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Credit networks and business dynamics in a viceregal capital: Santafé de Bogotá in the age of Charles III

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This article provides aggregate data on credit flows in Santafé de Bogotá, the capital of the Viceroyalty of New Granada (present-day Colombia, Ecuador and western Venezuela). By perusing a thorough report submitted to Bourbon authorities on notarial transactions, which included both ecclesiastical and non-ecclesiastical loans in the city, the article estimates the volume and size of lending activity while exploring how distinct types of credit interacted and shaped the business milieu of the region. It argues that by the late 1770s, Catholic Church lending had ceased to be the main source of investable funds in the region, with merchants and other non-ecclesiastical investors injecting growing funds into sectors traditionally avoided by ecclesiastical lenders such as commerce, mining and manufacturing. Network analysis suggests that merchants became brokers between different credit sources, alleviating information asymmetries and opening the credit market to borrowers with collateral and institutional restrictions willing to pay higher interest rates. Finally, by focusing on New Granada, the largest gold producer of the Spanish Empire, the article identifies some distinctive credit patterns that are different from those developed in silver-driven economies such as New Spain and Peru. Thus, the article provides new paths to study Latin American financial history.

Keywords: non-bank credit, Catholic Church, merchants, networks, Viceroyalty

JEL classification: D40, N16, N26, N76, N86

I

Pre-industrial Latin America's financial and monetary history has experienced steady growth in the last two decades. New time series of the volume and structure of credit flows and monetary aggregates have complemented microeconomic analyses of financial services and provided a new vision of the region's financial patterns (Vizcarra and Sicotte 2009; Carrara 2010; Levy 2012; Torres 2014, 2021; Ortiz 2016; Valle and Ibarra 2017; Valencia 2018; Zegarra 2017a, 2017b). Despite these contributions, several puzzles remained to be studied. One is the comparatively late

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development of modern banking in the region. Most Latin American countries only established such institutions in the second part of the nineteenth century.

Scholars have linked the late formation of banking to several drivers. First, the long-term dominance of ecclesiastical credit in the region, which allegedly hampered the aggregate credit supply and affected factor markets through restrictions on interest rates, non-productive encumbrances in rural estates, and low turnover rates of capital flows (Bauer 1983; Pérez 1988; Maurer 2002; Jaramillo and Meisel 2009). Given the sectoral bias of ecclesiastical credit toward rural investments, other sectors such as mining, manufacturing and services had to resort to inelastic, expensive merchant capital (Quiroz 1994; Colmenares 1998; Romano 2004). In this vein, only after the liberal reforms of the mid-nineteenth century weakened the Church's economic position did the conditions for the emergence of banking arise (Jaramillo and Meisel 2009; López-Uribe and Guiza 2012). Second, the development of strong capital markets in the region was impeded by the very nature of the economic institutions inherited from Spanish colonial rule. The predatory behavior from the fiscal structure and the distortions brought by monopoly-oriented policies led to high transaction costs, uncertainty and the stifling of non-ecclesiastical sources of lending (Coatsworth 2008; Engerman and Sokoloff 2012; Summerhill 2015; Marichal and Gambi 2018). Third, the small size of the monetary and mercantile economy, in conjunction with the high political instability in the decades that followed the Independence Wars in the 1810s, hampered the development of modern financial institutions (Romano 2004; Bates *et al.* 2007; Haber 2010).

Highlighting the complexity of financial activities in pre-industrial Latin America, new literature has critiqued these explanations.[1] Studies of credit networks have shown the heterogeneity of Church lending, emphasizing the rational decision-making of ecclesiastical institutions in loan allocation (Wobeser 2011; Valle 2012; Ortiz 2016; Quintanar 2017; Cascavita 2021). Recent research has also focused on the structure and size of non-ecclesiastical sources of credit, evidencing how, during the late colonial period, there was an expansion of merchant credit flows and the sophistication of financial tools (Ibarra 2017; Cascavita 2021; Gutiérrez and Torres 2021; Torres 2014, 2021). In line with new research on European and Asian economies, the literature has also shown that pre-industrial credit markets were more dynamic and larger in GDP than previously thought (Hoffman *et al.* 1999, 2015; Ito 2013; Ecchia 2014).

Unfortunately, the study of financial activities in colonial Latin America has remained highly compartmentalized, with very few studies attempting to estimate the aggregate size of outstanding credits in a specific market while disregarding the interaction between the diverse types of credit. We know little about the ratio between informal (non-written) to formal (notarial or logbook) credit contracts, a

[1] For an overview of this revisionist literature see Marichal (2021).

topic that has attracted the attention of historians of pre-industrial Europe in recent years (Lorenzini 2015, 2018; Gelderblom *et al.* 2018; Congost *et al.* 2023).

This article addresses these issues by providing aggregate data on credit flows in Santafé de Bogotá, the capital of the Viceroyalty of New Granada (present-day Colombia, Ecuador and western Venezuela).[2] By perusing a thorough report submitted to Bourbon authorities on notarial transactions, which included both ecclesiastical and non-ecclesiastical loans in the city, the article estimates the volume and size of lending activity while exploring how different types of credit interacted and shaped the business milieu of the region. This primarily empirical article makes three broad contributions. First, by focusing on North Andean financing patterns, it decentralizes the analysis from the silver-driven economies of New Spain and Peru, which have attracted the attention of most scholars. Experiencing notable economic growth during the second half of the eighteenth century, the Viceroyalty achieved a population of roughly 1.8 million souls in 1800. The region was the most important gold producer of the Spanish Empire and, towards the end of the century, became the world's largest supplier (Torres 2021).

Auriferous output sprang up from a plethora of alluvial deposits in the western belts of the Viceroyalty that required low investments in fixed capital but spurred the existence of a multitude of small-scale prospectors. The broad distribution of mining income fueled consumption linkages that, in turn, fostered Smithian specialization in the provision of staples and manufactures. In an imperial monetary system that rested on bimetallism, New Granada's gold outflows intertwined with silver exchanges from Peru and New Spain, stimulating far-flung connections of bimetallic exchange. Bogotá, the viceregal capital, became the main distributional center of local and imported goods between mining and non-mining regions, coalescing trade networking with the supply of mintage, foundry and fiscal services. Located in the North Andean heartland, the city achieved a population of 30,000 souls in 1800. It forged polycentric connections with ports in an arc that stretched from Maracaibo in the Atlantic to Guayaquil in the Pacific. The article shows how features such as small-scale mining, mixed population growth, polycentric connections with the world economy, and less powerful corporate bodies identified by Torres (2021) and Gutiérrez and Torres (2021) fueled distinctive credit dynamics in New Granada.

Secondly, the article uses quantitative analysis to break down the sources of credit in the viceregal capital and estimates the size of financial activities in terms of the Viceroyalty's GDP. Studies of notarial lending abound, focusing on ecclesiastical financing (Colmenares 1998; Ferreira 1999; Soulodre-La France 2004; Marulanda 2016). Compared to the existing literature, our evidence suggests that by the late 1770s, religious institutions had ceased to be the leading suppliers of credit, with merchants and lay credit dominating the market. In line with Amanda Ortiz's solid

[2] For an overview of the region's economic history see McFarlane (1993), Kalmanovitz (2006), Meisel (2011) and Torres (2013).

analysis of Bogotá's chaplaincies, the data confirm the existence of market segmentation, with specific sources of credit serving different types of investments (Ortiz 2016). Nevertheless, in contrast with her analysis, the segmentation was not sectoral. Ecclesiastical financing was not confined to agricultural endeavors but increasingly included service, mining and trade investments. The aggregate size of credit activity was significant, suggesting that the role of pre-industrial capital markets in the region has been underestimated.

Finally, the article employs network analysis and topology to study the structure of credit flows. It argues that merchants and bureaucrats became key brokers bridging capital transfers between savers and investors. Reinforcing recent findings in the literature, the article shows how colonial merchants conducted innovative financial activities long before the emergence of modern banking in the region (Gutiérrez and Torres 2021; Cascavita 2021). Merchant networks reduced the risk aversion of some lenders while widening the sectoral and geographical scope of lending activities across the Viceroyalty.

The article is organized as follows. Section II provides the necessary historical context for the dataset. Section III provides descriptive statistics, while Section IV focuses on credit stocks and flows. Section V centers on credit networks, cycles and geography. It also evaluates the credit business networks in a counterfactual analysis and warranty structure. Section VI concludes.

II

Despite the efforts of generations of scholars, estimating the aggregate size and structure of credit supply and outstanding mortgage debt in the core regions of the Spanish Empire remains an elusive enterprise.[3] The literature has been particularly successful in crafting snapshots of credit flows from notarial records and contemporary estimates, but most studies have focused on data collection to study ecclesiastical and mercantile credit on a separate basis (see, for instance, Greenow 1983; Colmenares 1998; Wobeser 2011). Therefore, the financial history of the Empire has remained highly compartmentalized, with few scholars examining the connections among diverse types of credit. A unique source allows us to provide some insights into this aspect. We use the report that the public notaries from Bogotá submitted to the Inspector General (*Visitador General*) Francisco Gutiérrez de Piñeres, regarding the contracts known as *obligaciones, depósitos* and *censos* between 1760 and 1779.[4] The report was crafted in the context of the Bourbon drive to improve fiscal revenues, providing information on the notarized agreements that ecclesiastical and private parties

[3] For the nineteenth century, recent studies have provided a more cohesive view of notarial credit. See Zegarra (2017a, 2017b).

[4] Archivo General de la Nación (hereafter AGN), Bogotá, Alcabalas, vol. 6, ff. 568–769. This document will be cited throughout this article as AGN-A.

conducted to record loans and liens. According to Gutiérrez, 'most contracts in this city [Bogotá], despite having the same structure of a *censo consignativo*, are written as if they were *depositos irregulares* or *obligaciones*, evading the payment of the *alcabala* (sales taxes)'.[5] The Inspector, then, wanted to organize the taxation of credit transactions and identify the main individuals involved in financial dealings. The two goals were met with fierce opposition from local elites and officials, igniting a revolt against Gutiérrez's tax reform in 1780.[6]

The report included a constellation of contracts, three of which deserve to be defined. The *censo consignativo* consisted of the borrower's imposition of an annuity of 5 percent on a property whose value was calculated in monetary terms (Bauer 1983; Wobeser 1989, 2011). If the lender disbursed the amount in coins, the transaction reflected a loan (*censo préstamo*). Yet, if the contract consisted of an annuity to finance a chaplaincy or pious work in which no cash circulated between the borrower and the lender, the contract was a lien (*censo gravamen*) (Bauer 1983). Since the two types of agreements sealed the sale of the right to receive an annuity on a property, they were subject to sales taxes collected by the customs house. The difference between the two types of *censos* is key since it determines if the transaction involved an injection of funds into investment and consumption or rents accrued from productive enterprises to spiritual ends. The *depósito irregular*, in contrast, consisted of a loan on interest that did not require the involvement of a property as collateral, and no sale was contemplated (Wobeser 2011; Quintanar 2017). Guarantors and unlimited liability (*responsabilidad general de los bienes*) were used to back up the loan alongside common mortgages. The *obligaciones* tended to be like *depósitos* but included deferred payments of merchandise and movables sold on credit (Torres 2014).

Gutiérrez's report constitutes a unique, centralized registry of the city's finances, which can help estimate the aggregate lending size in the former Viceroyalty's capital. The data do not lend themselves to microeconomic analysis of colonial credit since the report does not provide information about interest rates and types of coins involved.[7] However, the report encompasses information on loan values, maturities, collaterals, defaults and the parties involved in the transactions: borrowers, lenders and guarantors. Several notaries did not submit their information to the Inspector General for reasons elusive to this article. Yet we collected 866 loan registries between 1760 and 1778. Some notaries also reported transactions recorded in 1759 and 1779, but we have focused on these 18 years for which the information is more complete.

[5] AGN-A, f. 572.

[6] For the fundamentals of Bourbon reformism in New Granada see McFarlane (1993).

[7] The Spanish American economies rested on bimetallism as their monetary system. Coins of gold and silver were issued at a fixed ratio at the mints. Supply–demand conditions among the two metals varied, triggering bimetallic flows when bullion (transportation, brokerage and information costs) points were surpassed. A plethora of milled (*fuertes de cordoncillo*) and non-milled coins (*macuquinas*) circulated extensively, sustaining a heterogeneous money supply. See Torres (2021).

In the 1960s, the Richmond Petroleum Company crafted a general catalog of all the extant notarized records in Bogotá, encompassing the entire colonial period.[8] Even though the Company's main concern was to get a sense of land sales and transactions, they also indexed contracts regarding slave sales, powers of attorney and loans. The Company's catalog informs the reader that 1,109 *obligaciones* and *censos* are preserved in the notary records for the 18 years covered in the report. In other words, the information submitted to the Inspector General covered 78 percent of the loans notarized in the capital city. Therefore, our sample is good enough to get aggregate data on the structure of notarial credit.

As researchers of other pre-industrial societies have shown, notarial credit is but a portion of the aggregate volume of financial flows. Notaries functioned as brokers between mutually unknown lenders and borrowers, fueling impersonal lending (Hoffman *et al.* 1999, 2015). Transactions among relatives, colleagues, neighbors and close acquaintances tended to be settled in nonnotarized records such as account books and promissory notes, constituting robust evidence before courts in case of default. According to Elise Dermineur (2019), in some regions of France, the total volume of loans recorded in nonnotarized transactions came to 50–60 percent of aggregate credit flows. Similarly, Martin Wasserman (2013) found that lenders in Buenos Aires used notarial services to seal transactions with borrowers who did not belong to their network's inner circles during the seventeenth century. Again, notaries tended to record transactions with a high degree of impersonality. Therefore, the credit flows in our sample constitute a nondetermined, yet robust, lower bound of aggregate financial dealings in Bogotá.

Despite the lack of information on interest rates in the dataset, the literature has shown different rates according to the institutional source of credit. Mercantile lenders could charge higher prices than religious institutions that supplied funds (Torres 2014; Ortiz 2016). After 1760, despite this heterogeneity, rates declined across all the different types of lenders, spurring economic growth. Financial costs also reflected information about collaterals, lender reputation and loan size, while credit demand was elastic to interest rates (Ortiz 2016). Future research on probate inventories and other notarial records may help to shed light on the effect of interest rates on the size of the credit flows estimated in this article.

Finally, it is important to remark that the two decades covered in Gutiérrez's report are ones of readjustment in macroeconomic terms. According to recent studies on New Granada's business cycles, gold production experienced an essential contraction in the 1750s, with mining production slowly recovering in the following two decades thanks to growing outflows from Antioquia and Barbacoas (Torres 2013, 2021). Given the role of gold output in settling the Viceroyalty's international payments and exerting multiplier effects on domestic markets, the mining slump fueled a contraction in the aggregate demand. In other words, our data reflect credit networks

[8] AGN, Richmond Petroleum Company Section, Notarías de Bogotá.

in a moment of slow growth and geographical shifts in interregional exchange. The economic milieu changed significantly in the 1780s when the region experienced a new gold boom, with new export commodities contributing to the deepening and widening of the market (Torres 2014, 2021).

III

The data distilled from Gutiérrez's report show that the size and dynamics of credit markets in New Granada have been previously underestimated. The stock of private debt in Bogotá, obtained by subtracting repayments from the total value of new loans reported by the notaries, came to 400,000 silver pesos in 1779. This value amounted to 2 percent of New Granada's GDP that year, surpassing previous estimates that put the Viceroyalty's private indebtedness at 1 percent.[9] Although no aggregate data on loans in other cities is available, Bogotá did not monopolize credit activity in the Viceroyalty. The revenues from sales taxes on new *censos consignativos* collected by Bogotá's customs house in 1780–5 accounted for 42.5 percent of the total revenues from this tax across the region, followed by Popayán, Cartagena, Tunja and five other cities where ecclesiastical institutions were strong.[10] True, the data from sales taxes are a crude proxy of aggregate flows since they constitute a small portion of taxable and nontaxable credit transactions. Nevertheless, the evidence suggests that Bogotá was *primus inter pares* among the cities that concentrated notarial credit across the region. Aggregate data, in short, indicate that private indebtedness, as viewed through the notaries in the period here studied, may have amounted to 5–6 percent of the GDP, a level lower than that of France, whose notarial credit amounted to 10 percent in 1807 (Hoffman *et al.* 2015).

Our evidence, as pointed out above, delineates credit in a period of deacceleration of New Granada's economy and, therefore, private lending may have been higher during the economy's expansion after 1780. Torres's (2014) analysis of mercantile networks points in the same direction, with credits granted by merchants booming in the 1780s and the 1790s. Naturally, France and New Granada's evidence is not impressive compared to the standards of mature financial economies. Nonetheless, as Hoffman and associates (2015) have rightly pointed out, they are impressive if the benchmark is that of early industrial societies, reflecting the capacity of traditional financial markets to channel savings and investments before the emergence of modern banking.

If the analysis shifts from stocks to flows, the quadratic trend of the number of loans reveals that they followed an inverted U-shaped trend during the two decades analyzed here (Figure 1). Notarial loans rose from 14 to 19 in 1760–1, dropped from

[9] For previous estimates about aggregate debt stock see Kalmanovitz (2006). We have employed the mean of the GDP in Kalmanovitz (2006) and Meisel (2011), corrected by estimates in Torres (2013).

[10] AGN, Anexo III, Real Hacienda Cuentas, Alcabalas and Aduanas. Several logbooks.

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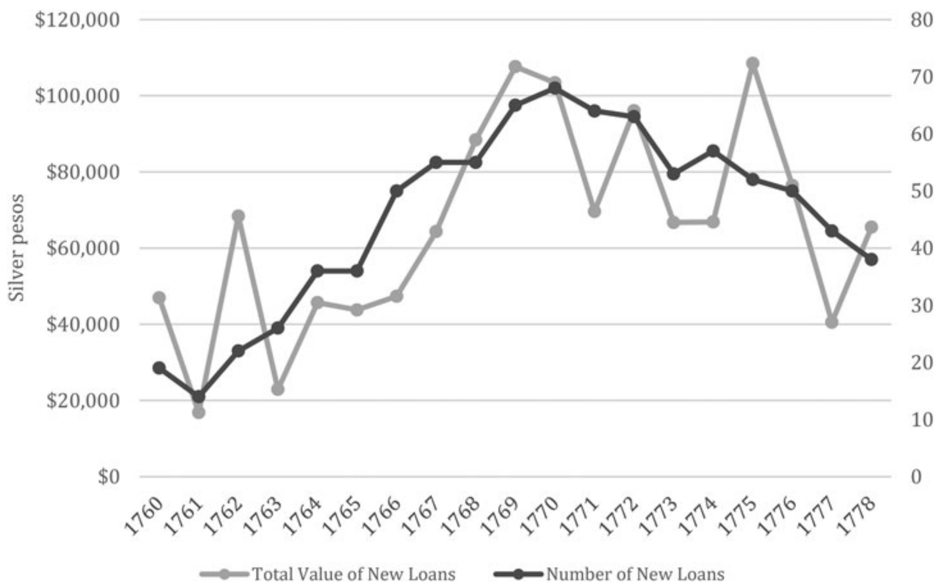

Figure 1. *Total value and number of new notarial loans in Bogotá*
Source: AGN-A.

68 to 64 in 1770–1 and from 43 to 38 in 1777–8. The value of new loans followed this quadratic pattern even though its movement was more volatile, jumping from roughly 31,000 silver pesos per year in the early 1760s to 105,000 silver pesos in the early 1770s and falling to 65,000 silver pesos nine years later. These numbers compare favorably with the aggregate notarial data of Guadalajara, which have been analyzed by Linda Greenow (1983) in her classic work. This city experienced dramatic growth during the second half of the eighteenth century, challenging the market centrality of Mexico City in the Viceroyalty of New Spain (Ibarra 2017). Here, the average notarial lending stood at 35,000 a year during the main years of expansion. Bogotá's credit flows, in other words, were not as marginal in the context of the Empire as previously argued by several scholars (McFarlane 1993; Colmenares 1998; Kalmanovitz 2006).

Given the short time covered in the dataset, it is difficult to establish quantitative connections between credit activity and economic cycles. The low level of lending during the early 1760s is most likely explained by both the lagged effect of the mining slump of the mid-eighteenth century and the slow expansion of the state capacity of the early Bourbon reforms (Meisel 2011). The analysis of shifts in the supply–demand conditions of mercantile credit confirms this pattern: lending decreased in the early 1760s due to the retraction of dealings with gold merchants but recovered between 1768 and 1774, once mining started to bounce back, import trade through Cartagena revived and fiscal flows into the city recuperated (Torres 2014). In contrast, the downturn of the late 1770s seems to reflect the preventive response to Gutiérrez's overhaul and the impending war with England in 1778, which disrupted the activity of import merchants (McFarlane 1993; Torres 2021).

Notarial data suggest that changes in the volume of credit did not affect the average value of loans, with the latter fluctuating within a band of 1,000 and 2,000 silver pesos. The average value of ecclesiastical and non-ecclesiastical credit was similar, standing at 1,095 and 1,656 silver pesos, respectively. We have performed a t-student test to compare the average value of these loans in 1760–4 and 1774–9, and the results show that the averages are statically the same in the two types of credit. In other words, the expansion of the value of total loans in Bogotá was not accompanied by an increase in the individual size of the portfolios. This stickiness, detected in other studies, signals some institutional preferences to make loans at standard amounts in ecclesiastical and non-ecclesiastical lending (Wobeser 2011; Ortiz 2016). However, the two types of credit diverged regarding the dispersion of the value of loans, with the coefficient of variation of the latter tripling that of the former. Church lending tended to be clustered around the mean, with very few loans surpassing the benchmark of 2,000 silver pesos. This reflects the Church's risk aversion and its careful examination of loan applications (Ortiz 2016). For instance, the two largest borrowing operations granted by ecclesiastical institutions were given to very sound borrowers such as Marqués de San Jorge (26,000 silver pesos borrowed from the Concepción Convent) and Ignacio Prieto (24,000 silver pesos from the Santa Clara Convent).[11] The latter was the heir of Bogotá's mint master, who sold back the right to issue money to the Crown (Barriga 1969). Prieto mortgaged this rent to get such a large loan. San Jorge, in turn, was one of the region's largest landowners, using his vast estates as a guarantee to obtain loans, the value of which was rarely granted to other borrowers (Gutiérrez 1998).

The frequency distribution of the value of non-ecclesiastical loans tended to be negatively skewed, with a substantial set of credits standing above 2,000 silver pesos. As explained below, the data are insufficient to detect the sectoral destination of these transactions. However, most recipients were merchants and entrepreneurs whose investments revolved around the gold trade, import operations and commercial agriculture.[12] It seems that ecclesiastical credit served sectors needing mid-size investments. In contrast, non-ecclesiastical credit injected liquidity into larger, riskier ventures, adding evidence to support Ortiz's thesis on market segmentation (2016). This is confirmed, in addition, by data on the maturity of loans in Gutiérrez's report. The average maturity of mortgages in the ecclesiastical sources of credit was three times that of the loans granted by merchants and other private

[11] AGN-A ff. 602–4 and 659–62.

[12] In Spanish America, the term 'merchant' had a corporate connotation, with the words *mercader* and *comerciante* referring to two positions in the mercantile hierarchy. In New Granada, the corporate hierarchy was not as clear-cut as in New Spain and Peru. In this article we use the word merchant to refer to wholesalers and small-scale traders.

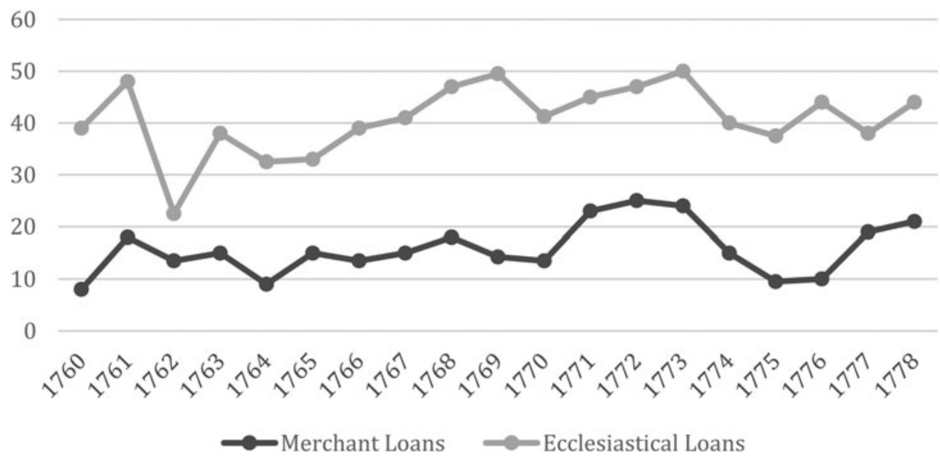

Figure 2. *Average maturity of Bogotá's notarial loans in months*
Source: AGN-A.

agents: 38 months in the former versus 15 months in the latter (Figure 2). Ecclesiastical lending tended to finance long-term investments, while trade credit tended to have a higher turnover rate.

IV

However, the former conclusions on the segmentation of financial markets should be interpreted with some nuances. Indeed, one of the first insights that emerge from the data in Table 1 is that ecclesiastical institutions and members of the Catholic Church did not monopolize the aggregate supply of credit. Merchants, royal bureaucrats and individuals from different economic sectors extended over half of the value of new notarial loans. This share was higher given that an incalculable portion of ecclesiastical credit was liens, which did not inject funds into the economy. In addition, within ecclesiastical lending, we have included the loans granted by priests from their private activities, biasing downwards the role of non-ecclesiastical sources of credit. Clerics engaged in commercial and agricultural ventures whose worldly nature elicited spiritual and political debates within the Church (Silvestre [*c.* 1792] 1988).

Bogotá, in short, had developed a financial cluster that encompassed the classical institutions of colonial credit, such as nunneries and monasteries, but also groups of individuals with access to liquidity and savings, such as viceregal bureaucrats, professionals and import merchants. The latter supplied 26 percent of new loans, reflecting their capacity to bridge savings and investments even before the boom of merchant credit after 1780 (see Table 1). Torres has studied this type of credit, showing how the viceregal capital emerged as a pivotal entrepot whose merchants served as middlemen in the interregional flows of domestic and global goods, gold and silver exchange, and fiscal flows (Torres 2014). Several Bogotá wholesalers, in addition, started to receive deposits from the public and

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Table 1. *Breakdown of the value of notarial loans in Bogotá according to type of lender*

Year	Total value of loans	Merchants	%	Bureaucrats	%	Institutions and members of the Catholic Church	%	Unidentified	%
1760	46,965	26,500	56.4	0	0	15,590	33.2	4,875	10.9
1761	16,817	4,000	23.8	2,217	13.2	9,000	53.5	1,600	9.5
1762	48,405	27,861	57.6	4,425	9.1	14,040	29.0	2,079	4.3
1763	22,904	6,182	26.9	2,000	8.7	9,064	39.6	5,658	24.7
1764	45,682	4,224	9.3	11,253	24.6	25,890	56.7	4,315	9.5
1765	43,770	7,230	16.5	1,788	4.1	28,054	64.1	6,698	15.3
1766	47,360	6,111	12.9	4,754	10.0	28,228	59.6	8,267	17.5
1767	64,342	1,154	1.8	9,037	14.1	36,851	57.3	15,300	23.8
1768	88,425	7,100	8.0	9,200	10.4	66,255	74.9	5,870	6.6
1769	107,624	58,619	54.5	36,255	33.7	15,930	14.8	10,820	10.1
1770	103,414	47,855	46.3	5,698	5.5	36,911	35.7	12,950	12.5
1771	69,603	9,300	13.4	1,200	1.7	35,172	50.5	23,931	34.4
1772	96,054	14,606	15.2	15,200	15.8	52,648	54.8	13,600	14.2
1773	66,735	10,800	16.2	6,200	9.3	38,910	58.3	10,825	16.2
1774	66,860	12,005	17.9	7,500	11.2	26,921	40.3	20,434	30.6
1775	108,493	52,688	48.6	20,740	19.1	24,429	22.5	10,636	9.8
1776	76,427	10,994	14.4	4,706	6.2	49,267	64.5	11,100	14.5
1777	40,551	18,125	44.7	900	2.2	12,838	31.7	8,688	21.4
1778	65,509	5,722	8.7	5,000	7.6	46,537	71.0	8,250	12.6

Source: AGN-A.

developed a sophisticated system of account clearing across the Viceroyalty (Gutiérrez and Torres 2021).

Viceregal bureaucrats, who supplied 12 percent of notarial loans, encompassed officials who received high wages, mostly paid in gold, not silver.[13] Given the demand for gold to settle import, bimetallic and mining trade, royal officials in Bogotá were key agents in bullion and monetary markets. Many officials, ranging from high court judges (*audiencia*) to mint and customs officers, invested their wages in loans to finance trade and short-term speculations. Juan Martín de Sarratea, an official of the court of accounts – later appointed Bogota's mint master – was an active lender who granted seven loans worth 7,600 silver pesos in the 18 years here documented.

[13] For the mechanics of bimetallism and the composition of the region's money supply see Torres (2021). For an excellent debate about the portfolio of means of payment in the Empire see (Knodell and Vizcarra 2021).

His borrowers were merchants and low-level bureaucrats looking for liquidity.[14] Two of those loans explicitly mentioned that the credits were provided in doubloons (gold coins) to invest in import trade (*girar en comercio*).

A last group of lay lenders, composed of widows, lawyers and many individuals whose personal information was not included in the notarial records, provided 15 percent of Bogotá's credit supply. Given the clustering of judicial services in the viceregal capital, lawyers constituted an influential group whose intellectual and political influence has been studied in the literature (Uribe-Uran 2000). The data show that credit and economic activities were also pivotal in their business. Lawyers such as Pedro Sarachaga participated actively as lenders and borrowers in dealings to finance gold trade and in the acquisition of rural estates.[15] As in other pre-industrial societies, lawyers were active moneylenders, accounting for almost 5 percent of the new loan supply (Wobeser 2011). Josefa Casal, the former wife of an influential and wealthy judge of the high court, was a frequent lender who encapsulated well the main traits of the group: she invested part of her pension in loans to wealthy import merchants willing to pay relatively high interest rates (8–10 percent per year), but also in long-term loans commanding lower rates of return to landed entrepreneurs (5–6 percent per year).[16] Future research should be undertaken on these groups, providing prosopographic information on lenders whose backgrounds we could not establish here.

The breakdown of ecclesiastical credit suggests, in turn, that Bogotá diverged in several aspects from cities for which similar data are available (Figure 3). In Mexico City, for instance, chaplaincies were the largest single source of credit, while in New Granada's capital, this role was fulfilled by nunneries and, to a lesser degree, by monasteries (Wobeser 1989, 2011). Similarly, Bogotá lacked merchant brotherhoods like those in Mexico City that centralized vast sums of loanable funds created by businessmen Basque and Montañés to venerate specific saints and virgins (Valle 2012). Lay brotherhoods that agglutinated other groups were common in New Granada but never commanded the aggregate presence in financial markets as they did in New Spain (Rodríguez 1999). In Bogotá, on the other hand, the pivotal role played by priests as lenders shows the laxity with which they acted as businessmen and the sheer demographic importance they had in the city, as some scholars have pointed out (McFarlane 1993). A full explanation of this configuration is beyond the scope of this article. Future studies on religiosity and cultural patterns in the two viceroyalties may provide some clues to explain church lending. However, notarial data seem to reflect the different imprints of corporate power in the two areas. Given New Granada's distinctive demographic, social and political canvas, guilds

[14] AGN-A, ff. 605–19, 685–92 and 703–5.
[15] AGN-A, ff. 618–19, 631–2, and 712–13.
[16] AGN-A, ff. 652–3 and 667–8.

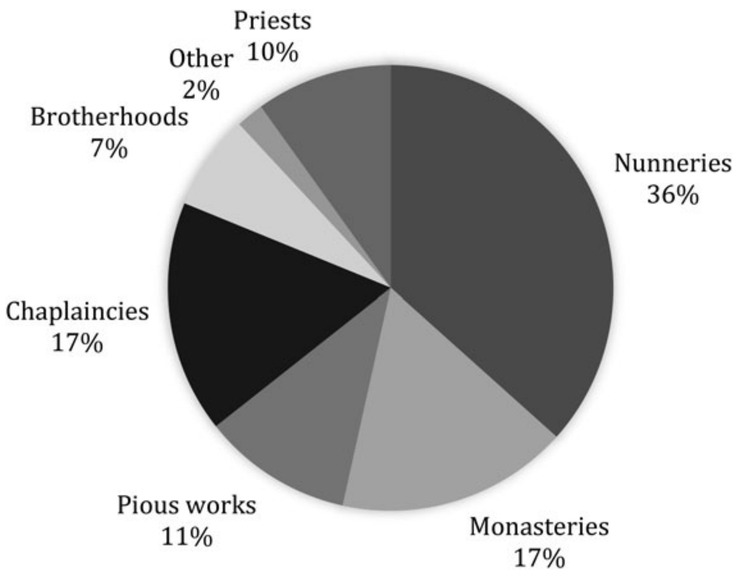

Figure 3. *Main sources of ecclesiastical credit in Bogotá, 1760–78*
Source: AGN-A.

and corporations lacked tradition and political influence to serve as pivots for the collection of funds for religious purposes.

Who were the primary recipients of credit in Bogotá? On aggregate, merchants and landed entrepreneurs absorbed over half of the value of new loans granted (33 and 28 percent respectively), followed by bureaucrats (9 percent), priests (4 percent), lawyers (2 percent), and a broad set of individuals whose craft we were not able to discern (24 percent) (see Table 2). Besides showing the role of non-agricultural investments in credit flows, the data also suggest that the sectoral segmentation of financial markets has been overestimated. Merchants, bureaucrats and lawyers received up to 44 percent of ecclesiastical credit, while landowners received 32 percent of the loans granted by merchants and private sources (see Table 2). As the following section will examine, there was no high homophily in credit networks. As in Mexico City and Buenos Aires, Bogotá's nunneries were particularly active in lending to merchants who used urban assets as collateral, avoiding the need for rural estates to acquire credit (Socolow 1978; Wobeser 2011). Ravelo, who undertook a similar analysis of notarial data in Cali, a small town in southwestern New Granada, found that cross-sectoral exchange was common, contradicting German Colmenares's traditional account in which ecclesiastical credit was the realm of landowners (Colmenares 1998; Ravelo 2015).

Bogotá merchants became key intermediaries in this cross-sectoral flow of loanable funds. This can be briefly outlined by following the notarial records of Benito de Agar and Diego Lasqueti, two merchants who acted as key nodes in the city's

Table 2. *Breakdown of the value of notarial loans in Bogotá according to type of borrower*

Year	Total value of loans	Merchants	%	Bureaucrats	%	Members of the Catholic Church	%	Landowners	%	Unidentified	%
1760	46,965	24,895	53.0	6,100	12.9	0	0.0	10,000	21.3	5,970	12.7
1761	16,817	3,525	20.9	4,100	24.9	500	3.0	4,000	23.8	4,692	27.9
1762	48,405	22,407	46.3	2,625	5.4	0	0	10,000	20.6	13,418	27.7
1763	22,904	2,300	10.0	10,929	47.7	1,250	5.5	4,000	17.5	4,425	19.3
1764	45,682	25,137	55.0	7,760	16.9	500	1.1	6,000	13.1	6,285	13.8
1765	43,770	10,100	23.1	12,147	27.8	300	0.7	10,000	22.9	11,223	25.6
1766	47,360	12,016	25.4	4,644	9.8	3,400	7.2	17,000	35.9	10,300	21.7
1767	64,342	28,760	44.7	18,600	28.9	4,300	6.7	6,000	9.3	6,682	10.4
1768	88,425	38,800	43.8	10,600	11.9	1,300	1.5	17,000	19.2	10,725	12.1
1769	107,624	37,615	35.0	6,379	5.9	500	0.5	30,000	27.9	33,130	30.8
1770	103,414	58,622	56.7	6,606	6.4	9,400	9.1	20,000	19.3	8,786	8.5
1771	69,603	7,200	10.3	22,145	31.8	6,209	8.9	13,988	20.1	20,000	28.7
1772	96,054	31,855	33.2	31,920	33.2	7,700	8.0	14,579	15.2	10,000	10.4
1773	66,735	27,500	41.2	20,130	30.2	500	0.7	10,000	15.0	8,635	12.9
1774	66,860	10,659	15.9	3,026	4.5	800	1.2	25,000	37.4	27,375	40.9
1775	108,493	14,158	13.0	5,660	5.2	400	0.3	40,000	36.9	48,275	44.5
1776	76,427	9,933	13.0	9,287	12.2	1,700	2.2	25,447	33.3	30,000	39.3
1777	40,551	5,100	12.6	1,676	4.1	1,850	4.6	20,000	49.3	11,925	29.4
1778	65,509	5,000	7.6	612	0.9	2,750	4.2	31,647	48.3	20,000	30.5

Source: AGN-A.

credit networks. Agar borrowed 29,334 silver pesos, 82 percent from nunneries and monasteries and 18 percent from other merchants and widows. At the same time, he lent 28,370 silver pesos to a comprehensive set of borrowers across the Viceroyalty. Approximately 47 percent of his lending activity was received by landowners and cattle raisers in Purificación, Zipaquirá, Ibagué, Vélez, Tocaima and Ubaque. Some of these transactions were cash advances in which the borrowers committed to pay in sugar cane derivatives, livestock and wheat. The other half of Agar's loans were received by merchants and some regional bureaucrats such as Nicolás Clasesns, Chocó's appointed governor, who borrowed 1,200 silver pesos for traveling expenses and trade investments. Officials in Chocó demanded funds from merchants and ecclesiastical institutions to buy goods and hire deputies to undertake forced sales, known as *repartimientos* among the Indigenous people in the mining regions (Torres 2013).

Lasqueti granted a lesser proportion of his 31,550 silver pesos in loans to landed entrepreneurs, most of them in the city's immediate jurisdiction but relied heavily upon ecclesiastical lenders to get his funds. Over two-thirds of his borrowing activity came from nunneries and chaplaincies. At the same time, a third of his lending transactions were taken by bureaucrats such as Miguel Gálvez, the newly appointed manager of the crown-owned cane brandy factory, who offered his wages as collateral for a loan of 2,000 silver pesos in 1776. The evidence, in short, suggests that an important portion of church loans were injected through merchants into both agricultural and non-agricultural activities. In other words, our data invite scholars to challenge the traditional perspective that confined the effect of church loans to investment in rural estates. Merchant intermediation, naturally, came with some costs. Bogotá-based wholesalers profited from the spread of interest rates between commercial and ecclesiastical lending. Thus, they borrowed from ecclesiastical institutions at an interest rate of 5 percent and lent money to other colleagues at 6, 8 and 10 percent.[17] To understand the mechanics of these transactions, we should peruse credit networks, a task to which we now turn.

V

Exploring credit relationships is fundamental to identifying and measuring key characteristics of the financial structure of the Viceroyalty. During the late colonial period, lenders developed credit portfolios and various strategies to consolidate their businesses. The study of such strategies provides a new perspective on the Viceroyalty's financial ecosystem since intermediation and cross-sectoral transactions suggest that the credit structure was more complex than previously thought. In this vein, network analysis provides an excellent venue for understanding credit flows and

[17] For interest rates see Torres (2013) and Marichal (2021).

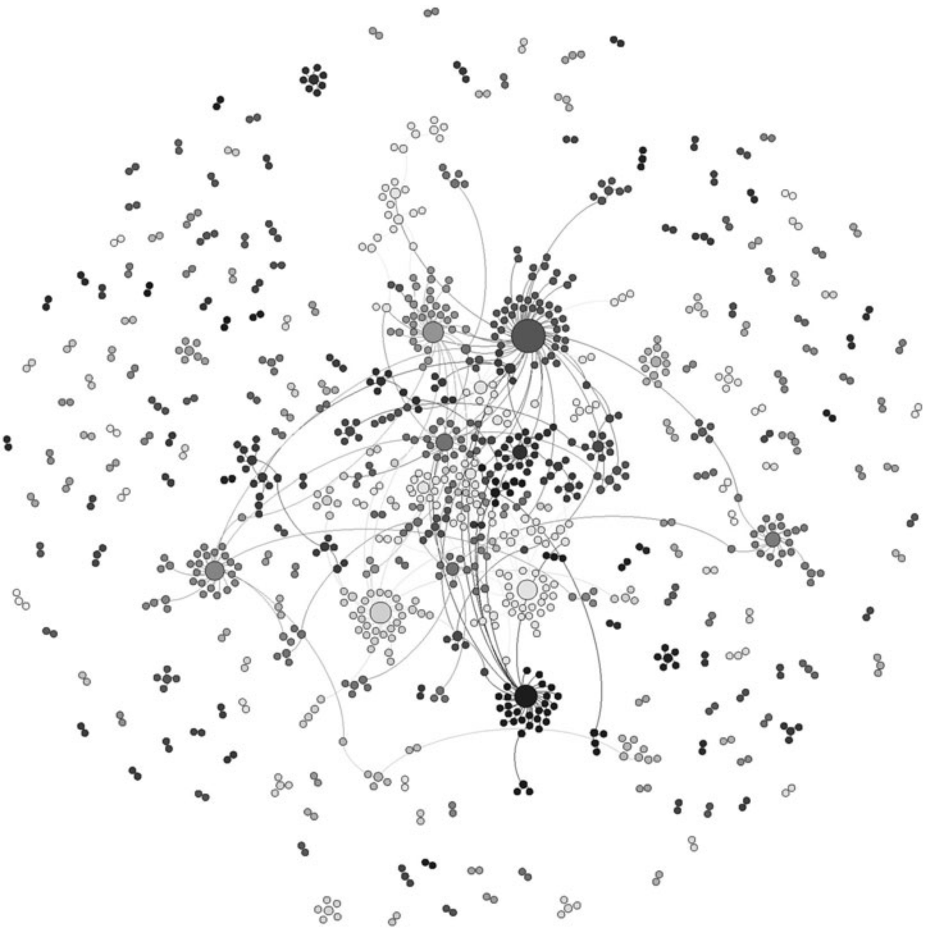

Figure 4. *Credit networks*

reducing complexity. This section presents an approach to dealing with multiple interactions and identifying financial patterns, credit cycles, ties between ecclesiastical and merchant lending, and credit geography. Figure 4 shows that the aggregate network had a rich, dyadic periphery in which two persons interacted once without establishing a long-term credit business. This periphery was complemented by a sophisticated credit business core in which intermediation and credit cycles were pivotal.

Network metrics confirm the hypothesis of such a periphery and its sophisticated credit business core. First, the average degree is 0.825, the average path length is 1.405 and the eigenvector centrality is 0.1107. A low eigenvector score means that the influence of a node in a network is low. However, several agents dominated the credit business and were the central nodes in the network. Second, the number of strongly connected components is 1.028, and the modularity is 0.907. We

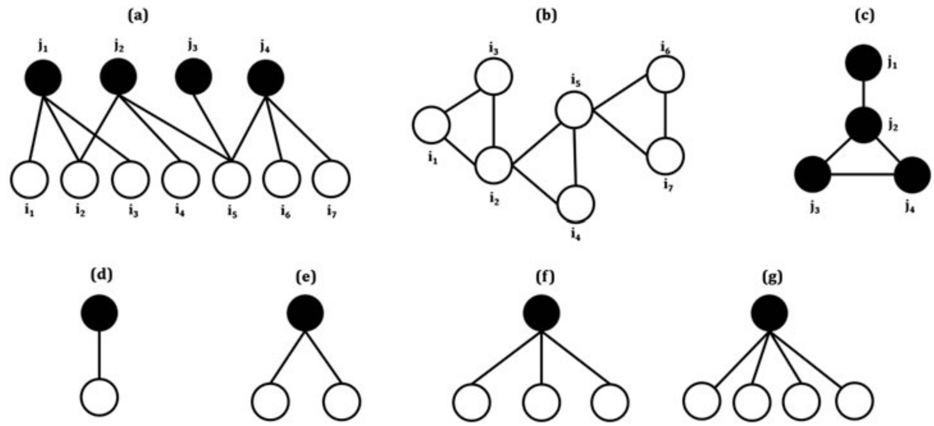

Figure 5. *Bipartite networks*

compared two algorithms, Louvain and Leiden, to identify communities (Blondel *et al.* 2008; Traag *et al.* Eck 2019). We recognized 232 and 254 communities, respectively (Figure 4).

In addition to this profusion of communities along the core–periphery structure, we identified four major patterns that influenced credit operations and the role of agents in the market. The first was that most of the credit market exhibited a bipartite structure. It contained many agents that occasionally lent money to one agent (the borrower), and the borrower only requested credit from that agent (the lender). The decision to lend and borrow money resulted from business relations or family ties, but it seems it was not part of a formal credit structure. To better understand this pattern, a simple network model can be used. Thus, a graph G is bipartite if the vertex set V(G) can be partitioned into two disjoint sets U (lenders) and V (borrowers), so that every link connects a node in U to one in V and two vertices from the same set are not adjacent (Asratian *et al.* 1998). Lenders i in network U connect directly only to borrowers j in network V. Therefore, there are no direct links $U - U$ or $V - V$ (Figure 5a). Habitually, from the bipartite network (Barabási 2016), it is possible to generate the projection of the network U', which is obtained by connecting two lenders i, if they are linked to the same borrower j in the bipartite representation (Figure 5b). The projection of the network V' is obtained by connecting two borrowers j if they are linked to the same lender i in the bipartite network (Figure 5c). However, the credit business was isolated, and the general structure resulted in small periphery networks with one lender and one borrower (Figure 5d), one lender and two borrowers (Figure 5e), one lender and three borrowers (Figure 5f), and one lender and four borrowers (Figure 5g).

The second main trait of the credit network was the centrality of institutional lenders. Ecclesiastic institutions – such as nunneries, monasteries and some ecclesiastical schools – belonged to this institutional lender, commanded larger flows than

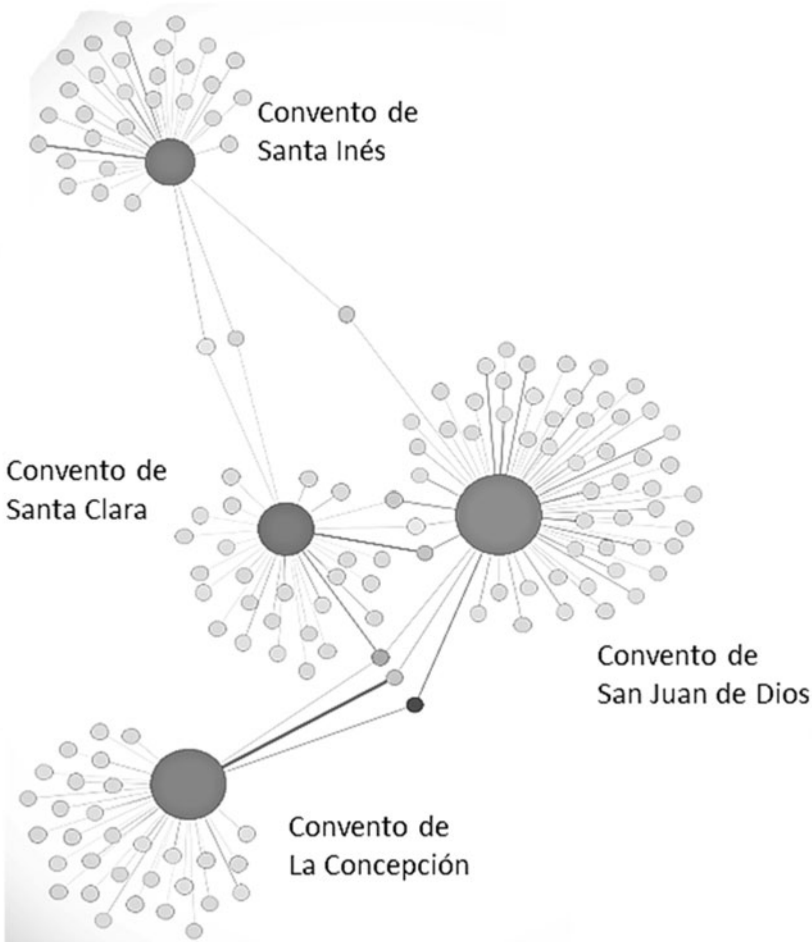

Figure 6. *Networks of ecclesiastical lending: key components*
Note: The link thickness on each edge of the network represents the value (weight) of the credit operation.

individual suppliers, and developed a vast portfolio whose borrowers hailed from various regions. The top lenders were four nunneries and monasteries (Figure 6). The Convento de San Juan de Dios, in charge of one of the city's hospitals, granted 66 loans whose value came to 81,725 silver pesos, reflecting the significance of donations to fund the health services administered by the Church. Second in importance was Convento de la Concepción. Thirty-seven operations were recorded, oscillating between 115 and 26,000 silver pesos. Next in size was Convento de Santa Clara, with 35 operations that encompassed the largest network in terms of geographical scope. Finally, Convento de Santa Inés provided 33 loans, with most borrowers hailing from the central provinces of the Viceroyalty. The top four institutions shared some clients, not due to syndicated activity but because traders and bureaucrats massively demanded credit to develop their businesses and projects. Some of these businessmen had credit operations with two or three institutions (Figure 6). Agar and Lasqueti, whose credit flows were sizeable, as explained above, were some of them. Other operations related to religious endeavors, like chaplaincies and brotherhoods, followed a dyadic pattern, except for the San Diego and the Sacramentado brotherhoods. Their principal borrowers and directors belonged to an influential group of traders who commanded a relatively thick financial web that deserves further research.[18]

The third characteristic of Bogotá's credit network was the central role of merchants and, to a lesser extent, of landowners as brokers of financial flows. People in business, such as Antonio Cajigas and Ignacio de Rojas y Sandoval, joined Agar, Lasqueti and other wholesalers in receiving credits from several ecclesiastic institutions while granting loans to a wide set of borrowers (Figure 7). The network had roughly 25 brokers, 10 connected to import trade activities. Two large landowners, the Marqués de San Jorge and Rafael de la Vega, also joined the core of big brokers, no doubt using their estates as collateral to obtain loans from ecclesiastical sources. Also, the double role of lender and borrower was not always exercised in tandem. For example, some merchants financed early trade activities through ecclesiastical funds and became lenders after retaining enough profits and liquidity. Other lenders and provincial and mid-scale retailers kept a continuous credit–debit flow with Church institutions and lay borrowers. Such intermediation confirms the dynamism of credit flows and the role of merchants in providing vital financial services before the development of formal banking. As stated above, these services came at a cost through a wedge between interest rates. However, big merchants facilitated the injection of ecclesiastical funds into risky ventures in trade and mining.

The presence of merchant brokerage also fueled non-mortgage lending within the structure of Bogotá's credit network. Roughly 41 percent of loans did not involve collaterals, with merchant lenders tending to privilege guarantors and unlimited liability (Figure 8). Merchants opened the monetary market to all those entrepreneurs who lacked urban or rural estates to apply for ecclesiastical credit. The structure of collaterals changed as well. Movables such as slaves, livestock, jewelry and mules accounted for a significant share of aggregate securities, with flour mills, sawmills, tanneries and other workshops serving as warranties. In short, merchants put their urban estates as collateral to obtain ecclesiastical loans at low interest rates. Then they loaned out their proceeds to a wide set of borrowers who operated in sectors commanding considerable risk in the view of church lenders.

Besides encouraging the entry of new agents into the world of credit flows, brokerage encouraged trade expansion since merchants lent money to small-scale traders

[18] AGN, Notaría 1, vol. 181, 1754, ff. 786–7; vol. 184, 1757, ff. 11–20; vol. 192, 1761, ff. 309v–310.

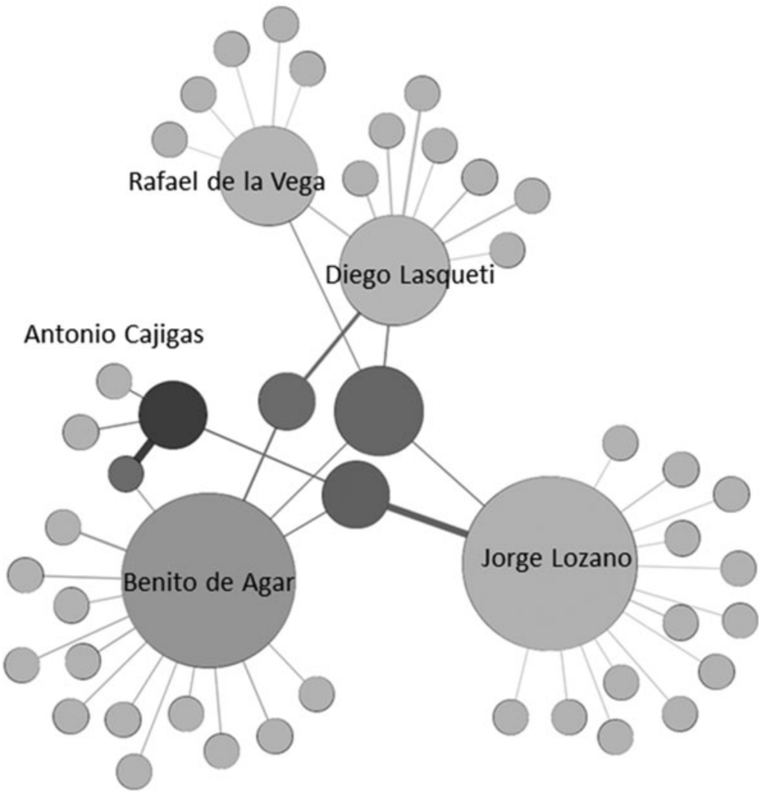

Figure 7. *Networks of merchant lending: key components*
Note: The link thickness on each edge of the network represents the value (weight) of the credit operation.

who received European and domestic goods distributed in provinces across the Viceroyalty in a context of growing regional specialization. Merchants could eventually use their networks to seize those goods in case of default. As the literature has pointed out, those networks became thicker and wider during the late colonial period (Gutiérrez and Torres 2021). The financial deepening led by merchant intermediation was accompanied by an expansion of the geographical scope of Bogotá's credit networks. Map 1 points out that the assets used as collateral for Church lending were in most of the Viceroyalty's central provinces (e.g. Velez, Neiva, Tocaima, Honda and Timaná). However, some nunneries received collateral in cities as far away as Cartagena and Quito. This willingness to inject funds into distant ventures evidences the growing flow of information throughout the Viceroyalty and the centrality of the viceregal capital in the provision of both commerce and financial services. Future research on regional archives may provide insight into how regional networks fused with those intertwined in Bogotá.

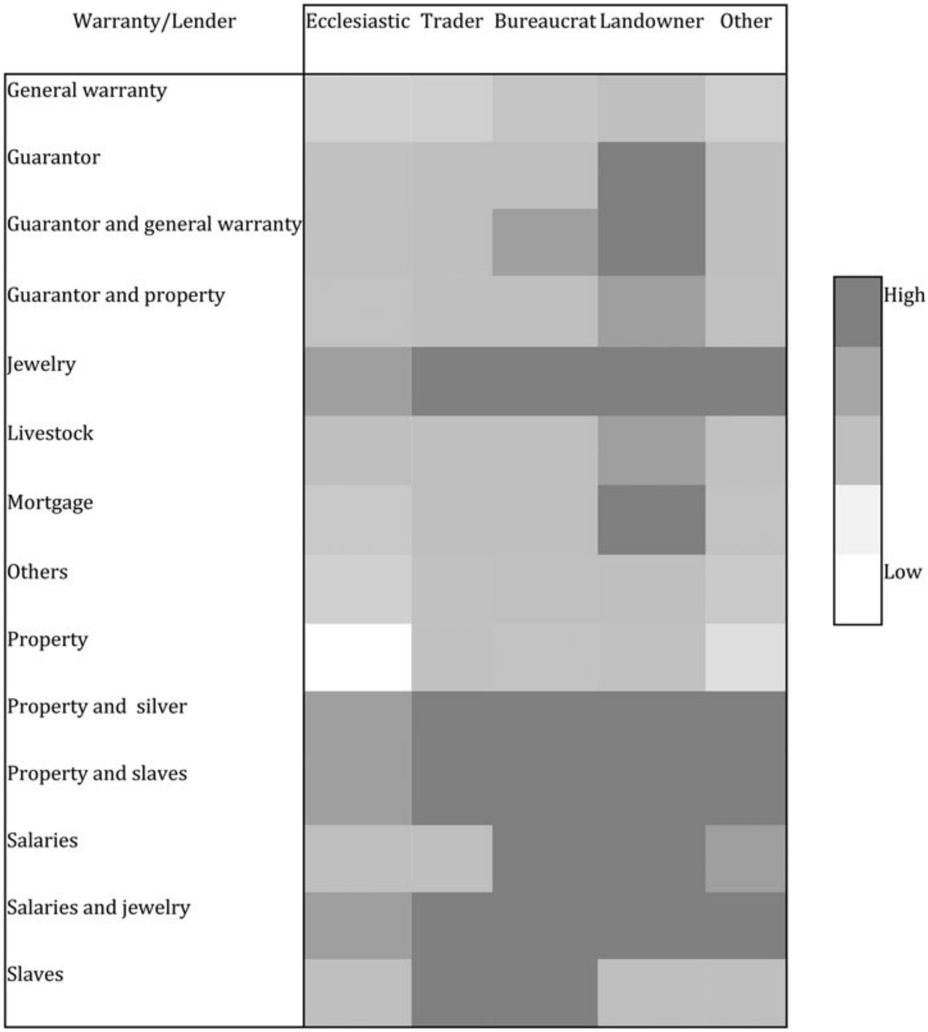

Figure 8. *Warranty heatmap*

VI

Credit networks in pre-industrial Latin America were more robust and dynamic than previously thought. By providing aggregate estimates of debt stock in the viceregal capital of New Granada, this article has challenged the compartmentalized, segmented approach to credit markets in the region. Ecclesiastical and mercantile credit served different market spheres, with the former providing long-term, mortgage-based loans. There was, however, a cross-sectional flow of liquidity between different sources and types of credit, stimulating financial growth and innovation before the boom experienced by New Granada's economy during the late colonial period. The data suggest that by the late 1770s, Church lending had ceased to be the

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Map 1. *Provinces with real credits collateral in the Viceroyalty of New Granada*

region's main source of investable funds. Traditionally, a body of studies has dated the end of the Church's financial hegemony after the liberal reforms of the mid-nineteenth century. Our data, in contrast, suggest that this was a market-led process that started at least a century earlier than previously thought.

Mercantile and non-ecclesiastical sources of credit opened the market for a constellation of new investors looking for loans with lower collateral and institutional requirements, injecting considerable funds into non-agricultural investments. Regarding the Viceroyalty's GDP, financial flows were considerable and may have been larger after the 1780s. Financial brokerage was key, with merchants alleviating information asymmetry and connecting ecclesiastical lenders with clients willing to pay higher interest rates. Bogotá's credit network, finally, was composed of a peripheral structure with agents that forged bipartite ties and a dense core, where the intermediation schemes coalesced into networks with specific business cycles. While some merchants started out as receivers of ecclesiastical loans, ceasing to draw funds from the Church when they got enough liquidity from their mercantile proceeds, others remained brokers between diverse types of credit sources throughout the 20 years examined.

New Granada, finally, developed financial patterns that diverged from those of silver-driven economies such as New Spain and Peru. Bimetallic exchanges, polycentric connections with the world economy, and a demographic structure that debilitated the corporate structure common in other areas of the Empire led to credit networks that may enrich the literature on the late development of banking in Latin America.

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