Public Functions, Private Markets: Credit Registration by Aldermen and Notaries in the Low Countries, 1500-1800.[1]

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Abstract

We explore financial market development in preindustrial Europe by examining the financial functions performed by aldermen and notaries. Using a new dataset of 13,000 credit transactions registered by these public officials in six different cities in the Low Countries between 1500 and 1780, we analyse who used their services, for which purposes, and at what price. We find that notaries and aldermen were very active administrators throughout this period, yet failed to obtain a commanding position as financial intermediaries in the way Parisian notaries did. As they registered only a small fraction of local credit transactions, notaries and aldermen in the Low Countries never possessed the information advantage of their French counterparts. Our findings highlight the degree to which subtle regulatory differences profoundly affected the dynamics of financial market evolution.

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1. Introduction

Well-organized financial systems are conducive to economic growth and development (Levine 1997, Sylla 2002), but the ways in which they do so vary greatly. Countries with similar performance often have very differently organized financial systems, and long-running debates about the respective merits of particular institutional configurations, say banks versus markets or the presumed advantages of *Universalbanken*, did not yield firm conclusions as to the economic superiority of one configuration over another (Sylla and Toniolo 1991; Fohlin 1999; Levine 2002; Carlos and Neal 2011; Calomiris and Haber 2014). The recent financial crisis has added a new dimension to these debates, however, some systems proving more resilient than others (e.g. Bordo et al. 2015).

Tracing the historical roots of today's financial systems is the obvious way to understand their respective differences, but only if we do not take the 20th century model outcome, big banks and flexible securities markets financing modern economic growth, for granted. Important though it is to trace the evolution of, say, deposit banking and securities trading from late medieval Italy and Flanders via seventeenth-century Holland to eighteenth-century Britain, we need to put that evolution back into its historical context if we want to learn why the eventual outcome between countries differed. Merton and Bodie's 1995 functional analysis provides a very practical framework for doing this, because by analyzing how basic financial functions were performed in any given system we get to know at the same time how the system worked, and what kind of opportunities and constraints the individual operators faced, in short, what determined the pattern of supply and demand which drove a particular system's evolution. Moreover, such a functional analysis is particularly useful for understanding Early Modern financial systems, because patterns of supply and demand were so very different. Most firms were financed directly, through family deposits, partnerships, suppliers' credit or outside borrowing with bills. Moreover, there existed a large and diverse group of intermediaries, such as money changers, notaries, cashiers, attorneys, and town magistrates which in the end disappeared, but whose operations, to a greater or lesser degree, shaped a financial system's evolution.

In this paper we adopt the functional analysis framework for exploring the operations of two groups of such disappeared intermediaries in the Low Countries, notaries and aldermen. Drawing our inspiration from the pioneering work of Hoffman, Postel-Vinay, and Rosenthal (2000) on the Parisian notaries' extensive financial intermediation for private customers, we ask whether, in the Low Countries, officials with a similar position could also build and maintain what was essentially a banking business in all but name and, if not, why not. The Parisian notaries' commanding position as financial intermediaries rested on their ability to combine the positive externalities of their professional network with informational advantages from property transactions, the issuing of government debt, and managing clients' estates, thereby reducing information asymmetries between borrowers and lenders.

In theory, notaries in the Low Countries could have developed similar informational advantages but their position in the market seems to have been quite different. When public notaries were first admitted as administrators of private contracts in the sixteenth century, cities already offered registration facilities for contracts such as annuities, mortgages, or debts arising from market or fair transactions (Soly 1974; Dambruyne 1989; Zuijderduijn 2009; Cappon 2005; Nève 2005). What is more, local governments increasingly accepted business ledgers and privately written contracts as conclusive proof in court cases, which may have reduced the benefits of public registration (Gelderblom 2013; Van Bochove and Kole 2014).

To determine the function of notaries and aldermen in the financial system of the early modern Low Countries, we compiled a new database of almost 13,000 credit transactions registered by aldermen and notaries between 1500 and 1780 sampled at forty-year intervals from six cities: Amsterdam, Utrecht, Den Bosch, Leiden, Antwerp, and Ghent. The cities were chosen to reflect differences in political regime and economic conditions. Until the end of the sixteenth century all six cities belonged in the Habsburg empire, but thereafter the four northern cities Amsterdam, Utrecht, Leiden and, from 1628, Den Bosch became part of the Dutch Republic, whereas Ghent and Antwerp remained in the Spanish Habsburg empire. As for their economic position, Antwerp and Amsterdam were major international financial and trading hubs, while Ghent and Leiden were manufacturing cities.

The dataset serves four related aims in this chapter. First, we compare the volume of the credit transactions processed by aldermen and notaries in each city, looking at the number and value of registered loans. We also split the sample to see whether there were any differences between the contracts registered by aldermen and by the notaries. Then we compare the size of the markets which aldermen and notaries served with that of other credit markets within and outside to Low Countries. Finally, we use these loan characteristics in a multivariate regression analysis to measure how well different aspects of risk were priced in the markets served by aldermen and notaries. Taken together, the answers to these questions will allow us to establish whether notaries and aldermen merely acted as public administrators of private loans, or became active intermediaries in local credit markets.

2. Registering private debt

In the Low Countries town magistrates preceded notaries as administrators of credit transactions by several centuries. In all major cities in Flanders, Brabant, and Holland the registration of private loans by the court of aldermen (*schepenbank*) can be traced back to the fourteenth century, if not earlier (Zuijderduijn 2009: 184-190; Van Bochove et al. 2015). The reason for this was the formal obligation for property owners to register loans secured on real estate with the local authorities. Initially, the loans took the form of annuities (*renten*), i.e. mortgages on real estate, that were used by artisans and merchants to fund the initial purchase of a house or piece of land but also, for those already in possession of the premises, to free up capital for other investments, or transfer assets to the next generation (Schnapper 1956). During the fourteenth century urban governments followed suit by selling *renten* secured on future tax revenues. By 1500 every major town in the Habsburg Netherlands had become used to selling annuities to raise money, either for exceptional expenses such as rebuilding defences in the face of war, or to meet the constantly rising fiscal demands of the Brussels government (Munro 2003; Boone et al. 2003; Van der Heijden 2006; Zuijderduijn 2009).

Besides *renten* local governments registered other private loans as well. In Flanders as early as the twelfth century the city of Ypres famously registered debts issuing from transactions at the local fairs (Des Marez 1901). By 1500 town magistrates across the Low Countries exercised their so-called voluntary jurisdiction, to allow their citizens to formalize debts issuing from the sales of sundry goods, house rentals, or labour services (Zuijderduijn 2009).[2] These promissory notes went by a variety of names (*schepenbrief*, *schepenkennis*, *plecht*) but they shared two key characteristics. On the one hand, unlike annuities, both the debtor and the creditor could terminate the contract upon maturity (Schnapper 1956). On the other, the loan did not have to be secured on a specific piece of real estate. More often than not the parties agreed upon a so-called general mortgage, a formal claim on someone's person plus all his or her present and future possessions in the form of real estate or other goods (Van Bochove et al. 2015; Van Hoof 2015: 85-140). This turned the *schepenkennissen* into transferable claims not dissimilar to IOUs circulated by businessmen in Antwerp and Amsterdam (Van Der Wee 1967; Gelderblom and Jonker 2004; Puttevils 2015a), but with the additional legal security of formal registration.

For the present chapter we collected both the private annuities and *schepenkennissen* recorded by the aldermen of six cities: Ghent, Antwerp, Den Bosch, Utrecht, Leyden, and Amsterdam. However, unlike previous studies by Soly (1974, 1977), Dambruyne (1988, 2001) Hanus (2009), and others, we did not include annuities contracted between the buyer and seller of a specific piece of property with the sole purpose of funding the purchase. Surely this was a very large segment of the annuities market, but these loans left debtors no choice as to the amount, purpose, or counterparty of the contract.[3] In other words, we only collected private annuities that were functionally equivalent to the *schepenkennissen* or IOUs that allowed borrowers and lenders to set terms and conditions without any prior constraint.[4] For the same reason we excluded the so-called *kustingen* or *kustingbrieven*, i.e. deferred payments of real estate, as often as not in three annual installments of equal size. (cf.

[2] Compare for Gouda***.
[3] Cf. the distinction made by Schnapper (1956) between the *rente* as a counterclaim created to finance the transfer of a property, and the *constitution* of a *rente* as a means to obtain ready cash on the collateral of a house or a piece of land.
[4] Following the same logic we did collect *life annuities*, but the number of these self-extinguishing cash loans was very limited, i.e. 230 across the entire sample.

Zuijderduijn 2008).[5] Finally, we did not include any transfers of *schepenkennissen* or annuities because these did not constitute the creation of credit either.[6]

[Table 1 about here]

The aldermen's records from the six cities shows their registration of private loans in full-swing in the sixteenth century. The magistrates of Antwerp and Ghent recorded hundreds of loans every year, with numbers in Den Bosch even higher because its aldermen were also responsible for the recording if debts in the surrounding countryside. For Amsterdam en Leiden no records survive for most of the sixteenth century but the data we do have for the final quarter of the sixteenth century shows these towns' magistrates very active as well. In the seventeenth and eighteenth centuries, the aldermen fared differently across cities. In Ghent they virtually stopped recording private loans after 1600, and also in Utrecht, Den Bosch and Leyden there is a marked decline, especially in the eighteenth century. In Antwerp and Amsterdam debt registration also diminished but notably in the Dutch port the aldermen continued to register several hundred new loans per year.

These general trends are reflected in the value of the loans registered by the aldermen (Table 2). Amsterdam stands out with annual loan values between 1 and 1.5 million guilders in the eighteenth century, with Antwerp a distant second with total amounts of between 400,000 and 800,000 in the seventeenth century. In that same period loans recorded by the aldermen of Den Bosch and Leiden peaked at 200,000 guilders in 1620 and 1660 respectively. These very different totals were obviously related to the size of the population. To correct for this we can divide the total sums by the number of inhabitants. Measured per capita, the first thing to notice are the very low loan values: never more than 10 or 15 guilders, the level reached by the aldermen of Antwerp and Den Bosch in the seventeenth century. Equally striking is

[5] Notably in Holland the market for these *kustingen* was very large. For instance in Amsterdam the number of registered *kustingen* rose from 150 to 200 per year in the late 16th century to 1,500 in 1620 and 900 in 1660 – an upward trend related to the city's very rapid expansion during the Golden Age. By 1700 the number had dropped to 300. (EURYI/VIDI database, data drawn from ACA, Archive 5063, *Register van Schepenkennisen* 1594-1595. Archive 5065, *Register van Rentebrieven en Transporten van los- en lijfrenten*, 1580, 1620, 1660, 1700, 1740, 1780).

[6] We know from the work of Soly, Dambruyne, and Hanus that the number of recorded transfers in Antwerp, Ghent and Den Bosch, respectively, was very large in the sixteenth century. A small sample of our own, for the aldermen of Den Bosch in 1580 and 1620, revealed 173 and 113 transfers of annuities per year, respectively. SDB, Archive 5.1, Bosch Protocol, 1580, 1620)

the persistently low value of recorded loans in Ghent (less than 1.50 guilders per capita), throughout the early modern period. In the eighteenth century the other cities reached similarly low levels, expect for Amsterdam, where aldermen remained as active as they had been since the middle of the seventeenth century.

[Table 2 about here]

One explanation for this divergent development would be the more or less successful entry of notaries as administrators of private loans.[7] In the 1530s ordinances issued by Charles V raised their existing private practice of drafting formal legal documents into a public office, with the result that notarial contracts obtained the same legal status as those drawn up by aldermen, provided they kept registers with copies of all deeds signed in their offices. This opened the way for notaries to develop into a legal service provider offering a full range of contracts, including last wills and testaments, marriage contracts, business partnerships, shipping contracts, property transactions, and selling assets such as annuities (Gelderblom 2013: 87-94). To determine whether they build on this business to become financial intermediaries as well, we collected the private loans they recorded in the six cities between 1540 and 1780.

Before the middle of the seventeenth century we found very few debt contracts in the notarial protocols (Table 1). In 1620 there are less than 200 contracts in the six cities, against 2,100 for the aldermen. But in 1660 the notaries, with 1,600 contracts, were almost at a par with the aldermen (1,900 contracts). Their share continued to grow in later years but even in 1780 the aldermen in the six cities combined still recorded one third of all loans recorded. This persistence is partially caused by the inclusion of Amsterdam in our sample, as the aldermen of the Dutch port registered twice as many loans per year as the notaries in 1780. In all the other cities the notaries had clearly surpassed the aldermen as the principal public administrators of debt. This shifting balance is also reflected in the value of loans registered by notaries and aldermen (Table 3). Already in 1660 notaries processed 80 per cent of total loan amounts in Ghent, just under three quarters in Leiden, and some 40 per cent in Utrecht (Table 3). In the other three cities they handled between a fifth and one third of the business. In the eighteenth century the share of the notaries increased across

[7] Table 12 presents a lower bound estimate of this very gradual process, since, to avoid duplication with the aldermen, we did not collect transactions secured on real estate processed by the notaries.

the board, with the differences between cities decreasing. Still, in 1780, notaries in Leyden, Antwerp and Amsterdam were responsible for only 70% of the value of all publicly registered loans.

[Table 3 about here]

So, why did the public registration of private loans in the Low Countries gradually shift from the aldermen to the notaries? Only in the case of Ghent the answer is straightforward. This city had a particular feudal legacy in that landlords retained the right to register any transfer of real property and related credit transactions. Without the formal obligation to register loans with Ghent's aldermen, the administration of annuities ended up in the protocols of notaries (Van Bochove et al. 2015). Ghent was the only city where this happened, however. In Antwerp and Den Bosch notaries were formally required to take turns as clerks at city hall, but the registers they kept for the town were kept completely separate from their own protocols. In the other three cities some notaries also doubled as town secretaries, but these were incidental appointments only, so here aldermen and notaries kept their separate offices and their function in the local financial market may have differed accordingly. To find out how their respective functions developed, we have to look more closely at the transactions in our sample.

3. Transaction patterns

One reason for the segmentation of local credit markets in the early modern period was the use of different kinds of loan collateral. At least until the end of the sixteenth century real estate was the most important store of wealth for town dwellers. As urban governments wanted to keep track of the ownership of this property, anybody who wanted to use a house or a piece of land to secure a loan ended up registering this loan with the aldermen. In fact, the annuities (*renten*) sold for this purpose were themselves considered real property, and while borrowers had the right to repay these loans, creditors who wanted their money back had to sell the annuity to somebody else – once again a transaction that required formal registration at the town hall. Thus, as long as borrowers and lenders valued these specific terms, the aldermen were indispensable as loan administrators. The number of annuities recorded in the six cities declined, however, from six per thousand inhabitants at the beginning of the sixteenth century to less than one per thousand in the eighteenth century (Figure 1) .

[Figure 1 about here]

This movement away from *losrenten* and *lijfrenten* as the preferred credit instrument coinced with the emergence of a new type of collateral, the general mortgage, which allowed creditors to seize any part of a debtor's property in case of default. First applied as an additional safeguard for annuities in the fifteenth century, the general mortgage was increasingly used as the sole guarantee for loans. This is clearly visible in Table 4, which summarizes our knowledge of the collateral of 10,065 loans (83.7 per cent of the total) registered by aldermen and notaries in the Low Countries.[8] More than three quarters of the annuities (*losrenten, lijfrenten*) registered at the town hall came with a specific piece of real estate as collateral. Conversely, three quarters of the loans recorded by notaries specified no other collateral than the person and goods of the borrowers. The specific collateral pledged for the remaining quarter consisted not only of real estate but also financial assets. The one exception are the notaries in Ghent who doubled as town clerks (cf. supra). The vast majority of the loans they recorded did indeed carrry a general mortgage, but half of them also specified real estate as collateral, mirroring the notaries' involvement in two distinct markets segments.

[Table 4 about here]

But even if borrowers and lenders turned away from annuities, they kept coming to the aldermen for the registration of other private loans (Figure 1). Admittedly the number of recorded contracts was modest in most cities, but especially in Antwerp in the sixteenth century, and in Amsterdam in the seventeenth and eighteenth centuries,

[8] In our tabulation the g*eneral mortgage* includes 'persoon en goed' and 'persoon'; *Real estate* includes: houses, land, workshops, mills; financial assets include bonds, shares, and loans; *other* includes: merchandise, ships, unspecified 'goods', collective goods (e.g. from inheritance or communal institution), and any other kind of collateral;

several hundreds of loans were registered every year. The collateral pledged for these *plechten*, *schepenkennissen*, and *schuldbekentenissen* resembled that of the notarial loans: a general mortgage, sometimes with an additional pledge of real estate as collateral. One possible explanation for this persistent involvement of the aldermen could be the social background of the borrowers and lenders who used their services. As various historians have shown for the cities of Flanders and Brabant in the sixteenth century, craftsmen were the principal sellers of annuities, with a mixed group of retailers and wholesalers a distant second. Their creditors issued from broader shifts of society, including craftsmen, traders, civil servants, clergy, and a substantial group of widows and (the guardians of) orphans.

[Table 5 about here]

Our sample gives us the professions of some 2,000 borrowers and 3,000 lenders. These data, summarized in Table 5, suggest that the aldermen in other parts of the Low Countries served a clientele similar to that in Antwerp in the sixteenth century. Craftsmen and laborers make up 60 per cent of the debtors with known profession, with traders a distant second at 25 per cent. The craftsmen and laborers were much less dominant among the creditors which comprised a much broader group of artisans, traders, and public officials. If we then look at the professional background of debtors and creditors appearing before notaries between 1660 and 1780, it turns out that these officials had an equally broad customer base. Traders and public officials together accounted for half the loans, but craftsmen and laborers still took up about a third of all notarial credit. Only the creditors issued almost exclusively from the upper shifts of society, with traders, public officials, noblemen, and clergy signing more than 85 per cent of the loans.

[Table 6 about here]

With both market segments accessible to broad shifts of society there must be another explanation for the growing share of notaries in the public registration of private loans. Differences in the average and median loan amounts recorded by notaries and aldermen offer a partial answer. As Table 6 shows, the higher these amounts, the more likely it was that people went to a notarial rather than the aldermen's bench. By 1780 the average amount of loans processed by notaries was double the aldermen's average. One obvious reason was the higher number of merchants among the notaries' clientele, but if we compare average to medium loan amounts (reported in Table 7) a more subtle difference between the two segments emerges. While median loan amounts remained largely similar, the averages diverged especially in the eighteenth century when notaries started to register some very large loans.

[Table 7 about here]

If average and median amounts rose across the board, then small loans became more and more exceptional. In 1620 the median amount was just over half to one-and-a-half a skilled artisan's annual wage of 200 guilders, but that rose to more than 2.5 times by 1660, four times by 1740 and five times by 1780. Presumably over time people needing small loans found other ways to borrow, avoiding the formalities and cost of contracting before magistrates or notaries. The same was true for loans of short duration. We know loan maturities for about a third of all transactions. As Table 8 shows, up to 1700 loans averaged about two years, but with a median of only a year, so a considerable number of contracts had either a much shorter or a rather longer maturity. During the eighteenth century maturities doubled to four years while the difference between average and median, i.e. the extreme maturities, dropped considerably. By all looks the transactions in our sample evolved into a sort of standard longer-term loan, most noticeably so for the aldermen contracts with average maturities of seven years by 1780, against three for the notaries.

[Tables 8 and 9 about here]

As a final gauge of the differences between the two segments, we can probe loan purposes but again with a strong proviso since two-thirds of all contracts sampled come into the category other and unknown (Table 9). The stated loan purposes did not differ that much between the two service providers, save for the fact that the notaries processed rather more contracts with borrowers stating cash-in-hand as purpose. Since we filtered out the direct mortgaging of property on purchase, the low percentage of loans to buy real estate fails to surprise.

4. The Function of Aldermen and Notaries

Our data show that aldermen and notaries in the Low Countries served partially overlapping market segments – with the formal, public registration of loans as the common denominator. They both offered legal security to borrowers and lenders but aldermen offered more standard solutions, while notaries registered loans with more specific terms and conditions regarding the size, maturity, collateral, and purpose of the contract. In terms of Merton and Bodie's functional approach to financial markets the aldermen and notaries helped debtors and creditors to overcome incentive problems (function 6). The public registration of the terms and conditions of a loan, whether in the form of a standard contract or an explicit adaptation thereof, made for easy enforcement with the added advantage of a priority claim in case of liquidation of the debtor's estate. Now the question is, whether the aldermen and notaries in the Low Countries built on this administrative role to perform additional functions as well, in particular the ones highlighted by Hofmann et al. in their work on Parisian notaries, i.e. the transfer of funds from savers and investors to borrowers (function 3) and the allocation of these loans according to the perceived default risk of the debtors (function 4)?[9]

To answer this question we first need to establish how important the registration of loans by notaries and aldermen was in comparison to other segments of the market. We know that some Antwerp merchants during the sixteenth century, and some of their Amsterdam colleagues a century later, possessed commercial paper worth tens of thousands guilders, but we have no idea of how much of that paper circulated (Gelderblom and Jonker 2004; Puttevils 2015a, Gelderblom, Jonker, and Kool 2016). Nor do we know more about bills of exchange or suppliers' credit, apart from the fact that it was very widely used. The only gauge we have is the issue of public debt by the sovereign province of Holland, the single biggest issuer in the Low Countries during the seventeenth and eighteenth century. From a creditor's viewpoint this is not such a bad gauge. Formally, Holland bills had a maturity of six to twelve months, though most if not all were habitually rolled over to become de facto consolidated debt (Gelderblom and Jonker 2011). As often as not the contracts that interest us had a maturity of some eighteen months across all cities, with an

[9] We can be brief about a potential fourth function of the notaries – the pooling of household wealth to fund government expenditure. Unlike in France, notaries in the Low Countries played no role whatsoever in the placement of public loans (Gelderblom and Jonker 2011, 2014)

average of 24 to 30 months and a median of 12 during the seventeenth century, rising to 45-50 and 36-48 respectively during the eighteenth century.

Because there are no comparable figures for public debt issues in the provinces Flanders, Brabant, and Utrecht, we can only draw a comparison for the two Holland cities in our sample, Leiden and Amsterdam, for the five benchmark years between 1620 and 1780. Provincial debt was issued by the local tax receivers, each in proportion to their share in total tax receipts. Consequently, the receivers in Leiden and Amsterdam together sold about 35 per cent of each new loan. Elsewhere we have reconstructed detailed, annual figures for Holland's total debt, repayments and new issues (Gelderblom and Jonker 2011). Figure 2 compares the value of 35 per cent of those new issues with the amount of debt processed by aldermen and notaries during the benchmark years. Our comparison makes the volume of private debt stand out as very substantial: in each of the benchmark years aldermen and notaries processed higher amounts than the tax receivers issued in public debt. If the volume of private debt outstripped public debt issues in most years, we may also assume the reverse to have been true. The comparatively low figure for Amsterdam in 1700, about half of that in 1660, 1740, and 1780, could then be explained by strong public demand during the preceding Nine Years' War.

[Figure 2 about here]

Thus, measured by the value of the loans they recorded, notaries and aldermen played a substantial role in local credit markets. But still their position may have been much weaker than that of Parisian notaries. For one thing, merchants in major commercial cities used notaries only sparingly. In Amsterdam, and probably elsewhere, too, bills of exchange generated a steady stream of notarized protests, because local custom required such documents to start proceedings for non-payment. But the initial bills were never notarized. By contrast merchants initially, that is to say during the last quarter of the 16th century, used notarized shipping contracts, but as shipping grew and contracts standardized, they switched to private contracting and used notaries only as an exception, for trips with unusual cargoes, partners, or destinations (Hart, 'Shipping contracts'.*). The securities trade showed a similar switch from notarized to private contracting (Petram 2014). The use of affidavits or solemn depositions taken by notaries also appears to have dropped over time as merchants found other, cheaper ways of giving formal testimony in business disputes.

Because of the formalities involved, registered contracts were better legal proof for transactions than underhand, private contracts, but registration also cost time and money.[10] The same goes for borrowers and lenders, who may have employed a notary or aldermen only when they were unfamiliar with a particular type of contract, uncertain about its outcome, unsure about their counterparty, or when they wanted legal advice. In other cases they may have preferred direct, private dealings with friends, relatives, and business association. In sixteenth-century Antwerp, for instance, merchants commonly relied on private IOUs as backing for debts, while local cashiers developed a note circulation which must have included overdrafts for trusted clients (Puttevils 2015b; Van der Wee 1967). For Amsterdam we know that, by the last quarter of the seventeenth century, several alternative credit options had emerged, including pre-printed private loan contracts (Van Bochove and Kole 2014), wage advances from the colonial companies (Van Bochove and Van Velzen 2014), bills of exchange, suppliers' credit, and short-term borrowing against securities (Gelderblom, Jonker, and Kool 2016).

Thus it seems that the business model of notaries in the Low Countries was very different from that in France. Until well into the nineteenth century the licenses which notaries needed to set themselves up in business was no more than a diploma, an official qualification. Obtaining such a license meant entering a competitive business, because the authorities rarely restricted the number of licenses granted to notaries or, if they attempted to do so, their efforts failed (Cappon 2005: 20; Nève 2005: 48).[11] Consequently passing deeds remained a sideline for most notaries. As a rule they saw only one, perhaps two or three clients a week (cf. Table 10). Amsterdam formed the exception. The city council succeeded in keeping down numbers and local notaries sought to boost their business through specialization, say by focusing on shipping contracts or building ties to specific business communities like Sephardic or Armenian merchants.[12] But even in Amsterdam the average practice in 1620 or 1780, dealing with eight clients a week, cannot have kept notaries very busy or yielded them

[10] Cf. Van Hoof, *Generale zekerheidsrechten* 108-109 quoting Pos, *Bezitloos pandrecht* 161, about merchants generally lacking the time to formalize claims.
[11] Cf. also Sprenger, 'Notariaat', 128, 130; and for a rare instance of restrictions in Breda idem, 124.
[12] ***ref.

a living commensurate with their social rank and their standing as qualified legal experts.[13]

[Table 10 about here]

Unlike their Paris counterparts, notaries in the Low Countries could rarely earn a living from processing deeds alone. Therefore they needed income from other work. They often doubled as aldermen and occupied other administrative positions, such as court clerk and bailiff, they acted as solicitors, or, in the southern Low Countries, served as priests.[14] In such circumstances one would expect them to have used the information about their clients to sollicit new business by moving into active financial intermediation. This did indeed happen in Utrecht.[15] At least two notaries had switched entirely to financial services by the end of the 18th century, one to deposit banking, the other to securities underwriting and trading.[16] In both cases notarial and financial services developed side-by-side until the latter generated sufficient income to drop the former.

However, Utrecht was an exception. Notaries did not, as a rule, branch out into financial intermediation to supplement their income. Regressing the total number of deeds processed on the number of debt transactions per notary and per city, we found a negative non-linear relation between them. That is to say, the notaries with the best informational basis to capitalize on the information available to them, i.e. those with the highest number of deeds per year, had a lower proportion of financial contracts than notaries who processed few deeds and thus possessed little information with which to canvass business. This suggests that the Low Countries notaries could not emulate their Parisian colleagues' example for two reasons. First, as noted above, the

[13] Roes, *Goede, afvallige notaris* 7, 9, 13, 14, on the social status of notaries in Gelderland. ***Income Amsterdam notaries, cost of deeds, data HK.
[14] Roes, *Goede, afvallige notaris*, 7, 9; Sprenger, 'Notariaat', 127, and 125, mentioning one 17th century case of a surgeon-notary.
[15] Van Bochove (2013). In Utrecht's notarial protocols we found 218 transfers of private and public bonds in 1740, and another 256 in 1780. With 17 and 19 transfers in 1660 and 1700, respectively, this specialization seems much less pronounced in the seventeenth century (HUA, Archive 34-4, Notariële archieven stad Utrecht). In the eighteenth century notaries in Den Bosch also recorded several dozens of transfers per year: in 1700: 10; in 1740: 33; in 1780: 33 (SDB, Archive 9.1, Notarieel Archief, 1660, 1700, 1740, 1780)
[16] Resp Jan Kol, a cashier and fledgling deposit banker, and D.W. van Vloten, an underwriter for Hope & Co.'s foreign loans (Van Bochove 2013)

information about real estate transactions was essentially free; second, because the authorities failed to restrict the number of notaries, they could not exploit any information exclusively available to them, despite the fact that they had an incentive to do so.

Thirdly, the per capita figures reported in Table 2 (cf. supra) provide further perspective on the volume of transactions. By 1780 this type of credit had passed the 20 guilder per head mark in three cities, Amsterdam, Ghent, and Den Bosch. In Antwerp and Utrecht two others the figure stood at between 10 and 20 guilders, whereas Leiden remained below 10. By contrast, Parisian new notarial credit already amounted to 35 guilders per capita in 1740, more than twice what aldermen and notaries processed in any of our cities during the same year. Following the lead of Hoffman et al. (2000) we can use the stated maturity of loans to derive the stock of credit at the benchmark years. The notarial contracts do not always record the maturity or the actual extinction of debts, but at least sufficiently often to permit a rough estimate of debt stock by combining the actual maturity of the loans with the number of contracts passed.[17] Table 11 shows very low initial numbers overall, rising considerably only during the eighteenth century, the estimated Amsterdam stock growing to 2,8 million guilders in 1740 and double that amount in 1780. Ghent was not far behind in 1740, which leads us to suppose it must have risen further by 1780, when Antwerp reached almost 2.4 million guilders in 1780.

[Table 11 about here]

To put these numbers in perspective we compare those for our two biggest cities first of all with some of the Paris figures (Table 12). The difference between the cities is huge. With a population less than three times that of Amsterdam, the notaries of Paris contracted 16 times as many loans as their Dutch counterparts. The average loan amounts in Paris and Amsterdam were similar, but as a result of the much larger population and the much longer maturity of loans, the stock of notarized loans in Paris was 85 times bigger than in Amsterdam.

[17] We know the maturity of 67.2% of the loans recorded in Amsterdam, 52.4% of loans in Antwerp. This information is more sparse for Den Bosch (42%), and especially Leiden (19%), Utrecht (22%), and Ghent (4%).

In brief, the credit processed by aldermen and notaries in the Low Countries, though substantial in itself compared to what the public debt absorbed, was far less important than notarial credit was in Paris. In each of the six cities explored here, the formally registered contracts were only one of many forms of debt, and certainly not the dominant one.[18] People needing credit possessed a range of alternatives, from lombarding securities or commodities via private, underhand contracts with family members, to current accounts kept with business associates, and deferred payments to suppliers.

5. Risk Pricing

Borrowers and lenders in the Low Countries may have benefited from this segmentation of local credit markets as it facilitated the matching of a very heterogeneous supply and demand for loans. On the other hand, it may have been more difficult to find the right counterparty in the absence of the kind information sharing practiced by Parisian notaries. To explore which of these two interpretations holds, we can examine the ability of creditors and debtors to adequately price risks. As a first gauge, we simply compare the average interest rate on loans registered by aldermen and notaries to the yield on bonds of the Estates of Holland. As Table *** shows, the start of the 17th-century roughly marks the beginning of the downward trend in interest rates, both public and private, due to more certainty and general economic growth along with financial innovations. The rates charged in the private markets followed market developments but they were usually higher than the yield on Holland bonds.[19]

[Table 13 about here]

To determine exactly how well risks were priced in these two market segments is impossible. Frequently there is no information on if and when a loan was repaid, for

[18] Sneller, 'Twentsche'***.
[19] There is a possibly very important technicality here: from about 1680 onwards public bond holders paid a withholding tax on Holland's bonds which stood at 1.5% from the early seventeenth century onwards. It is quite conceivable that loans that were formally registered also fell under this tax regime, which would imply that the yield on these private loans was actually on par with the public loans.

example. Moreover, the exact riskiness of a loan is hard to measure as, for instance, the collateral is often only described and no exact value is given. Presumably, the creditor knew more about the exact value of the collateral than what is noted in our database. Nevertheless, the size of the database and the richness of information in other respects (e.g. interest rate, loan size, collateral type and the presence of a guarantor and family relations) does allow a further examination of the relationship between return on the one hand and risk on the other. To do so we replicate the methodology of an earlier study on price setting on the Amsterdam credit market (Gelderblom et al. 2016).

We use OLS to estimate an independently pooled cross section model for circa 8,000 credit transactions between 1620 and 1780, i.e. the period in which both alderman and notaries were active. In Table *** the first column shows the estimation results for the loans registered by aldermen, the second those of the notarial loans. The dependent variable is the interest rate premium which is the interest rate minus the risk-free rate at the time. The interest rate on bonds issued by the province of Holland is taken as the risk-free rate. The explanatory variables capture different dimensions of risk. Loan size, the kind of collateral (real estate, movable goods, financial assets, others, and general), the location of the debtor (local, non-local, and foreign), and the presence of a guarantor and family relations are the main explanatory variables. Control variables include the year, the location and the type of contract (life annuity, redeemable annuity, obligation, and general debt notice).

[Table 14 about here]

The results show, first of all, that in both market segments larger loan sizes are related to a lower interest rate premium. This makes sense as the relative importance of fixed costs involved with credit decline as the size of the loan increases. Moreover, larger loan sizes probably capture other aspects, like the wealth of the debtor, on which we have no data. We do capture another well-known aspect of early modern credit markets, that is the impact of the social and geographical distance between creditors and debtors on loan terms. As expected, a family relationship between the contracting parties is related to a cut in the interest rate premium. Conversely non-local and foreigner borrowers paid a premium, although this effect is statistically insignificant for the three (!) foreigners we identified in the aldermen's registers. The presence of a guarantor for a creditor to call upon in case of default seems to be related to a small increase in the risk premium, at least with notarial loans. This effect, though not very strong, is worth pondering as a guarantor should increase the security of a loan, *ceteris paribus*. In this case, the increased premium seems to suggest that the debtor needed this additional safeguard to obtain a loan in the first place.

When looking at the impact of different types of collateral, it is important to remember that our reference group is the general mortgage ("person and goods"). Securing a loan with just this kind of collateral might indicate that the creditor knew and trusted the debtor and/or estimated the debtor's assets to be of enough value to cover the loan in case of default. But it could also mean that the debtor actually had nothing specific to offer as collateral, indicating a rather risky loan. It is hard to distinguish between these two possibilities. However, since we control for family relations, the presence of a guarantor, and the location of the debtor, one would expect the pledging of a specific kind of collateral to reduce the risk for creditors. This is indeed what we find for the safest type of collateral, real estate: the premium goes down. Movable goods, however, are priced as less secure than the very general collateral. This is most likely due to them being rather unstable in value and hard to control, especially if the debtor retained them in his or her own control. Finally, the use of financial assets as collateral does not lead to a lower premium. These assets were supposedly easy to price and highly liquid, and therefore a very attractive loan collateral (Gelderblom and Jonker 2004). But many financial assets that were used as collateral here were actually not highly liquid VOC shares or government bonds, but rather parts in smaller shipping companies or deeds of private loans.

For all the reasons mentioned above, we have to be careful to read too much into these results. There is little doubt, however, that the parties who registered loans with the aldermen and notaries were able to estimate what made a loan riskier and what made it less so. They calibrated the allocation and pricing of credit in various ways: choosing more or less distant counter parties, laying down different forms of collateral, presenting a guarantor, and of course using the services of notaries and aldermen to make sure creditors had legal preeminence in case of default.

6. Conclusion

By the mid-sixteenth century the unification of the Netherlands under Burgundian and Habsburg rule had created an institutional framework for private and public credit markets that was remarkably similar across the realm. Key features were the introduction of a funded public debt organized by urban governments; private annuities, mortgages, and other medium- and long-term loans registered by these same rulers; the admission of notaries as formal registrars of an even broader variety of debt and equity contracts; and the enforceability in local courts of privately recorded loans. In the major commercial cities, Antwerp and Amsterdam in particular, local judges supported an even wider range of negotiable instruments, notably bills of exchanges and bills obligatory, and they regulated the work of various financial intermediaries, including brokers, moneychangers, and cashiers.

In this paper we explored the functioning of two adjacent market segments in various cities in the Low Countries: the loans recorded by aldermen and notaries between 1500 and 1780. We find that broad shifts of society used notaries and aldermen to register loans of various kinds. Yet the notaries and aldermen failed to obtain a commanding position on the capital market in the way Parisian notaries did and remained locked in a comparatively small segment of the total market, largely because they did not possess the information advantages of their French counterparts. The notaries, for instance, played no role in either the marketing of public debt or in the mortgage market. The aldermen were central in the mortgage market, but of only secondary importance in the wider loan market, dominated as it was by a highly liquid form of commercial lending on collateral of personal bonds or of securities (Gelderblom, Jonker and Kool, 2015). These findings highlight the degree to which subtle regulatory differences profoundly affected the dynamics of financial market evolution.

References

Baum, H.P. *Hochkonjunktur und Wirtschaftskrise im spätmittelalterlichen Hamburg Hamburger Rentengeschäfte 1371 – 1410* (Hamburg 1976)

Bochove, C. van. (2013). "Configuring Financial Markets in Preindustrial Europe", *The Journal of Economic History*, 73:1, 247-274.

Bochove, C. van, and T. van Velzen (2014) "Loans to Salaried Employees: The Case of the Dutch East India Company, 1602-1794", *European Review of Economic History* 18:1, 19-3.

Bochove, C. van, and H. Kole. (2014). "Uncovering private credit markets: Amsterdam, 1660-1809", in: *The Low Countries Journal of Social and Economic History* 11:3, 39-72.

Bochove, C. van, H. Deneweth and J. Zuijderduijn (2015), "Real estate and mortgage finance in England and the Low Countries, 1300–1800." *Continuity and Change*, 30, 9-38.

Boone, M., K. Davids and P. Janssens, eds. *Urban Public Debts. Urban Governments and the Market for Annuities in Western Europe (14th-18th centuries)*. Turnhout: Brepols 2003.

Bordo, M.D., A. Redish, and H. Rockoff, "Why didn't Canada have a banking crisis in 2008 (or in 1930, or 1907, or ...)?", *Economic History Review*, 68-1 (2015), pp. 218-243

Calomiris, C.W. and S.H. Haber, *Fragile by Design. The Political Origins of Banking Crises & Scarce Credit,* Princeton: Princeton University Press (2014).

Cappon, C.M., 'Het notariaat in de late Middeleeuwen (± 1250 – ± 1540)', in: A.F. Gehlen en P.L. Nève, ed., *Het notariaat in de Lage Landen (± 1250-1842)* (Kluwer: Deventer 2005) 1-30.

Carlos, A.M., and L. Neal, 'Amsterdam and London as financial centers in the eighteenth century', *Financial History Review* 18 (2011) 21-46

Dambruyne, Johan. "De 17de-eeuwse schepenregisters en de rente- en immobiliëntransacties te Gent: enkele beschouwingen." *Handelingen der Maatschappij voor geschiedenis en oudheidkkunde te Gent* 42 (1988) 153-182.

Dambruyne, Johan. 2001. *Mensen en centen: Het 16de-eeuwse Gent in demografisch en economisch perspectief*. Verhandelingen der Maatschappij voor Geschiedenis en Oudheidkunde te Gent. Vol. 26. Gent: Maatschappij voor Geschiedenis en Oudheidkunde.

Des Marez, G. (1901), *La lettre de foire a Ypres au XIIIe siècle, contribution à l'étude des papiers de crédit*. Bruxelles: H. Lamertin.

Dickson, P.G.M. (1967). *The financial revolution in England: a study in the development of public credit, 1688–1756*. Oxford: Oxford University Press.

Fohlin, C. "Universal Banking in Pre-World War I Germany: Model or Myth", *Explorations in Economic History*, 36, 305–343 (1999)

Fratianni, M. and F. Spinelli. (2006). "Italian city-states and financial evolution", *European Review of Economic History*, 10, 257–78.

Fritschy, W. (2003). "A 'Financial Revolution' Reconsidered: Public Finance in Holland during the Dutch Revolt, 1568-1648", *The Economic History Review*, 56:1, 57-89.

Gelderblom, O. (2008). "The Golden Age of the Dutch Republic", in: *The Invention of Enterprise*, Chapter 6, Princeton: Princeton University Press.

Gelderblom, O. and J.P.B. Jonker. (2004). "Completing a financial revolution: the finance of the Dutch East India trade and the rise of the Amsterdam capital market, 1595–1612", *Journal of Economic History*, 64, 641–72.

Gelderblom, O. and J.P.B. Jonker. (2010). "Alba's Irony: Urban Autonomy and Public Finance in the Low Countries, 1384-1713". Working paper.

Gelderblom, O. and J.P.B. Jonker. (2011). "Public Finance and Economic Growth: The Case of Holland in the Seventeenth Century", *The Journal of Economic History* 71:1, 1-39.

Gelderblom, O. and J.P.B. Jonker. (2014). "The Low Countries", in: *The Cambridge History of Capitalism, Vol. 1. The Rise of Capitalism*, Ch. 11. Cambridge: Cambridge University Press.

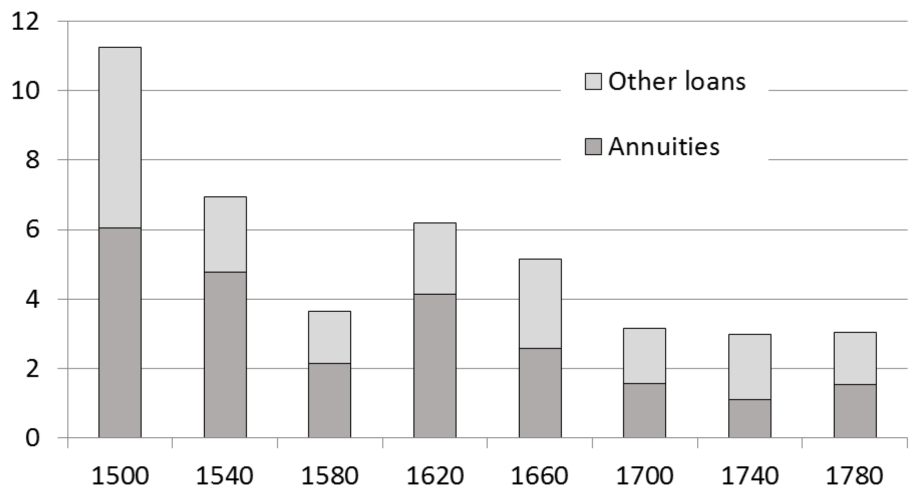
Gelderblom, O., J. Jonker and C.J.M. Kool (2016), 'Direct finance in the Dutch Golden Age', *Economic History Review,*

Hanus, Jord (2009), Een efficiënte pre-industriële kapitaalmarkt? Het vroeg zestiende-eeuwse 's-Hertogenbosch als voorbeeld, *Tijdschrift voor Sociale en Economische Geschiedenis* 3, 82-113.

Hart, M. 't, J.P.B. Jonker and J.L. van Zanden. (1997). *A Financial History of the Netherlands*. Cambridge: Cambridge University Press.
Heijden, Manon van der. *Geldschieters van de stad. Financiële relaties tussen stad, burgers en overheden 1550-1650*. Amsterdam: Bert Bakker, 2006.
Hoffman, P.T., G. Postel-Vinay and J.L. Rosenthal. (1998). "What do Notaries do? Overcoming Asymmetric Information in Financial Markets: The Case of Paris, 1751", *Journal of Institutional and Theoretical Economics* 154, 499-530.
Hoffman, P.T., G. Postel-Vinay and J.L. Rosenthal. (1999). "Information and Economic History: How the Credit Market in Old Regime Paris Forces Us To Rethink the Transition to Capitalism", *The American Historical Review* 104:1, 69-94.
Hoffman, Ph. T., G. Postel-Vinay, and J.-L. Rosenthal. *Priceless markets. The Political Economy of Credit in Paris, 1660-1870*. Chicago: University of Chicago Press, 2000.
Hoffman, Ph. T., G. Postel-Vinay, and J.-L. Rosenthal. "Entry, information, and financial development: A century of competition between French banks and notaries", *Explorations in Economic History*, forthcoming (2015)
Hoof, van. (2015)*
Houtman De Smedt, Gamel*
Israel, J.I. (1995). *The Dutch Republic: Its Rise, Greatness, and Fall 1477-1806*. Oxford: Clarendon Press.
Levine, R. (1997). "Financial development and economic growth: views and agenda", *Journal of Economic Literature* 35, 688-726.
Levine, R., 'Bank-based or market-based financial systems: which is better?', in: *Journal of financial intermediation* 11 (2002), 398-428
Lourens, P. and J. Lucassen. (1997). *Inwoneraantallen van Nederlandse steden ca. 1300-1800*. Amsterdam: NEHA.
McCants, A.E.C. (2007a). "Goods at Pawn: The Overlapping Worlds of Material Possessions and Family Finance in Early Modern Amsterdam", *Social Science History*, 31:2, 213-238.
McCants, A.E.C. (2007b). "Inequality among the poor of eighteenth century Amsterdam", *Explorations in Economic History*, 44, 1-21.
Merton, Robert C. and Zvi Bodie (1995). 'A conceptual framework for analyzing the financial environment', in: D.B. Crane et al., ed., *The global financial system, a functional perspective* (Harvard Business School: Boston, 1995) 3-32
Muldrew, C. (1988). *The Economy of Obligation: The Culture of Credit and Social Relations in Early Modern England*. Basingstoke.
Munro, John H., 'The Medieval Origins of the Financial Revolution: Usury, Rentes, and Negotiablity',*The International History Review*, 25:3 (September 2003), 505-62.
Neal, L. (1990). *The Rise of Financial Capitalism: International Capital Markets in the Age of Reason*. Cambridge: Cambridge University Press.
Nève, P.L. 'Het notariaat in de Habsburgse Nederlanden', in: A.F. Gehlen en P.L. Nève, ed., *Het notariaat in de Lage Landen (± 1250-1842)* (Kluwer: Deventer 2005) , 37-76.
Petram, L.O. (2014). *The World's First Stock Exchange* (New York).
Poterba, J.M. (2005). "Annuities in Early Modern Europe", in: Goetzmann, W.N., and K.G. Rouwenhorst. (2005). *The Origins of Value: The Financial Innovations that Created Modern Capital Markets*. New York: Oxford University Press, 207-224.
Puttevils, Jeroen (2015a). *Merchants and trading in the sixteenth century : the Golden Age of Antwerp* London: Pickering & Chatto.
Puttevils Jeroen (2015b), "Tweaking financial instruments : bills obligatory in sixteenth-century Antwerp", *Financial history review* 22:3 (2015), 337-361.
Quinn, S. and W. Roberds. (2007). "The Bank of Amsterdam and the Leap to Central Bank Money", *The American Economic Review*, 97:2, 262-265.
Rousseau, P.L. and R. Sylla. (2007). "Financial Systems, Economic Growth, and Globalization", in: *Globalization in Historical Perspective*, Ch. 8. Chicago: University of Chicago Press.

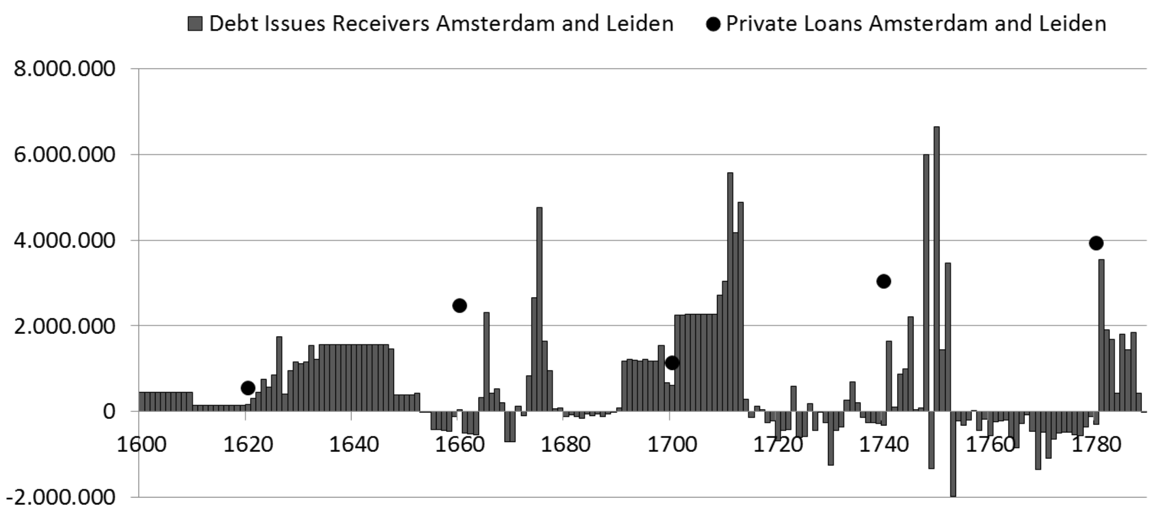
Schnapper, B., *Les rentes au XVIe siècle. Histoire d'un instrument de crédit*, Paris, Université de Paris, (1956).
Sneller, Twentsche*
Soly, Hugo. "De schepenregisters als bron voor de conjunctuurgeschiedenis van Zuid- en Noordnederlandse steden in het Ancien Régime", in: Tijdschrift voor Geschiedenis, 87, 1974, 521-544.
Soly, Hugo (1977), *Urbanisme en kapitalisme te Antwerpen in de 16de eeuw: de stedebouwkundige en industriële ondernemingen van Gilbert van Schoonbeke*, Brussel, Gemeentekrediet.
Sprenger, Notariaat*
Stiglitz, J.E. and A. Weiss. (1981). "Credit Rationing in Markets with Imperfect Information" *The American Economic Review* 71:3, 393-410.
Sylla, R. (2002). "Financial systems and economic modernization", *The Journal of EconomicHistory*, 62, 277–92.
Sylla, R., and G. Toniolo, eds., *Patterns of European industrialization, the nineteenth century* (Londen 1991)
Sylla, R., 'The role of banks', in: Sylla and Toniolo, *Patterns of European industrialization,* 45-63.
Tracy, J.D. (1985). *A financial revolution in the Habsburg Netherlands: renten and renteniers in the county of Holland, 1515–1565*. California: Berkeley.
Wee, Herman van der. "Anvers et les innovations de la technique financière aux XVIe et XVIIe siècles." *Annales ESC*, 22, no. 5 (1967) : 1067-89.
Wee, Herman van der; and J. Materné. "Het kredietsysteem in Brabant tijdens de late middeleeuwen en in het begin van de nieuwe tijd", In: *Bankieren in Brabant**** (1987), 59-78.
Vries, J. de, and A.M. van der Woude. (1997). *The first modern economy: success, failure, and perseverance of the Dutch economy, 1500-1815*. Cambridge: Cambridge University Press.
Vries, J. de. (2000). "Dutch economic growth in comparative-historical perspective, 1500-2000", *De Economist*, 148:4, 443-467.
Zanden, J.L. van, J. Zuijderduijn and T. de Moor. (2012). "Small is beautiful: the efficiency of credit markets in the late medieval Holland", *European Review of Economic History*, 16, 3-22.
Zuijderduijn, J. and T. de Moor. (2013). "Spending, saving, or investing? Risk management in sixteenth-century Dutch households", *Economic History Review*, 66:1, 38-56.
Zuijderduijn, J. "Conjunctuur in laatmiddeleeuws Haarlem. Schepenregisters als bron voor de economische ontwikkeling van een Hollandse stad", *Tijdschrift Holland* 40: 1 (2008), 3-17
Zuijderduijn, Jaco (C.J.). *Medieval capital markets, markets for renten, state formation and private investment in Holland (1300-1550)*. Leiden: Brill, 2009).

Figure 1. Estimated Number of Annuities and Other Loans per 1,000 Inhabitants Recorded by Aldermen in Six Cities (1500-1780)



Source: EURYI/VIDI database ; extrapolation based on sampling for Amsterdam and Antwerp; the graph includes credit transactions recorded by Ghent notaries between 1620 and 1780

Figure 2. Public Debt Issues and Private Loans Recorded by Aldermen and Notaries in Leyden and Amsterdam, 1600-1780



*Source****

Table 1. Annual number of loans recorded by aldermen and notaries in six cities, 1500-1780

ALDERMEN	**1500**	**1540**	**1580**	**1620**	**1660**	**1700**	**1740**	**1780**
Ghent	748	499	112	105	56	13	1	20
Antwerp[a]	775	777	445	534	574	288	152	185
Den Bosch	972	955	211	485	170	273	80	29
Utrecht		50	76	184	92	43	97	48
Leyden				160	190	73	155	61
Amsterdam[b]			83	640	807	320	490	476
	2,495	**2,281**	**927**	**2,108**	**1,889**	**1,010**	**975**	**819**
NOTARIES	**1500**	**1540**	**1580**	**1620**	**1660**	**1700**	**1740**	**1780**
Ghent				7	257	437	302	444
Antwerp		14	2	59	272	479	148	162
Den Bosch					31	125	128	216
Utrecht			3	9	64	81	93	193
Leyden			6	58	636	79	47	44
Amsterdam				52	354	176	386	239
		14	**11**	**185**	**1,614**	**1,377**	**1,104**	**1,298**
TOTAL	**1,523**	**1,340**	**938**	**2,293**	**3,503**	**2,387**	**2,079**	**2,117**

Source: EURYI-VIDI database. (a) extrapolated from samples of the city´s *schepenregisters*: 1500 (45.8%), 1540 (34.1%), 1580 (21.1%), 1620 (29.4%), 1660 (40.4%), 1700 (45.5%), 1740 (53.9%), 1780 (26.0%). (b) based on all contracts recorded in the city´s *rentenboeken* from 1580 onwards, plus, from 1620 onwards, a 20% sample of the *schepenkennissen*.

Table 2. The Annual Value of Credit Transactions Recorded by Aldermen and Notaries in Six Cities in Guilders and (in brackets) per Capita, 1500-1780.

ALDERMEN	**1500**	**1540**	**1580**	**1620**	**1660**	**1700**	**1740**	**1780**
Ghent	28,551	31,711	28,367	50,927	57,227	18,760	5,400	66,900
	(0.63)	*(0.53)*	*(0.68)*	*(1.38)*	*(1.18)*	*(0.38)*	*(0.12)*	*(1.31)*
Antwerp	90,610	166,989	234,113	484,511	778,814	408,832	133,514	203,666
	(2.75)	*(3.04)*	*(2.86)*	*(8.97)*	*(13.66)*	*(6.22)*	*(2.14)*	*(3.39)*
Den Bosch			30,291	193,161	79,135	148,010	57,338	16,313
			(1.71)	*(10.73)*	*(8.79)*	*(13.72)*	*(4.56)*	*(1.27)*
Utrecht		5,503	20,100	96,243	94,483	33,750	115,840	50,224
		(0.23)	*(0.73)*	*(3.21)*	*(3.15)*	*(1.22)*	*(4.59)*	*(1.56)*
Leyden				75,373	214,892	57,927	119,128	48,414
				(1.68)	*(3.21)*	*(0.85)*	*(3.13)*	*(1.56)*
Amsterdam				406,675	1,261,397	685,024	1,562,757	1,326,288
				(3.88)	*(7.10)*	*(2.97)*	*(7.10)*	*(6.00)*
TOTAL								

NOTARIES	**1500**	**1540**	**1580**	**1620**	**1660**	**1700**	**1740**	**1780**
Ghent				3,823	226,044	469,845	437,828	994,755
				(0.10)	*(4.66)*	*(9.44)*	*(9.88)*	*(19.41)*
Antwerp		3,153	122	60,773	323,862	427,321	138,768	483,575
		(0.06)	*(0.00)*	*(1.13)*	*(5.68)*	*(6.50)*	*(2.22)*	*(8.05)*
Den Bosch					22,153	84,179	133,203	254,584
					(2.46)	*(7.80)*	*(10.59)*	*(19.83)*
Utrecht			2,997	3,125	58,655	66,415	151,252	306,002
			(0.11)	*(0.10)*	*(1.96)*	*(2.40)*	*(5.99)*	*(9.48)*
Leyden				19,963	573,157	78,391	131,188	109,501
				(0.45)	*(8.55)*	*(1.14)*	*(3.44)*	*(3.54)*
Amsterdam				42,063	424,538	316,814	1,233,505	2,440,931
				(0.40)	*(2.39)*	*(1.37)*	*(5.61)*	*(11.04)*
TOTAL								

Source: see Table 1.

Table 3. The notaries' share in total loan amounts, 1500-1780

	1540	1580	1620	1660	1700	1740	1780
Ghent	0.0	0.0	7.0	79.8	96.2	98.8	93.7
Antwerp	1.9	0.1	11.1	29.4	51.1	51.0	70.4
Den Bosch		0.0	0.0	21.9	36.3	69.9	94.0
Utrecht	0.0	13.0	3.1	38.3	66.3	56.6	85.9
Leiden		0.0	20.9	72.7	57.5	52.4	69.3
Amsterdam			9.4	25.2	31.6	44.1	64.8

Source: EURYI/VIDI database

Table 4. Collateral of Loans Recorded by Aldermen and Notaries, 1500-1780

Collateral type		**Alderman** *Annuities*		**Alderman** *Other loans*		**Notaries Ghent** *All loans*		**Other Notaries** *All loans*
Special mortgage	1,231	48,8%	168	7,0%	25	1,9%	514	13,5%
Real estate	*1,177*	*46,7%*	*113*	*4,7%*	*0*	*0,0%*	*106*	*2,8%*
Financial assets	*25*	*1,0%*	*6*	*0,2%*	*11*	*0,8%*	*209*	*5,5%*
Other	*29*	*1,2%*	*49*	*2,0%*	*14*	*1,1%*	*199*	*5,2%*
Special + general mortgage	833	33,0%	825	34,2%	731	55,6%	470	12,3%
Real estate	*787*	*31,2%*	*632*	*26,2%*	*625*	*47,5%*	*267*	*7,0%*
Financial assets	*22*	*0,9%*	*24*	*1,0%*	*87*	*6,6%*	*135*	*3,5%*
Other	*24*	*1,0%*	*169*	*7,0%*	*19*	*1,4%*	*68*	*1,8%*
General mortgage	457	18,1%	1,421	58,9%	559	42,5%	2,831	74,2%
All contracts	**2,521**	**100%**	**2,414**	**100%**	**1,315**	**100%**	**3,815**	**100%**

Source : EURYI/VIDI database

Table 5. Professions of Debtors and Creditors in Loans Recorded by Aldermen and Notaries in Six Cities, 1500-1780

	1500-1620		**1660-1780**	
Panel A. Debtors	*aldermen* (n=1,072)	*notaries* (n=80)	*aldermen* (n=493)	*notaries* (n=293)
Craftsmen and laborers	61,5%	45,0%	58,4%	33,8%
Traders	27,7%	38,8%	22,7%	29,4%
Public officials and civil servants	4,1%	6,3%	11,6%	19,5%
Nobility and Clergy	3,5%	3,8%	5,1%	10,6%
Other	3,3%	6,3%	2,2%	6,8%
Panel B. Creditors	*aldermen* (n=994)	*notaries* (n=75)	*aldermen* (n=399)	*Notaries* (n=1,661)
Craftsmen and laborers	36,3%	21,3%	19,3%	12,3%
Traders	25,5%	62,7%	24,3%	35,8%
Public officials and civil servants	14,0%	12,0%	41,9%	31,7%
Nobility and Clergy	10,5%	2,7%	14,0%	17,3%
Other	13,8%	1,3%	0,5%	2,8%

Table 5a. Widows and Orphans as Debtors and Creditors in Loans Recorded by Aldermen and Notaries in Six Cities, 1500-1780

	1500-1620		**1660-1780**	
	Aldermen (n=3,531)	*Notaries (n=199)*	*Aldermen (n=2,315)*	*Notaries (n=5,393)*
Debtors	2,5%	5,5%	3,1%	1,2%
Creditors	11,3%	13,1%	11,8%	13,8%

Table 6. The Average Size of Loans Recorded by Aldermen and Notaries in Six Cities (in guilders), 1500-1780.[20]

ALDERMEN	1500	1540	1580	1620	1660	1700	1740	1780
Ghent	38	64	253	485	1,022	1,443	5,400[a]	3,345
Antwerp[a]	117	215	526	907	1,357	1,420	878	1,101
Den Bosch			144	398	466	542	717	563
Utrecht		110	264	523	1,027	785	1,194	1,046
Leyden				471	1,131	794	769	794
Amsterdam[b]				635	1,563	2,141	3,189	2,786
All cities	48	90	338	620	1,316	1,339	2,045	2,090

NOTARIES	1500	1540	1580	1620	1660	1700	1740	1780
Ghent				546	880	1,075	1,450	2,240
Antwerp		225	61	1,030	1,191	892	938	2,985
Den Bosch					715	673	1,041	1,179
Utrecht			999	347	916	820	1,626	1,586
Leyden				344	901	992	2,791	2,489
Amsterdam				809	1,199	1,800	3,196	10,213
All cities		225	284	701	1,009	1,048	2,016	3,536

(a) Ghent 1740 is one observation;

Table 7. Median loan amounts at aldermen and notaries, 1500-1780

Aldermen	1500	1540	1580	1620	1660	1700	1740	1780
Ghent[a]	25	143	120	288	700	900	5,400	1,800
Antwerp	72	128	203	562	671	900	600	850
Den Bosch			100	150	262	300	538	380
Utrecht		63	184	400	700	500	1,000	600
Leyden				300	800	500	500	500
Amsterdam				320	1,040	1,300	2,200	2,000

Notaries	1500	1540	1580	1620	1660	1700	1740	1780
Ghent				288	480	600	900	1,200
Antwerp		84	61	274	330	300	400	600
Den Bosch					250	300	400	600
Utrecht			372	177	323	600	550	800
Leyden			156	239	500	500	1,400	1,000
Amsterdam				500	600	855	1,300	2,500

[20] **Rijen met <200 gld herberekenen, totalen met bedragen lager dan cijfers alle obs, waarmee leningen onder 200 berekend

Source : EURYI /VIDI database; (a) one contract

Table 8. The Maturity of Loans Recorded by Aldermen and Notaries in Six Cities (months), 1500-1780.

All contracts	**1500**	**1540**	**1580**	**1620**	**1660**	**1700**	**1740**	**1780**
Average	23	20	26	30	24	23	45	50
Median	12	10	12	12	12	12	36	48
N	605	334	61	209	885	796	763	542
Aldermen								
Average	23	20	27	38	29	31	70	85
Median	12	10,5	12	24	24	36	72	72
N	605	324	59	146	379	177	241	156
Notaries								
Average		28	11	13	21	21	33	36
Median		6	11	11	12	12	18	24
N		10	2	63	506	619	522	386

Source: EURYI/VIDI Database

Table 9. Purpose of Loans Recorded by Aldermen and Notaries in Six Cities, 1500-1780

Loan purpose	**Aldermen** *Nr. of loans*		**Aldermen** *Value of loans*		**Notaries** *Nr. of loans*		**Notaries** *Value of loans*	
Business use	629	29%	190,317	15%	651	24%	1,269,560	26%
Cash-in-hand	742	35%	688,911	54%	1508	55%	1,861,647	38%
Real estate	163	8%	162,326	13%	70	3%	113,237	2%
Refinancing	256	12%	184,559	14%	267	10%	1,035,616	21%
Other	351	16%	54,067	4%	223	8%	680,259	14%
Total	**2,141**	**100%**	**1,280,180**	**100%**	**2719**	**100%**	**4,960,319**	**100%**

Table 10. The average number of deeds per notary per year, 1540-1780

	1540	1580	1620	1660	1700	1740	1780
Antwerp	413	35	136	108	70	60	66
Ghent			23	55	36	29	27
Den Bosch			9	32	53	43	54
Utrecht	10	7	55	42	29	33	34
Leiden		147	126	132	52	149	101
Amsterdam			435	350	207	374	425

Source:

Table 11. The estimated Stock of Notarized Loans in selected benchmark years (1620-1780)

	1620	1660	1700	1740	1780
Antwerp	81,486	598,875	747,099	433,418	2,387,651
Ghent	3,823	222,277	854,726	2,426,294	
Den Bosch		28,300	91,264	186,595	630,732
Leiden	18,799	2,052,379	335,186	971,887	576,797
Utrecht	2,344	65,449	156,186	262,549	408,512
Amsterdam	47,426	343,168	504,262	2,864,816	5,703,642

Table 12. Notarized loans in Paris, Antwerp and Amsterdam in 1740 (guilders)

	Paris	Antwerp	Amsterdam
Population	576,000	62,500	220,000
Number of loans	6,155	148	386
Loan value	20,406,866	138,768	1,233,505
Per capita	35.4	2.2	5.6
Avg. Loan size	3,315	938	3,196
Avg. maturity (years)	11	3	2.3
Estd stock of debt	241,732,167	433,418	2,864,816
Per capita	420	7	13

Source[21]

[21] Data for Paris: Philip T Hoffman, Gilles Postel-Vinay and Jean-Laurent Rosenthal, "Priceless Markets II: Time and Space (http://people.hss.caltech.edu/~jlr/events/2013-HPVR.pdf). One livre is 4,45 gram of silver. One guilder is 9,61 gram of silver.

Table 13. The Interest Rate on Loans Contracted by Aldermen and Notaries in Six Cities in the Low Countries, 1500-1780

	1500	1540	1580	1620	1660	1700	1740	1780
HOLLAND BILLS			12.00	6.25	4.00	3.00	2.47	2.58
ALDERMEN								
Average		8.13	5.51	6.12	4.87	4.76	3.84	3.96
Median		8.13	6.25	6.25	5.00	5.00	4.00	4.00
Observations		*2*	*5*	*86*	*1,249*	*1,134*	*941*	*1,195*
NOTARIES								
Average	7.21	6.51	7.13	6.02	4.73	4.00	3.41	3.71
Median	6.25	6.25	6.25	6.25	5.00	4.00	3.50	3.50
Observations	*362*	*387*	*221*	*800*	*548*	*336*	*416*	*292*

Source EURYI/VIDI Database

Table 14. Estimation of the output pricing of risk of loans recorded by Aldermen and Notaries in Six Cities in the Low Countries, 1620-1780

	Dependent variable: Interest rate premium	
Independent variable	**Aldermen**	**Notaries**
Loan size (ln)	-0.126***	-0.0824***
	(0,017)	(0,015)
Family	-0.320***	-0.401***
	(0,119)	(0,059)
Debtor - Non-local	0.203***	0.0853***
	(0,064)	(0,028)
Debtor – Foreign	0.346	0.525***
	(0,238)	(0,165)
Guarantor	0.117	0.119***
	(0,078)	(0,032)
Collateral - Real estate	-0.257**	-0.250***
	(0,111)	(0,045)
Collateral - Movable goods	0.474**	0.494***
	(0,202)	(0,098)
Collateral - Financial assets	-0.066	-0.0399
	(0,143)	(0,048)
Collateral – Other	-0.0767	0.335***
	(0,264)	(0,116)
N	2367	4599
R-sq	0,351	0,370
adj. R-sq	0,345	0,368
F	105,2	79,93
Note: Robust standard errors in cell below coefficient estimate. Significance levels given as follows: * p<0.10, ** p<0.05, *** p<0.01.		