Direct Finance in the Dutch Golden Age

Oscar Gelderblom
Joost Jonker
Clemens Kool

Utrecht University

Comments are welcome at o.gelderblom@uu.nl

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Abstract
We analyze private credit operations in Amsterdam in the seventeenth century to explain why local businessmen could do without banks. They preferred direct finance through a thriving market for short-term loans which could be easily rolled over, or replaced at will, instead of the intermediation of banks or bankers. The key to this disintermediation was the transparency of the market for short-term loans: borrowers and lenders could enter the market at will, easily find counter-parties, and monitor each other's behaviour.

1. Introduction

The funding of business in modern economies relies heavily on banks, securities markets, and other financial intermediaries.[1] The dominance of this kind of finance dates back to the late nineteenth century when rapid industrialisation boosted demand for external funding, but there are also earlier instances of deposit banking and securities trading, notably in Holland and England in 17th and 18th centuries, and in Flanders and Italy in the late medieval period. Economic and financial historians often invoke these examples to highlight the historical roots of modern finance but this suggestion of continuity can be misleading. Most financial intermediaries in preindustrial Europe – money changers, notaries, cashiers, attorneys , and town magistrates – have long lost their role in the funding of business. Moreover, a one-sided focus on early forms of financial intermediation ignores the crucial role of direct financing, whether through trade credit or through business-to-business loans contracted on local money markets. Not so long ago these considerations might have been brushed aside as historicist hair-splitting, but in recent years new forms of direct finance, often supported by sophisticated information technology, have made financial disintermediation a very real possibility.

To determine under which circumstances business owners prefer direct finance over financial intermediation, this paper explores the funding of enterprise in seventeenth-century Amsterdam. To many, the Dutch city is a classic example of innovative financial intermediation. Amsterdam was home to the first modern corporation, the Dutch East India Company (VOC), it developed a deep market for domestic and foreign debt, and it boasted an Exchange Bank offering international payment services along with the execution of key central bank functions.[2] In other

[1] References to the introduction remain incomplete as of 30 october 2014.

[2] On the Dutch East India Company: O. Gelderblom and J. Jonker, 'Completing a financial revolution: the finance of the Dutch East India trade and the rise of the Amsterdam capital market, 1595-1612', in: *Journal of Economic History* 64 (2004) 641-672; O. Gelderblom and J. Jonker, 'Amsterdam as the Cradle of Futures Trading', in: W.N. Goetzmann, K.G. Rouwenhorst, ed., *The Origins of Value, the Financial Innovations that Created Modern Capital Markets* (Oxford UP: Oxford 2005) 189-205; L.O. Petram, 'The world's first stock exchange, how the Amsterdam market for Dutch East India Company shares became a modern securities market, 1602-1700', PhD Thesis University of Amsterdam 2011; idem, *De bakermat van de beurs, hoe in zeventiende-eeuws Amsterdam de moderne aandelenhandel ontstond* (Atlas: Amsterdam 2011); On the market for domestic and foreign debt: Riley; Gelderblom and Jonker 2011; O. Gelderblom and J. Jonker, 'With a view to hold, the emergence of institutional investors on the Amsterdam securities market during the 17th and 18th centuries', in: J. Atack, L. Neal, ed., *The Evolution of Financial Markets and Institutions* (Cambridge UP: Cambridge 2009) 71-98; On the Exchange Bank: Quinn and Roberds 2007, 2009, 2010; Nieuwkerk 2009; Dehing 2012.

words, Amsterdam's financial community possessed the financial knowhow, information technology, and legal support to develop modern forms of intermediation. And yet, the vast majority of businesses relied on direct finance. They pooled resources within their families, reinvested profits, and used trade credit to fund day-to-day operations. In addition Amsterdam saw the emergence of a thriving market for short-term loans which could be easily rolled over, or replaced at will, without intermediation by banks or bankers. This money market became a major source of credit not just for merchants, but also for provincial government and the state-sponsored colonial companies.[3]

This paper asks why direct finance persisted as one of the major forms of external financing in Amsterdam in the seventeenth century, by analyzing the loan portfolio's of two prominent businessmen and investors, Louis Trip (1605-1684) and Joseph Deutz (1624-1684). Both men belonged to Amsterdam's financial elite, they mastered the most sophisticated financial techniques of their times, and managed highly diverse investments including large loan portfolio's. Yet, even though Trip and Deutz occasionally accepted deposits from relatives, they never took the next, from a modern point of view logical step, to become deposit bankers. To explain why they did not, we reconstruct their lending between 1640 and 1685 in detail so as to bring out patterns of borrowing, lending, customers, and pricing. We then compare the return on their operations with the yield on safe assets, Holland bills, to see how the margins between borrowing and lending compared to standard market investments. This then reveals very low entry barriers to Amsterdam's money market translating into a very narrow spread between borrowing and lending, which in turn prevented financiers like Trip and Deutz from scaling up their operations into banking proper.

[3] On the persistence of direct finance in Amsterdam until the 19th century, see J. Jonker, *Merchants, bankers, middlemen, the Amsterdam money market during the first half of the 19th century* (Amsterdam, 1996); idem, 'The alternative road to modernity: banking and currency, 1814-1914', in: M. 't Hart, J.P.B. Jonker, J.L. van Zanden, ed., *A financial history of the Netherlands* (Cambridge 1997) 94-123; idem, 'The cradle of modern banking, finance in the Netherlands between the Napoleonic era and the first commercial banks, 1813-1870', in: Joh. de Vries, W. Vroom, T. de Graaf, ed., *World wide banking, ABN AMRO Bank 1824-1999* (Amsterdam 1999) 49-94.

1. The scope of direct finance in Amsterdam

A key feature and strength of the money market that emerged in Amsterdam at the turn of the seventeenth century was the ease with which merchants could raise debt by circulating bills obligatory or personal bonds.[4] Commercial credit in Amsterdam relied on the same type of paper, handwritten bills, that had been in use in Antwerp since the first half of the sixteenth century, but a key innovation occurred shortly after 1600: the substitution of personal credit by a standard, liquid collateral, shares in the Dutch East India Company or VOC, set up in 1602 (Gelderblom and Jonker 2004). This enabled businessmen to widen their range of borrowing beyond the usual circle of family members and close associates. The loans contracted by one such merchant, Hans Thijs, show him doing just that. Between 1598 and 1611 Thijs gradually substituted the family deposits in his business with short-term loans of 600 to 3,200 guilders. Contracted for 6 or 12 months, these loans were often rolled over upon expiry. Some of them were raised with regular trading partners and secured by a personal bond, but Thijs also borrowed against his VOC shares and profited from the increased security of that collateral translating in the form of lower interest rates. When Thijs died suddenly in 1611, the executors of his estate rolled over scores of his bonds for several years, until 1617, so they could realize the assets at leisure and not under pressure of time.[5]

Thijs was not alone in floating debt. The estate of another Amsterdam merchant, Paulus Bosschaert, who died in 1620, included 62 debts obtained from 58 creditors for a total of over 113,000 guilders. The debts averaged 1,800 gulden at an interest rate of 5.4 per cent, and Bosschaert had contracted most of them during the last year of his life and all but one with fellow merchants.[6] We can observe the creditor's side of the market in the estate of the merchant Cornelis Francq. At his death in 1617 Francq had a loan book of 47 bills totalling more than 60,000 guilders, averaging 1,275 guilders at 6.7 per cent interest, not counting the almost 19,000 guilders of what he called bad and dubious debts. About a dozen of Francq's debts receivable dated from between 1607 and 1615, and this included loans to a carpenter,

[4] Van der Wee, *Growth*, idem 'Antwerp', idem, 'Monetary'; Jeroen Puttevils recently detailed the way in which merchants used bonds in his *The ascent of merchants from the Southern Low Countries, from Antwerp to Europe 1480-1585* (PhD Antwerp 2012) 239-286.
[5] Gelderblom 2000; Gelderblom and Jonker 2004.
[6] ACA Inv. 5073, No. Portfolio Paulus Bosschaert (1620).

a minister of the church, and a notary public, but the remainder consisted of loans to merchants contracted no later than a year before his death.[7]

The VOC itself raised money on short-term bills as well. From 1604 onwards the directors of the Amsterdam Chamber and the Enkhuizen Chamber borrowed amounts of up to 20,000 guilders, though by far most loans ranged between 600 and 6,000 guilders (Gelderblom, De Jong and Jonker 2013). In 1612 the VOC, backed by the Estates General, refused to liquidate its first ten years' account to achieve permanence, but this effectively barred the company from raising equity and made it entirely dependent on debt finance. Between 1616 and 1622 the Amsterdam chamber raised more than 8 million guilders on behalf of itself and of other chambers.[8] The Estates of Holland also floated bills to supplement its principal debt instruments, life and term annuities. Initially, between 1603 and 1607, officials used the bills as an expedient and they converted them into term annuities following the 1609 truce with Spain. However, when the war resumed in 1621 Holland gradually found itself entirely dependent on floating bills. By 1648 the amount outstanding had risen to 63 million guilders.[9]

Table 1. Debt contracts registered by Notaries and Aldermen in Amsterdam, 1620 and 1660 (guilders)

	1620		1660	
	#loans	**value**	**#loans**	**value**
Notaries - obligations	52	42,063	354	424,538
Aldermen - *schepenkennissen*	830	764,060	1050	2,124,225
Aldermen – annuities	319	*333,546*	110	309,410
Total	**1,201**	**1,139,670**	**1,514**	**2,858,173**

Source: EURYI/VIDI Database Notaries and Town Secretaries: Amsterdam (1620, 1660)

Access to this particular segment of the debt market remained restricted to large merchants and institutions, but retailers, artisans, and other small businessmen had three other options open to them (Table 1).[10] They usually possessed some property,

[7] ACA Inv. 5073 No. 968a, estate of Cornelis Francq (1617).
[8] Gelderblom, De Jong and Jonker *2013; Dari Matiacci et al *2013.
[9] Gelderblom and Jonker 2011; Dormans, *Tekort* 51.
[10] The professions of lenders and borrowers (recorded for 30 to 40 per cent of the registered debts) of Amsterdam's schepenkennissen in 1620 reveal artisans, retailers, and other petty entrepreneurs as the

i.e. their shop or workshop with some rooms to live in, which could be mortgaged if they needed more credit than the usual supply chains provided, or they could contract a private loan or *schepenkennis* on the security of their person and present and future possessions. The city provided a firm basis for these transactions in the form of a registry. A sample for 1620 shows clerks registering 319 new mortgages totalling an estimated 333,000 guilders, plus 830 private loans for more than double that amount, 764,060 guilders.[11] Notaries administered a third, much smaller loan segment. A similar sample for 1620 yielded a total of only 52 loans averaging a slightly smaller amount than the 1,000 guilders contracted in the average mortgage or *schepenkennis*.[12]

We may thus conclude that, by 1620, i.e. a decade after the Wisselbank had been set up, the available credit techniques did not rely on the intervention of specialized intermediaries, that is to say, they relied on direct and personal contact between individual creditors and debtors, who were perhaps brought together by a broker but neither side had need for a bank to effect the transaction. In other words, the bank provided only one of the six core functions of a financial system, payments, and the market the other five. Now the nub of the matter is whether this continued to be the case, and surviving ledgers from two prominent merchants and investors active during the second half of the seventeenth century, Louis Trip (1605-1684) and Joseph Deutz (1624-1684), show that it did. Indeed, by that time the spread between borrowing and lending had narrowed so much that it left no margin for banking to exist.

2. The credit operations of Louis Trip

Let's first look at Trip, who together with his brothers Jacob and Hendrick earned a fortune dealing in arms, iron, pitch and tar.[13] From 1634 the three brothers formed a partnership concentrating on the import of hand arms and cannon from Sweden. With equity worth 200,000 guilders their firm must already have belonged to the top in 1640, but when, by the end of that decade, the brothers diversified into iron, pitch

principal debtors *and* creditors, although merchants and public officeholders do appear as lenders in 20 per cent of the contracts where the creditors' profession is registered.

[11] EURYI/VIDI Database Notaries and Town Secretaries (1500-1780): Amsterdam Aldermen (1620).

[12] EURYI/VIDI Database Notaries and Town Secretaries (1500-1780): Amsterdam Notaries (1620).

[13] P.W. Klein. 1965. *De Trippen in de 17e eeuw. Een studie over het ondernemersgedrag op de Hollandse stapelmarkt.* Assen: Van Gorcum.

and tar, they possessed enough money to quadruple the firm's capital to 800,000 guilders. Indeed, they had become wealthy enough to retire in comfort, and Jacob did so in 1651, leaving his two brothers to continue alone until Louis' son was given a small one-eight's part in the business.

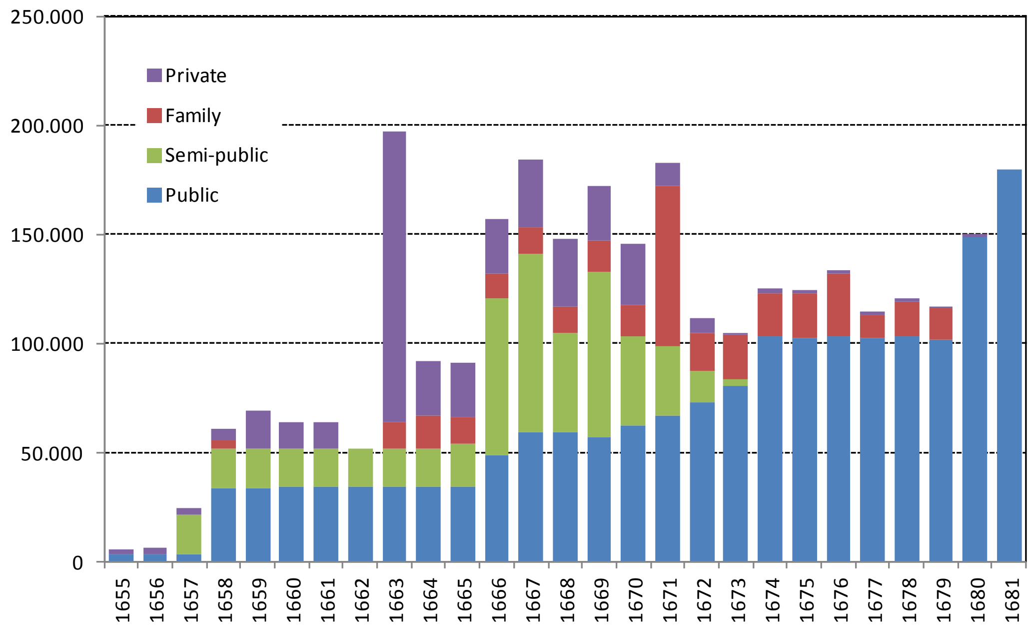
According to Peter Klein (1965) the Trip firm's success rested on three pillars. First, the Trips maintained close family relations with the owners of the main Swedish arms foundries; second, during the 1650s the firm obtained monopolies on the export of pitch, tar, and cannon from the Swedish crown; third, the brothers were able to control the entire supply chain, from the Swedish crown to Amsterdam sales, with credit.[14] Controlling supply chains through sophisticated services and notably cheap credit was typical for the second, climacteric phase of the Amsterdam entrepot trade.[15] Jan Deutz, Joseph's elder brother, did exactly the same with the mercury monopoly which he obtained from the Habsburg emperor in 1659.[16] This policy clearly absorbed the Trip partners' entire means available. Louis Trip's private ledgers show a constant shifting in and out of current account surplus with the firm, but no other lending except for two Holland bills bought in 1643, plus a single 5% loan of 2,600 guilders granted in 1645 to a shipwright who had bought a piece of land from him and presumably needed money for setting up a yard there. That loan was repaid in 1660.[17] From the late 1650s, however, Trip had money to spare (Figure 1). He started giving loans to private individuals in 1655, probably in the form of repo transactions, and invested substantial sums in securities, more than 26,000 guilders of Holland bills in 1658 and 18,000 worth of VOC Zeeland bonds.

Four years later his financial situation and behaviour changed, presumably because the brothers lost the Swedish pitch and tar monopoly to Christoffel van Gangelt and Joseph Deutz. During 1663 Louis Trip withdrew capital from the firm and put it in eight money market loans totalling almost 150,000 guilders, of which two on collateral of VOC shares.[18] These loans continued until the early 1670s, though on a smaller scale, and appear to be connected to Trip's securities account. Between 1659 and 1661 this account shows a turnover of 300,000 guilders a year, rising to 700,000 guilders in 1663, then falling to 400,000 guilders in 1665. Presumably Trip

[14] Klein 1978: 464-465.
[15] Jonker and Sluyterman, *At home* ***.
[16] Elias 1903, 2: 633, 1047.
[17] Ref to folio pages.
[18] According to Klein all loans *except* two had VOC shares as collateral, but we found only two loans *with* this collateral for 1663.

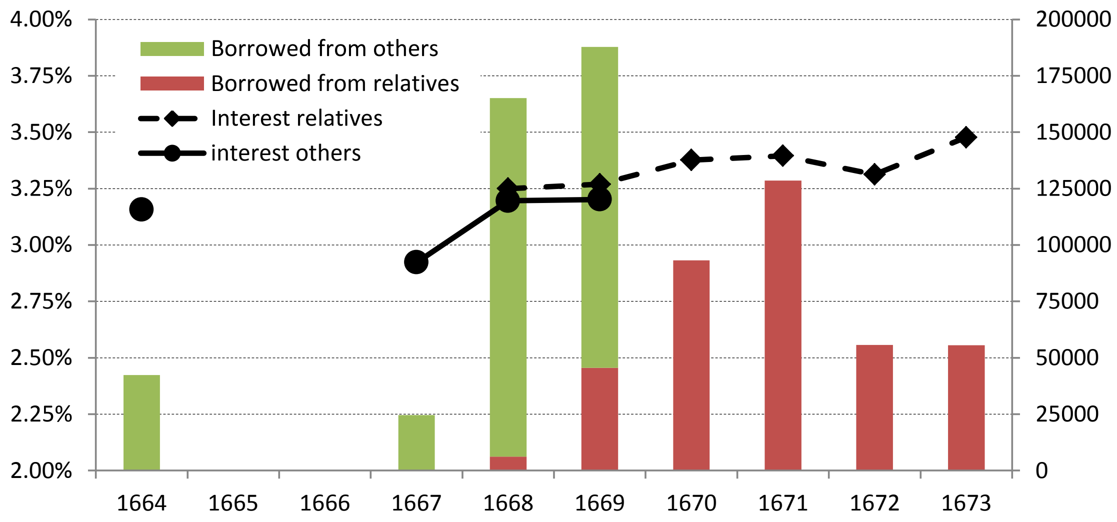
provided liquidity to share traders through repo transactions, i.e. advances on collateral of securities.

Figure 1, Loans extended by Louis Trip 1655-1681



Source: ACA 5060 Inv. No's. 40, 50, 51

Figure 2, Money borrowed by Louis Trip, 1664-1673

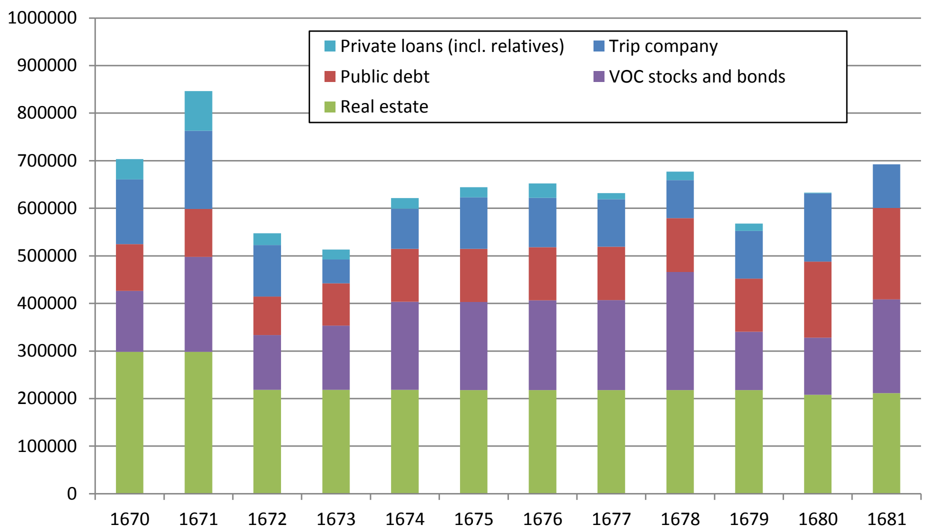


Source: ACA Inv. 5060, No. **

During the second half of the 1660s Trip's investment behaviour changed again. His brother Hendrick died in 1666 and Louis himself, now in his early sixties, probably wanted to withdraw from active business. He reduced his money market exposure to two or three loans per year because he needed the money to ease his nephews' entry into the firm. In 1668 and 1669 Trip took over 150,000 guilders of debts from the firm, which he gradually replaced with deposits from family members (Figure2). At the same time he expanded his holding of public and semi-public debt, including up to 40,000 guilders of bonds issued by the Wieldrecht polder board, where he owned land. The precise balance between his liabilities and his assets suggests that Trip's investments yielded more than the interest rates of 3.25-3.5 % which he paid on his debts, but not enough to render leverage a viable way to expand his operations. With an investment return below the interest rate cost he would have paid off his debts rather than buying securities, while with a large positive margin between return and interest cost he would have kept the debt, or even expanded it.

From 1670 to his death eleven years later the composition of Trip's investment portfolio remained more or less the same (Figure 3). Unusually for a merchant, he maintained a substantial portion of his wealth in real estate. This included the palatial town house on the Kloveniersburgwal commissioned by him from the leading architect of the day to mirror Amsterdam's immense Baroque town hall. The rest of

Figure 3, The value of Louis Trip's major public and private assets, 1671-1681



Source: ACA Inv. 5060, No. 40

his investments was more or less evenly split between VOC securities, public and semi-public debt, and investments in the family firm. Only his private loan portfolio was almost completely liquidated in 1672. According to Klein, Trip's change of investment behaviour reflected his entry into the city magistrate following the political turmoil of 1672, but the change really predated that by several years so a more likely explanation is his retirement from active business.

In brief, Trip was an active investor from the late 1650s to about 1670. During that time he supplied money market loans of the same kind used by Thijs, Bosschaert, and Francq, and he did so on a substantial scale. Clearly the Wisselbank had done little to change the structure of Amsterdam's financial system, which remained based on direct finance. One key aspect of Trip's behaviour underlines this. He was what we would now call a private equity investor and refrained from attracting deposits to increase the scale of his operations. Indeed, his behaviour during the one period in which he did have some debt suggests that interest rate spreads were too narrow for moving into banking. Let's now look whether Deutz's investments show similar patterns.

3. The credit operations of Joseph Deutz

Joseph Deutz, a second-generation German immigrant, was almost twenty years younger than Trip. He began his career as a merchant in paper together with Christoffel van Gangelt, the second husband of his late wife's mother.[19] Together they replaced the Trip brothers as the holders of the Swedish tar and pitch monopoly in 1662. This required them to pay 250,000 guilders to the King of Sweden, 60 per cent of which was transferred immediately to the Trip firm for their stocks of pitch and tar.[20] In addition to this the new licensees took over 76,000 guilders worth of bills of exchange.[21]

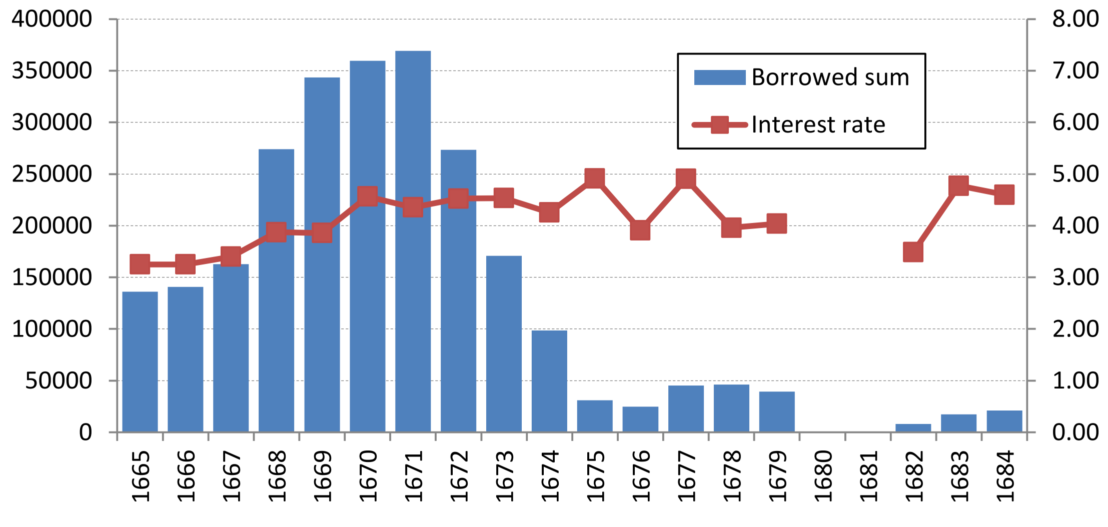
Deutz and Van Gangelt essentially wanted to do the same what the Trip brothers and Jan Deutz did, seizing control over a supply chain through credit. Now Joseph Deutz was already a wealthy man, worth 200,000 guilders in 1659, but a large part of this was tied up in real estate and other business operations.[22] Without ready

[19] Elias 1903: Zandvliet 2006: 184-5, 197-8
[20] Klein 1965: 475; Klein 1978: 466.
[21] Klein 1978: 470, footnote 30.
[22] Klein 1978: 466.

money to fund the new tar and pitch business, he raised debt from his wealthy relatives. His two brothers in law Abraham and Jean Ortt had inherited just over 840,000 guilders from their father, Jean Ortt the Elder (1595-1654).[23] We do not know exactly how much Deutz originally borrowed from Abraham Ortt because he added the annual interest charges to the debt outstanding. Thus on the first of November 1665, he added 4,428 guilders to his brother in law's account for 12 months' interest on a capital of 136,237 guilders.

Abraham's loan sufficed to finance Deutz until 1668, when his partner Christoffel van Gangelt withdrew from the business. Deutz succeeded in buying him out by raising debt from five relatives, notably Jean Ortt, who deposited 40,000 guilders with him in 1668 and quadrupled that sum to 160,000 over the next two years (Figure 4). Family deposits such as these were of course quite common, it had also been Hans Thijs's preferred option earlier in the 17th century.[24] But Deutz paid a curiously high interest rate on them. Abraham Ortt received 3.25% per year at first which Deutz raised to 4.625% in 1668 at a time when the market trend pointed down. From 1670 the other family deposits also carried 4.625%.

Figure 4. The amount of debt raised by Joseph Deutz from relatives, 1665-1684



Source: ACA Inv. 234, nrs. 291-295

There are two ways of looking at this rate. Perhaps the family simply exacted a higher price to get their due from pickings they knew rich. If so, they had a point, for the

[23] Elias, *Vroedschap* II, 997.
[24] Gelderblom 2003; Gelderblom and Jonker 2004.

monopoly profits enabled Deutz to repay their deposits within a few years. On the other hand, the fact that Deutz did not pay out the interests, adding them to the respective accounts instead, suggests the higher rate reflected a compensation to his relatives for leaving the money at his disposal indefinitely, that is to say, for giving up the liquidity option which the standard 6-12 months market alternative would have given them. In this form the family loans resembled the finance supplied by sleeping partners in a private limited company, supplying long-term funding in return for an above-market remuneration. Mimicking the *société en commandite* formalized in law only during the Napoleonic era, such arrangements were not uncommon in the Low Countries.[25] In either case we are looking at an environment used to pricing differences in investor liquidity preferences, another indication of just how keen the market had become by 1670.

Table 2. Annual income from the Tar and Pitch Company of Joseph Deutz and Christoffel van Gangelt, and the end-of-year credit balance with their suppliers, 1662-1666.

Year	**Interest received**	**Commission fees**	**Insurance & transport**	**Current account balance per 31/12**
1662	8,400	2,900	7,500	384,700
1663	26,100	7,200	21,900	599,900
1664	32,900	8,300	13,700	830,000
1665	28,100	8,000	800	434,800
1666	17,600	4,000	800	256,100
Total	**113,100**	**30,400**	**44,700**	

Source: Klein 1978: 468

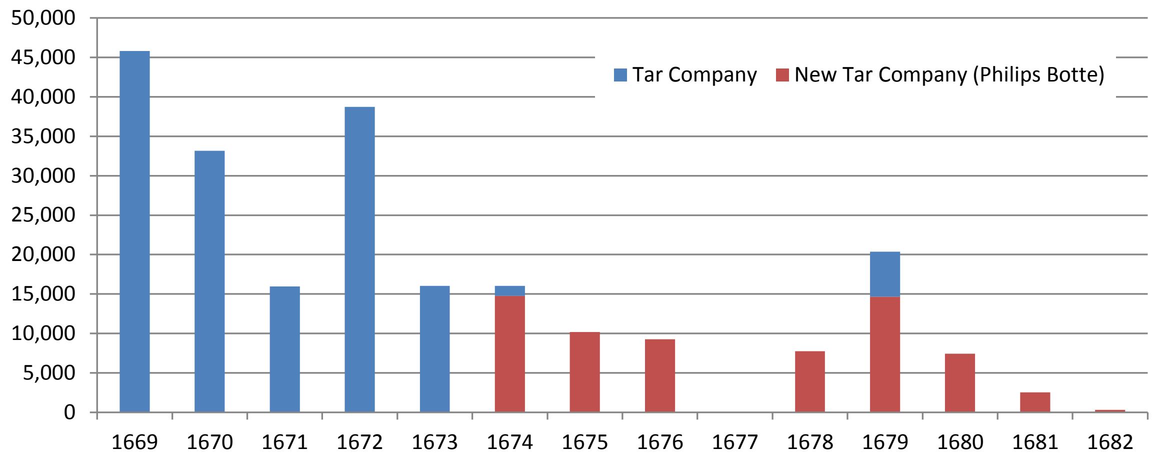
From the beginning Deutz's interest in pitch and tar seems to have been financial rather than commercial.[26] In its first five years the business earned 30,400 guilders from its 2 per cent commission fees on sales, against 44,700 in fees for insurance and freight contracted in Amsterdam, and 113,100 in interest payments on overdrafts on the current account of the Swedish producers (Table 2). Deutz and Van Gangelt charged 5 to 6 per cent on this revolving credit collateralized on the pitch and tar

[25] Thijs, *Werkwinkel*; Lis and Soly, *De Heyder*; cf. De Ruysscher for the definition without formal legal introduction of the CV.
[26] Klein 1978: 466-468.

supplied to them, in addition to which they gave their Amsterdam buyers credit on sales.[27]

When Van Gangelt retired in 1668, Joseph Deutz initially continued their business along similar lines, once again extending large credits to his Swedish suppliers. Their annual interest payments, averaging 30,000 guilders between 1669 and 1673, remained a very important income source. If we put the interest rate at the 5% mentioned in Klein's paper about the pitch and tar business, turnover on Deutz's credit facility fluctuated between 300,000 and 900,000 guilders per year.[28] After the contract had been renewed in 1672, a dispute arose between Deutz and his principals about the amount of money which the former claimed from the latter. This led to Deutz relinquishing the contract to the Swedish Tar Company, which then sent one of its directors, Philip Botte, to Amsterdam for take charge of sales. Deutz continued to

Figure 5, The annual interest charged by Joseph Deutz to his suppliers of tar and pitch, 1669-1682.



Source: ACA No's***

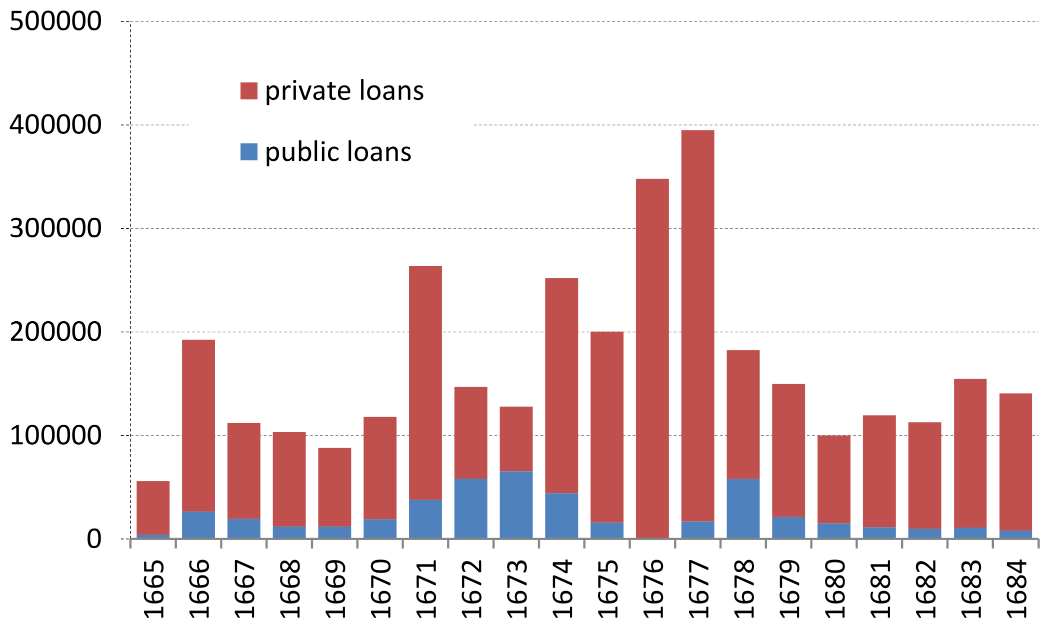
finance tar shipments, but for smaller amounts, 200,000 guilders annually, and for a lower interest rate of 3.5 to 4.5 per cent.[29]

Having given up his active involvement in the pitch and tar trade, Deutz considerably expanded his loan portfolio (Figure 6). From the late 1660s until the

[27] Klein 1978: 466-68.
[28] Klein 1978, ***.
[29] The very high interest payments in 1679 had three causes. First, Deutz registering the remainder of a debt owed to the old Tar Company; second, he received payment of interest on loans dating from 1678; third, the Tar company lombarded a large quantity of iron in this year (Inv. 234, No. 294, fol. 164).

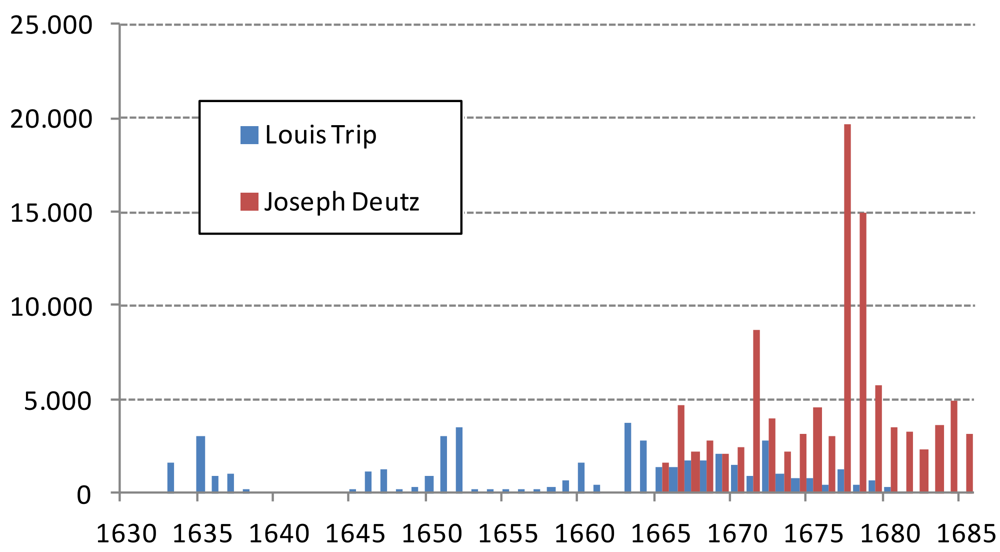
mid-1670s he generally had some 100,000 guilders of loans outstanding, mostly to fellow merchants but also to relatives. This first doubled and then quadrupled to a peak of more than 400,000 guilders during the late 1670s, after which it dropped back again to around 100-120,000 guilders. The sharp rise was caused by what, on the basis of a sudden increase in the use of shares as collateral, looks like Deutz moving big into financing the repo trade in securities. We do not know what motivated either his move into this segment, or his retreat from it, but that matters little in relation to the three aspects which stand out from this episode.

Figure 6. The average amount of Deutz's loans outstanding in Amsterdam, 1664-1684



Source: ACA Inv. 234, Nrs. 291-295

Figure 7, The annual interest received on private loans by Louis Trip and Joseph Deutz, 1655-1684

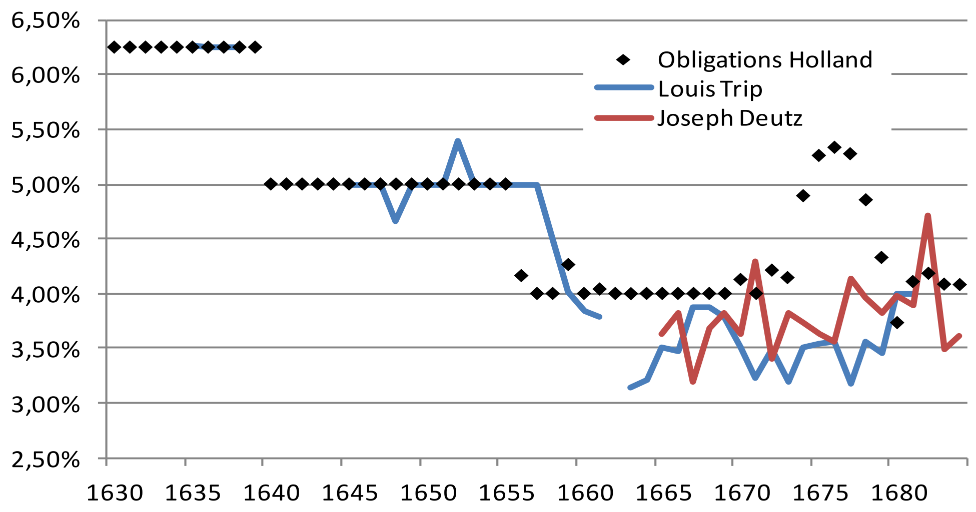


Source: ACA Inv. 5060, no's. 50, 51; Inv. 234, no's. 291-295

First, Deutz financed the quadrupling of his loan portfolio entirely from his own means, which must therefore have been both ample and liquid. Second, although Deutz's income from loans was higher than Trip's and usually ranged from 2,500-5,000 guilders a year, for an average of 3,450 (Figure 7), it amounted to only a fraction of his household expenses, which ran to 10,117 guilders in 1674.[30] Lending must therefore have been a sideline for Deutz, important to maintain and, at times, expand when opportunities arose, but not his main source of income. Third, for most of the time private lending was second best when compared to other investment opportunities. Until the mid 1650s public and private interest rates appear to have moved together, dropping from 6.25% to 5% (Gelderblom & Jonker 2011; Figure 8). The two then diverged. Public rates fell to 4%, but private rates sank a further 0.5-1%, those charged by Trip tending towards the lower bound, those of Deutz towards the upper one. Whereas the yield on Holland's bills rose sharply following the 1672 war, private rates edged up initially only to fall back again. For most of the time, therefore, both Trip and Deutz would have been better off buying Holland debt than supplying private loans. This highlights the fact that a large share of their lending, and possibly most of it, served wider commercial purposes.

[30] ACA Inv. 293, carta 158.

Figure 8, The yield on Holland debt and the average annual interest rate charged to private borrowers by Louis Trip and Joseph Deutz, 1630-1684*



Source: ACA Inv. 5060, no's. 50, 51; Inv. 234, no's. 291-295; * weighed by loan amount and maturity

4. The Price of Credit

The variety of investments which both Trip and Deutz managed gives a distinct impression that, in their search for yield, they considered every available opportunity. Of course they had a part of their wealth invested in real estate and in public debt. Next to that their main activities were, on the one hand, the supply of trade credit so as to keep a grip on particular supply chains and, on the other, the securities trade with its supporting services such as repo trade credit and the options trade.

Exactly how well they were able to do this becomes clear from a more detailed analysis of the private credit portfolios of Trip and Deutz. From their ledgers we have obtained detailed information on 205 private loans extended to 37 different counterparties by Trip over the period 1644-1681 and 412 private loans extended by Deutz to 129 different counterparties over the period 1662-1685. For all loans, we know the maturity, principal and interest rate. In addition, we can distinguish different loan types, the presence and type of collateral and the nature of the counterparty – the debtor for most loans. Table 3 provides an overview of the loan portfolios bearing out both similarities and differences between the lending operations of Trip and Deutz. For both merchants, bills obligatory were the dominant form of loan type. However, while Joseph Deutz used a wide network of counterparties and extended credit for a substantial part in the form of collateralized loans, most of Trip's loans are non-collateralized and are extended to close-by contacts.

Table 3. Characteristics of the Private Loan Portfolios of Louis Trip (1644-1681) and Joseph Deutz (1662-1684)

Panel A Loans Trip

Collateral		Loan		Debtor	
Type	**#**	**Type**	**#**	**Type**	**#**
None	173	Bill Obligatory	181	Semi-public	52
Shares	13	Current Account	9	Heirs	4
Bonds	0	*Schepenkennis*	27	Family	52
Trade (goods)	19	Other	17	Partners	28
Unknown	0	Unknown	8	VOC/WIC	17
				Other	52
Total	**205**		**205**		**205**

Panel B Loans Deutz

Collateral		Loan		Debtor	
Type	**#**	**Type**	**#**	**Type**	**#**
None	265	Bill Obligatory	389	Semi-public	33
Shares	112	Current Account	2	Heirs	27
Bonds	5	*Schepenkennis*	*2*	Family	27
Trade (goods)	22	Other	*0*	Partners	37
Unknown	8	Unknown	*19*	VOC/WIC	8
				Other	280
Total	**412**		**412**		**412**

Source: ACA, Inv. 5060, no's 50, 51; Inv. 234, no's 291-295.

To obtain more information on the sophistication of their lending practices and the degree to which they were able to differentiate in terms of loan pricing, we turn to a more formal statistical regression analysis. Table 4 presents the results of an investigation to identify the determinants of the interest rate charged and the amount lent. Obviously, a caveat applies in the sense that what we observe is the outcome of a negotiation between debtor and lender on which theoretically both had equal influence. Moreover typically interest rate, principal, and maturity are determined jointly. As such, the regressions do not strictly provide evidence on causality, but they do allow to establish specific patterns and relation between loan characteristics. With respect to the interest rate equations it is important to note that the dependent variable is the actual interest rate charged minus 4 per cent, the statutory rate on Estate of Holland bills since 1655. Finally, we note that in each regression, the number of observations is somewhat smaller than the total amount of loans reported in Table 3. Partly this is due to the fact that for some loans at least one of the variables used in the regressions is missing. In addition, loans issued by Trip prior to 1660 are excluded, to focus only on the period in which both Trip and Deutz were active in the market.

Table 4. Regression Results

	Loans Trip			**Loans Deutz**	
	Interest rate-4		**Principal**	***Interest rate-4***	**Principal**
Intercept	*-0.31**** *(0.07)*	*-0.32*** *(0.12)*	17,824*** (3475)	*-0.04**** *(0.06)*	7,011*** (884)
Collateral (shares)	*-0.36*** *(0.15)*	*-0.48**** *(0.15)*	6,101*** (1,901)	*-0.48**** *(0.08)*	6,272*** (1,144)
Semi_public	*0.39**** *(0.06)*		-4,790*** (1,297)		-3,696*** (951)
Partners	*-0.22*** *(0.10)*	*-0.27*** *(0.11)*			
Principal	*$-8.34*10^{-6}$*** *($3.79*10^{-6}$)*	*$-1.24*10^{-5}$**** *($3.20*10^{-6}$)*			
Maturity		0.23** (0.10)	-6,681** (2,790)		
Family		-0.19** (0.07)			
Heirs					-4,160*** (932)
Type NN					11,176** (4,340)
Adj R2	*0.48*	0.34	0.14	*0.12*	0.23
N	161	161	161	396	400

The regression results show that both merchants clearly incorporated information on their debtors and the loans in their pricing decision. Joseph Deutz, however, seems to have been somewhat more business-like than Louis Trip. Deutz charged the benchmark rate on government debt to his private debtors, unless they offered shares as collateral, in which case he gave about half a per cent discount. We do not find evidence that other types of collateral led to rate discounts. Trip offered the same discount on collateralized loans but in addition he lent at preferential rates to family and partners, giving them a discount of 20 to 30 basis points. Moreover, the average interest rate excluding these specific discounts charged by Trip was 30 basis points below the benchmark rate. In Trip's portfolio, larger loans are characterized by somewhat lower rates, while longer-term loans carry relatively high rates. No such patterns can be significantly found in Deutz's portfolio.

The regressions for the principal loan volume show that, on average, Trip made larger loans than Deutz. However, both accepted collateralized loans that were about 6,000 guilders larger than other loans. Loans to semi-public institutions typically had a below-average size as did Deutz's loans to heirs. For Trip, maturity paid a role in both regressions: longer-term loans are smaller in size as well as carry a higher interest rate. Deutz's portfolio of "unknown" loan types (19 loans in total) stands out for its relatively large loan size.

Overall, the evidence strongly suggests that both merchants were quite sophisticated in their lending practices, knowing how to discriminate between different types of loans and customers in setting the terms of the loans. Yet, for all their financial acumen, neither Trip nor Deutz managed to gain a high return on their financial operations. The interest rate spread between loans of various kind was very small indeed. Compared to the statutory rate on Holland's bills of 4 per cent, the interest rate reduction of the most liquid short-term loans, repo transactions of VOC shares, was only 0.5 per cent. These narrow margins explain why both men remained private equity investors. With one exception—the family deposits with which Deutz bought the Swedish monopoly—they did not use leverage to raise their game. This stands in marked contrast to what Hans Thijs did around 1600, carrying large amounts of debt to finance his expanding business in jewels, leather, and VOC shares.

Clearly the scope for expanding through leverage had disappeared by the mid-1650s. While profit margins in the commodity trade declined as the Holland economy entered its climacteric, the spread between interest rates narrowed as a growing wealth surplus chased available opportunities. At the same time the spread between local rates and foreign rates enabled international traders to gain control over supply lines by extending cheap credit backward and forward, tying in entrepreneurs along the line and effectively keeping outsiders out. It was precisely this finance-based array of services which enabled Amsterdam merchants to hang on to commodity flows which would otherwise have bypassed them once the Dutch economy had entered its climacteric during the last quarter of the seventeenth century.[31] Though the Wisselbank's cheap bullion lombards introduced during the 1680s materially raised the attraction of doing business in the Republic because of the easy available liquidity, this was in effect an extension of its primary payments function and not a new function.

Nor does the financial system's particular architecture appear to have hurt local businessmen needing money, because they possessed a wealth of alternatives to turn to. If there were no family savings available, borrowing money through an aldermen's contract, a notarized loan, or else the municipal pawn bank Bank van Leening remained viable alternatives. Sailors boarding ships of the Dutch East India Company VOC could raise money using special payday loan forms provided by the company, a system relying on a network of dealers specialized in handling such loans.[32] Presumably this particular paper circulation created acceptance for another simple form of borrowing which appeared sometime after 1650, that is to say printed and stamped standard IOU contracts sold by booksellers all over the city and thus catering to a varied clientele.[33] As with the aldermen's and notary's transactions, in this private market debtors and creditors appear to have dealt with each other directly, without formal intermediation to bring about its conclusion or enforcement. The Amsterdam financial system thus offered no margin, scope, or information advantage that anyone wishing to start out in banking proper could have used as basis for a business.

The cashiers which might have done so remained fairly small firms leading a somewhat precarious existence, judging by the frequent failings. They were essentially squeezed between the Wisselbank and merchant firms like Trip or Deutz, handling money for waferthin commission fees and eschewing the fractional reserve banking practised by the London goldsmith bankers or cashiers in the southern Netherlands. As a result they remained quite small. A wealth tax register for 1742 counted 59 cashiers' businesses.[34] All except four appear to have been one-man bands, which suggests operations did not normally require significant amounts of capital. The two top earners were listed with a taxable income of 5,000 guilders, the

[31] Jonker and Sluyterman 2000, 73-115.
[32] Van Bochove and Van Velzen 2013.
[33] Van Bochove and Kole 2014.
[34] Oldewelt, *Kohier*.

equivalent of 25 times the annual wages of a master mason. By contrast, 20 per cent of merchants were taxed as having an income of 5,000 guilders or more, so the cashiers were no more than middling in the commercial hierarchy.

The subsequent evolution of cashiers' firms shows the importance of earlier constraints. In 1776 the Amsterdam city council gave cashiers' notes, scrips similar to the London goldsmiths' notes supplanted by the Bank of England's notes, the status of legal payment, thereby lifting the restrictions imposed in 1609 on the launch of the Wisselbank and finally opening up opportunities to move into banking proper. Two years later an economist and pamphleteer, Elie Luzac, noted that the cashiers had switched from mere cashkeepers for their clients to fractional reserve bankers. He did so in terms which suggest the practice probably started sometime after 1750, perhaps following the market squeezes of 1763 and 1773, when the Wisselbank's inability to act as a lender probably made merchants relying more and more on their cashiers. A consolidation process set in, reducing the number of firms to 54 around 1780, some three dozen by the turn of the century and only 21 in 1810. By then the top firms ranked with midsized merchant firms, just below top firms such as Hope & Co.[35] This evolution failed to break the centrality of stock-exchange intermediated credit, however. During the late nineteenth century even the newly launched joint-stock banks found themselves unable to compete with that system, which remained dominant until it broke down following the outbreak of war in 1914. Finally, though the Netherlands industrialized late, there are no signs at all that finance was the cause. The available finance options proved sufficiently flexible and strong to fund even big, capital-intensive projects such as the railways and the handful of examples of apparent market failure are all attributable to causes other than finance.[36]

The contrast with the evolution of the financial structure of the southern Netherlands is equally instructive. There, the cashiers retained their grip on the payments system through the efficiency of their mutual giro system.[37] Building on the experience gathered from fourteenth-century Bruges onward, they evolved into deposit bankers. From the mid-seventeenth century onwards, for instance, two generations of the Antwerp Proli family transformed a textile trading firm into a prominent deposit and giro bank, which was finally brought down by careless

[35] Jonker 1996, 173-175, 235-237.
[36] Jonker 1996, 1997, 1999.
[37] Aerts 2011.

management in 1785.[38] Another banker in that city active during the second half of the seventeenth century, La Bistrate, does not appear to have accepted deposits, but he did manage a supraregional payments network between western Flanders, Wallonia, and Lorraine through dealing in bills of exchange.[39] A typical track consisted of cashiers moving from cash-keeping into accepting deposits, bullion trading, and loan issuing. The Antwerp firms of Cogels, De Coninck, De Pret, and Van Ertborn all evolved in this way.[40] A Brussels firm, Nettine, took a slightly different route, starting out as cashier to the central government, managing tax receipts and effecting government payments, supplying bullion to the mint, and graduating from there into public debt manager and issuer.[41]

Conclusion

Our analysis of the loan portfolios of Louis Trip and Joseph Deutz shows that we need to understand the Amsterdam financial system during the 17th century as having been based on direct finance. Both Trip and Deutz were keen market operators that tailored their lending terms quite closely to perceived risk and desired liquidity. They took into account the individual background of debtors, the size and maturity of loans, and the collateral provided. Even so, the difference with the most secure loan, Holland's obligations, was very small for all types, so much so, that throughout the period under investigation the average interest they earned from their private loans actually fell below the yield on government bonds.

The narrow interest rate differentials cut the scope for both growing through leverage, as Thijs had done, and for private equity investors like Trip or Deutz to scale up into banking proper by attracting deposits. Such banks must earn their revenue from a combination of interest rate spreads, commission fees on transactions, or information advantages leading to the transformation of scale, maturity, or risk. Spreads were narrow because both potential debtors and creditors had many alternative options. Competition for commission fees was keen between the numerous merchants and brokers active in Amsterdam, and for the same reason

[38] Houtman-De Smedt, *Proli*.
[39] Velinov, Sorbonne PhD 2012.
[40] Degryse, *Antwerpse fortuinen* 141-148, 153-160.
[41] Bronne, *Financiers*.

nobody could build a lasting information advantage in the matching of supply and demand.

These findings underline that the evolution of financial intermediation should not be taken as the sole guide to understand the dynamics of financial modernization. We need to analyse each system for its particular merits. As Hoffman, Postel-Vinay and Rosenthal have demonstrated for Paris, Early Modern societies could do without banks for a long time, in the French case because notaries were able to transform their involvement with particular money market functions into an informational advantage. Similarly the Amsterdam system could do without deposit banks until the late nineteenth century because the city possessed highly developed payment services, an array of institutions offering loans or absorbing savings, and at the same time an open access market for short-term loans. The rise of deposit banking must therefore not be seen as the norm for financial modernity in the way Gerschenkron or Cameron did, but as one way of bundling functions which markets may just easily perform.

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Annex

Balance sheets of Louis Trip, January 1st, 1671 and 1682

ASSETS		1671	1682	LIABILITIES	1671	1682
Debts outstanding		81,223	32,211	Creditors (relatives)	81,589	14,855
Business investments	*Trip company*	108,000	101,000	Creditors (other)	26,348	1,807
	Saltpans	48,928	1,669			
	Stocks of merchandise	3,039	54,366	Capital	700,000	850,000
Private securities	*Shipping shares*	1,548	652			
	VOC/WIC shares	145,137	130,440			
	bottomry loans	17,050	0			
	VOC/WIC bonds	2,000	15,039			
Public securities	*Public debt (provincial)*	57,326	186,216			
	Public debt (urban)	0	40,974			
	Wieldrecht polder	36,600	11,530			
	Foreign loans	1,601	0			
Real estate		298,120	211,310			
Bank/cash	*Bank*	6,617	76,050			
	Cash box	720	5,208			
Total		**807,908**	**866,663**		**807,937**	**866,663**

Source: ACA Inv. 5060, No. 40