consuls (pre-1427)	-.208	-.958	-.025
Mercanzia (pre-1427)	-2.209*	.193	-3.280*
<u>Scrutiny votes (1433):</u>			
Max cred ptrn. + max debt ptrn.	-.00014	-.00158	-.00021
<u>Political Factions:</u>			
Medici party (1433)	.980	[dropped]	2.874
Albizzi party (1433)	[dropped]	[dropped]	[dropped]

Appendix: PREDICTING COMMERCIAL CREDIT: Logit Regressions

Dependent variable = dichotomized company credits (i.e., credits received or not)

L. Between Ritagliatori companies and Silk manufacturing companies:

Independent variables:	all credit relations	= reciprocal credits	+ asymmetric credits (mult.+single)
<u>Statistical controls:</u>			
Expected credits, firm size only	7.883^{***}	3.839^{***}	7.054^{***}
Creditor's accounts seen	1.573^{***}	1.163[*]	1.490^{**}
Debtor's accounts seen	-.001	.777	-.035
Creditor partners' wealth	5.80e-6	20.9e-6	1.89e-6
Debtor partners' wealth	9.74e-6	28.8e-6	-0.44e-6
<u>Constant:</u>	-5.531 ^{***}	-6.743 ^{***}	-5.576 ^{***}
Number of observations (dyads)	3,150	3,150	3,150
Number of non-zero observations	126	26	100
Log likelihood	-370.5	-126.0	-317.0
Wald chi-square	177.2	135.6	163.9
Number of parameters	19	16	19
Probability > chi-square	.0000	.0000	.0000
Pseudo R-squared	.300	.164	.285

N.B: Cluster option in Stata used to control for unobserved company heterogeneity.

Number of trading ties	126	26	100
Number of credits in trading ties	141	32	109
Average number of credits per tie	1.12	1.23	1.09
Percentage of total credits	100%	22.7%	77.3%