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Abstract

Cooperatively-owned Raiffeisen banks first emerged in the Netherlands in the late 1890s and spread rapidly across the country. Using a new dataset, we investigate the determinants of their market entry and early performance. We find that the cooperative organisational form, when allied to a change in the structure of Dutch agriculture and the socioreligious pillarisation of Dutch society, was an important factor explaining their entry into rural financial markets. While religious organisations provided a necessary impetus for the emergence of Raiffeisen banks, the economic advantages associated with the cooperative organisational form ensured the subsequent survival and success of these banks.

JEL classification: G21, N23, N83.

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"We will now discuss in a little more detail the Struggle for Existence."

From Charles Darwin, *The Origins of the Species* (1859)

1. Introduction

From the mid-nineteenth century, and in common with other parts of Europe, the Netherlands experienced a significant growth in the formal provision of personal finance (Polsi, 1996; Guinnane, 2001; McLaughlin, 2014). During this period, a variety of new financial institutions emerged across the Netherlands with the aim of providing savings and loans solutions, especially to low and middle-class clienteles (Deneweth et al., 2014). Then, in the mid-1890s, a new type of bank entered the Dutch market: Raiffeisen banks (*boerenleenbanken*). These banks had a new organisational form: they were cooperatives. And unlike incumbents, which specialised in providing either savings or loans services, these new entrants were savings-and-loans institutions.

The entrance of the Raiffeisen banks raises several questions, which have much broader applicability than simply to Dutch economic history. The first question is: why these financial institutions emerged in the first place? The second, related, question is: did the same factors which underpinned their emergence also contribute to their early success? In essence, we are asking: what was it about rural society that facilitated the entry of this new type of bank? And we do this by exploiting differences in rural society across one polity. Raiffeisen banks emerged elsewhere in Europe—sometimes simultaneously with those in the Netherlands—but they had wildly different levels of success (Colvin and McLaughlin, 2014). Our intention is that systematically exploring differences in adoption and performance across one polity will inform future research that explores differences across polities.

We argue that the cooperative form adopted by Raiffeisen banks enabled them to respond to the changing economic and social environment of the time, which ensured their survival in a "Darwinian struggle" for savings and loans. This does not mean great foresight or skill on the part of the founders of these Raiffeisen banks—they simply chose an organisational form that they saw working elsewhere in the country, or even abroad, and adapted it to their situation. As such, this paper is very much in the spirit of Alchian (1950), who argues that new organisational forms emerge or mutate when the environment changes, and that the institutional attributes of their new organisational forms help these new enterprises survive and compete.

In attempting to answer the question as to what facet of the Netherlands' business environment facilitated the emergence of cooperative banks, we focus on three major

socioeconomic changes which may explain the timing of their entry: (1) to meet untapped market demand for financial services from the unbanked and underbanked (see, e.g., Sluyterman et al., 1998); (2) as a response to agricultural depression and technological change, which created a need for agricultural credit (see, e.g., Bieleman, 2008); and (3) as a means of extending and consolidating the influence of confessional, pillarised, sociopolitical organisations across Dutch society (see, e.g., Jonker, 1988a,b). By considering these alternative explanations together in one analysis, we aim to deduce the factors that precipitated entry of these cooperative banks. Having entered, we then test to see whether these very same socioeconomic factors influenced subsequent operational effectiveness, i.e., their survival. Indeed, existing evidence from the nineteenth century shows that early socioeconomic, particularly philanthropic, influences on organisational innovation can quickly recede amidst the realities of the marketplace (Ó Gráda, 2008; Perriton and Maltby, 2012, 2015).

We test our hypotheses by conducting an econometric analysis of a new dataset which we hand-collected, and which contains bank-level information on all Raiffeisen banks and their competitors collated from annual reports published by the Netherlands' statistical agencies. We supplement these data with demographic, land-type and taxation data taken from other contemporaneous government publications in order to situate these banks within their economic and social geographies. We focus on 1898, 1904, and 1909 because it was over this horizon that the entry of Raiffeisen banks occurred.

In terms of the entry of Raiffeisen banks, we find limited evidence that unmet demand was an important factor in their entry. However, we find that the presence of incumbents was negatively associated with performance as measured by deposit growth and outreach. This may suggest that while Raiffeisen banks offered financial services to a new clientele, they also "competed" with their contemporaries for business. This raises the question as to how they were able to compete in the market for savings, particularly when they were competing with the state-guaranteed Post Office Savings Bank and other long-established rivals. We suggest that the cooperative form—an important facet of which was their choice of unlimited liability—played a vital role in helping the Raiffeisen banks garner funds. Interestingly, we find that the presence of a Post Office Savings Bank branch was favourable for bank emergence, and we suggest that the presence of a post office and its associated services was an important part of the infrastructure which facilitated bank entry.

In relation to the agricultural environment, we find that a greater proportion of horticultural land is negatively associated with the emergence of the first banks, and also with their early performance. This perhaps reflects a greater resilience in this sector to the

agricultural crisis of the late-nineteenth century, and thus a reduced demand for credit from these types of farmer. This implies that Raiffeisen banks played an important role providing credit to farmers in areas less dominated by horticulture—i.e., where the crisis was felt most acutely—and the demand among farmers for financial services was highest.

In terms of non-economic factors, we find that the percentage of Roman Catholics in a municipality played an important role in stimulating the entry of Raiffeisen banks. However, with regards to the early performance and success of these banks, our results suggest that these non-economic factors played a more limited role. We conclude that while Catholic influence may have been an important initial catalyst in the emergence of Raiffeisen banks, in the longer term it was less important for sustained growth, social outreach, and operational success.

Overall, these results suggest that the existence of Raiffeisen banks, in this context at least, should be understood as a response to both social *and* economic demands. Yes, the agricultural crisis of the late-nineteenth century and an absence of (appropriate) incumbent financiers may have provided an economic rationale for their existence, but it seems unlikely to have been a sufficient precondition. Rather, the Catholic Church, by taking advantage of its religious network, could provide the necessary impetus for the initial diffusion phase. Then, once the banks had been established, the organisational model of Raiffeisen banks was able to benefit from efficiencies accrued from religion-related social collegiality, perhaps with the function of religion ultimately transitioning from philanthropy to economy.

This paper augments the literature on the emergence and success of the first cooperative financial institutions. Guinnane's (2001) pioneering work on German credit cooperatives points to their informational and enforcement advantages over other types of organisational form, which helps them survive and even flourish. Our analysis extends his argument by showing how the organisational form interacted with a new socioeconomic environment to ensure its success. Our paper also lends support to Colvin and McLaughlin (2014), who attribute the success of Dutch Raiffeisen banks relative to their Irish counterparts to their ability to attach onto existing religiously-associated social networks. Indeed, the heterogeneous performance of Raiffeisen credit cooperatives throughout Europe supports the relevance of both the economic and broader social environment (Guinnane and Henriksen, 1998; Galassi, 2001; Garrido, 2007; Beltrán Tapia, 2012; Martinez-Soto et al., 2012; Henriksen et al., 2015).

In terms of our contribution to Dutch economic history, our analysis is the first work to systematically compare the different hypotheses for the entry of cooperative banks advanced in the literature. It is also the first to adopt a cliometric approach; previous analyses have relied on archival, narrative, evidence. We argue that the methodology adopted in extant works runs

run the risk of propagating popular "origins stories", without the systematic evaluation of the available evidence, or the sufficient scrutiny of alternative possibilities.

<<INSERT FIGURE 1 HERE>>

2. The Market for Savings and Loans, c. 1900

2.1 Incumbents and Entrants

At the turn of the twentieth century, Dutch household savings services were delivered by three main market players: savings banks (*spaarbanken*), the Post Office Savings Bank (Rijkspostspaarbank), and more latterly Raiffeisen banks (*boerenleenbanken*). Savings banks had been the sole incumbent throughout most of the nineteenth century, but this changed in the 1880s with the arrival of the Post Office Savings Bank, and again in the 1890s with the arrival of Raiffeisen banks.

From Table 1 we see that savings banks tended to be organised as societies, the Post Office Savings Bank was established by the state, and Raiffeisen banks took either the society or the cooperative organisational form.[1] Savings banks also tended to set up in more urban settings, while Raiffeisen banks, which originally had been exclusively targeted at agriculturalists, tended to establish in rural areas. The Post Office Savings Bank enjoyed national scope; it was bolted onto the country's pre-existing post office network. Savings banks tended to be much more unit-independent than either of their counterparts;[2] the Post Office Savings Bank was a single institution with a network of offices across the country, while Raiffeisen banks were independent, but affiliated according to their religious identity into networks headed by central banks in either Alkmaar, Eindhoven, or Utrecht. Savings banks also held a more complex set of investments than either of their counterparts; the Post Office Savings Bank invested heavily in government securities, while Raiffeisen banks made loans to their members. To illustrate the growing importance of Raiffeisen banks in relative size terms, Table 2 compares them to the other principal savings institutions across time.

[1] In practice, the society form could be used to establish cooperative organisations. We argue that Raiffeisen banks established as societies can also be treated as cooperatives as they were organisationally almost identical.

[2] Savings banks were not entirely decentralised, with a significant proportion affiliated to the Maatschappij tot Nut van 't Algemeen (friendly society). And from 1907, a number became affiliated to a newly-established savings bank union (Jacobs, 2005).

<<INSERT TABLES 1 AND 2 HERE>>

Similar to its savings counterpart, the market for loans experienced something of an evolution throughout the nineteenth century. However, unlike savings institutions, for which there was not an obvious informal alternative, loan institutions had to compete with a variety of incumbent, private credit providers, such as notaries. Nevertheless, by the turn of the twentieth century at least three main players provided formal small-scale household-credit services: Raiffeisen banks, pawn banks (*banken van leening*), and help banks (*hulpbanken*). The pawn banks, which had existed throughout the nineteenth century, mainly dealt with thousands of low-value pawns, with individuals pawning everything from winter clothing to jewellery (Jansen, 1964). Help banks, by contrast, emerged in the mid-nineteenth century, and focused on poverty alleviation through the provision of small loans.[3] More latterly, Raiffeisen banks emerged in the 1890s with a particular emphasis on reaching a rural clientele, and fulfilling a dual savings-loans function following Raiffeisen principles.

Loan institutions also differed in their attributes, which are also summarised in Table 1. First, both help banks and pawn banks were relatively independent, and tended to establish themselves in more urban locations. Raiffeisen banks differed in that they did not sell valuable shares and gained "capital" instead from deposits from their members, who were liable to an unlimited amount. Meanwhile, help banks relied on shares and charitable donations from local elites, and pawn banks on pawns and charity. Unlike the others, pawn banks were linked to the municipal system in which they were located, with this system fulfilling an oversight function. One common feature shared by all institution types was their reliance on credit provision as their main investment strategy.

In addition to the institutions examined here, loans could be obtained from a variety of other sources, many informal in nature (Deneweth et al., 2014). Store credit was popular in urban and rural centres alike. Mortgages could be arranged directly through notaries, who acted as financial intermediaries. And private pawn shops operated in urban centres, on the fringes of the law.

[3] Reliant on donations and sale of shares to raise capital, help banks were a relatively diverse set of institutions, with some charging interest on loans and some paying a dividend (Jacobs, 2005). Some help banks also had a savings-bank function.

2.2 Quantitative Description

Here we use statistics published by the Dutch national statistical office concerning savings and loans banks in the Netherlands to consider the distinctions between the various bank types in 1909 using a "performance" framework. In so doing we provide a quantitative outline of the financial landscape ten years after the emergence of the first Raiffeisen bank. We use indicators based on those used by the United Nations (UNCDF, 2006) and the World Bank (Ledgerwood et al., 2013). To be clear, we are not making any claims about similarity between our historical Dutch savings and loans institutions and the modern microfinance institutions analysed by the UN, but instead we recognise the possible value of microfinance indicators in providing quantitative measures which have an explicit social and economic mission. The measures used are defined in Table 3.

<<INSERT TABLES 3 AND 4 HERE>>

Table 4 displays the summary statistics for the main bank types. These are computed using bank-level observations, except for the Post Office Savings Bank where the aggregate-institution statistics are used. The first two indicators, account size and the number of accounts, concern only savings institutions, and reveal obvious differences between such banks. Raiffeisen banks on average have relatively large accounts (*fl* 426), but reach fewer persons (41 accounts per 1,000 persons) than either of the other organisation types.[4] By contrast, the Post Office Savings Bank has substantially smaller accounts (*fl* 110), but reaches a much larger clientele (250 accounts per 1,000 persons). Somewhere between these two, savings banks hold a more intermediate position both in terms of account size (*fl* 281) and outreach (128 accounts per 1,000 persons).

The next two indicators in Table 4 reveal differences in the market for loans. Help banks in 1909 have an average loan size of *fl* 265, compared to *fl* 677 for Raiffeisen banks. Furthermore, while we do not know the value of individual pawns, it is likely they are mostly of very small value, with reports of individuals even pawning their winter clothes during the summer months and bicycles during the winter. For outreach, there is less difference between

[4] One guilder (*fl* 1,–) in 1909 is worth approximately 10.60 euros in 2011 (IISH, 2016). By way of comparison, Dutch GDP per capita in 1909 expressed in 2011 terms is approximately 6,750 euros (Bolt et al., 2018).

help banks and Raiffeisen banks, although pawn banks are making a large number of pawns—for example, in 1909, 17 pawn banks made 2.1 million pawns.[5]

Differences are also obvious across the remaining indicators, which relate to "financial performance". First, in terms of profitability, as measured by return on assets (ROA), Raiffeisen banks have noticeably lower returns (0.25 per cent) than either of the other savings institutions (1.18 and 0.78 per cent). In ways this is unsurprising, given that many Raiffeisen banks are relatively new institutions, focus on reinvesting profits within a simple savings-and-loans model, and enjoy an ownership structure whereby profits are essentially internalised in the advantageous rate of interest versus competitors. By contrast, savings banks, where ROA is highest, are more established, and have a more complex asset mix in which profitability likely forms a more important function in their sustainability. On the loan side, differences are more obvious, with help banks having a comparatively high ROA (2.47 per cent) relative to Raiffeisen banks, while for pawn banks ROA is negative.

Turning to efficiency as measured by the extent of administration costs, we see savings banks enjoying an obvious efficiency advantage. Specifically, savings bank administration to revenue is around 6.5 per cent, while for the other institution types it is over 10 per cent. On the savings side, this differential may reflect the relative size-advantage of savings banks and their related economies of scale, in contrast to the Post Office Savings Bank, which deals with many more small-value transactions, and the Raiffeisen banks, which are smaller organisations. On the loan side, the administrative burden is high for the help banks (29 per cent) and especially high for pawn banks (66 per cent). This differential likely reflects transaction size; help banks, and to a much greater extent pawn banks, are dealing with smaller loan transactions than Raiffeisen banks.

For the final two indicators, further differentiation is shown among the bank types. For liquidity, as measured by cash to assets, Raiffeisen banks hold on average most cash (5.1 per cent), the Post Office Savings Bank the least (1.3 per cent) of the savings organisations. The higher cash holdings of Raiffeisen banks may be a reflection of their simple model, which emphasises deposits and loans, and thus creates a time imbalance issue in liquidity terms. The lack of cash may at the Post Office Savings Bank reflects their savings specialism, and to some extent their state guarantee. Similar to the Raiffeisen banks, the other loan organisations—help banks (6.2 per cent) and pawn banks (7.2 per cent)—hold more cash per assets than savings banks or the Post Office Savings Bank.

[5] Source is the same as in Table 5.

3. Organisational Form

The cooperative organisational form was one of the unique attributes which distinguished the entrant Raiffeisen banks from incumbents in financial services. In 1899, the year following the market entry of the first Dutch Raiffeisen bank, there were already 924 cooperative organisations across the agricultural sector, 416 of them in dairying (Wintle, 2000). Raiffeisen banks were just the latest organisation to adopt this organisational form. Why did these banks adopt the cooperative form? And did this organisational innovation result in their success in the Darwinian struggle for survival and market share?

A cooperative organisation is an association of economic actors that unite voluntarily to meet their common goals—economic, social, or cultural—through a jointly-owned and controlled business venture. Not all cooperatives have the same ownership structure; some are owned collectively by producers, while others by consumers of the business. Raiffeisen banks differed from other early mutual banks, such as UK building societies, in that they were owned by debtors (i.e., borrowers) rather than creditors (i.e., savers). All such banks confined their market to a single locality, or even to members of a single religious denomination within that locality. These Dutch credit cooperatives belonged to one of three networks, the central banks of which acted as clearinghouses, auditing authorities, and lenders-of-last resort for their network (Colvin, 2017).

While the welfare gains from specialisation and trade are shared between buyers and sellers, at cooperatives the buyers and sellers are the same economic actors, and so welfare gains remain with the cooperators themselves. As a result of this alternative organisational architecture, cooperatives have very different business objectives; cooperatives are not profit-maximising firms in the traditional sense. Indeed, they are arguably not even independent business ventures, but instead simply extensions of each individual cooperator's private interests. Where a conventional company seeks to maximise returns for its owners and managers, a cooperative's owners and managers may instead maximise their own returns by minimising those of the cooperative organisation that they co-use, co-own, and co-manage.[6]

Dutch Raiffeisen banks, which were unlimited liability organisations, possessed no share capital and, aside from their own resources, had access only to the excess savings which they could borrow from other Raiffeisen banks, arranged exclusively through their central-

[6] This is in line with the model of cooperative behaviour proposed for the Italian case in Galassi (2001). More generally it falls in the "cooperatives as an extension of the farm" approach to cooperative theory discussed in Cook et al. (2004).

bank apex institution. They relied on deposits as their principal source of funding. Indeed, in practice, the managers of these banks aimed to attract and retain savings deposits wherever they could, and borrowed externally only when necessary (Colvin, 2017). The core business objective of these banks, then, was to finance the expansion of their loan portfolio to liable members, and the cheapest possible way to do this was to attract new savings deposits from existing and new customers, members and non-members alike.

The principal organisational innovation that the literature on cooperative credit organisations argues is necessary to render them going concerns is joint liability or group lending (Banerjee et al., 1994; Guinnane, 2001). This lending model enables small-scale businesses to borrow with little or no collateral by making cooperators liable for one another's financial losses. Adverse selection is reduced as group members are screened; they must fulfil certain requirements before they can join, such as a minimum deposit or membership of an allied social or cultural organisation. Providing the group is small and geographically concentrated, members are more able to monitor one another's effort and punish bad behaviour through social ostracism, and can therefore reduce free riding and moral hazard. As cooperators are all in similar lines of business, they can more easily verify one another's business performance. As members engage in long-term repeated interaction, and as it is difficult and costly to renounce membership, a cooperative outcome is sustainable which benefits all members at least a little, and from which it is not in the interest of any one member to deviate.

Cooperation in Dutch rural finance occurred simultaneously with—or, indeed, immediately following—cooperation in other types of rural business. Cooperative organisations were thus emerging across rural areas, changing the ownership and incentive structure throughout agriculture. The returns to the cooperative organisational form adopted by Raiffeisen banks were partly captured by the various other agricultural cooperatives that were instrumental in founding and subsequently using these banks. Indeed, cooperative banks could be viewed as an extension of these other cooperatives, an attempt to further internalise any gains from trade.[7] By self-financing agricultural improvement, farmers were creating vertically integrated business organisations. Not only does this result in the elimination of margins through the supply chain and transaction costs associated with information asymmetries, but it also reduces incentive problems as the owners and users of capital were now the same economic actors.

[7] Rommes (2014) documents many cases of overlapping membership and management of different types of rural cooperatives, further evidence of this integration.

The successful entry and survival of the Dutch Raiffeisen banks does not imply that their originators were endowed with great prescience and understood that the cooperative form would enable them to compete in the market for savings and loans. According to Alchian (1950), institutional innovations may work simply because of pure chance—the innovation introduces features to the institution which make it more likely to survive in a new environment. For example, the fact that the cooperative form was ideologically aligned with Roman Catholicism (see next section) may explain why the cooperative form was adopted by Dutch savings and loans banks. Although the innovation was not adopted to help survivability, it had the effect of helping the Raiffeisen banks flourish in the Darwinian struggle for deposits. However, Alchian (1950) also suggests that institutions can learn in a Lamarckian sense from other successful organisations and imitate the organisational features which will help them compete and survive. In the case of the Dutch Raiffeisen banks, their originators may have learned an important lesson about the cooperative form from the successes of the original Raiffeisen banks in Germany and the agricultural cooperatives in the Netherlands.

4. Hypothesis Development

This section considers three non-mutually-exclusive hypotheses which may explain the general conditions that influenced the entry propensity and subsequent performance of Raiffeisen banks. In particular, we want to understand how the innovation in organisational form facilitated the emergence and survival of banks which were able to adapt to the new economic and social environment.

4.1 Unmet Market Demand

The traditional argument put forward in the literature is that Raiffeisen banks were created in response to an unfulfilled demand for credit from the unbanked and underbanked (Sluyterman et al., 1998; Van Zanden and Van Riel, 2004; Bieleman, 2008). The roots of this view lie principally with the government agricultural inquiries conducted in the late-nineteenth century (Landbouwcommissie, 1890), but perhaps more importantly with the propaganda emanating from the cooperative banks themselves.

Van der Marck (1924), a laudatory note that was used as propaganda, argued that the market entry of cooperative banks meant that farmers no longer had problems finding external financing. If true, this means that incumbent financial intermediaries must have been engaging in either “credit rationing” or “red-lining” behaviour (Freixas and Rochet, 2008; Colvin and

McLaughlin, 2014).[8] While both phenomena force farmers to self-finance or abandon their projects, they imply very different conduct by the incumbent suppliers of financial services. Credit rationing implies that incumbents could have increased their market share still further and attract additional creditors by increasing the price of their loan contracts, but that they were unwilling to do so due to the potential high risk of such borrowers' projects, or due to the presence of some hidden information about the projects which could make verification of their financial outcomes too costly. Red-lining, by contrast, implies that incumbents could have increased their market share only by *reducing* the price of their loan contracts, but were unwilling to do so because the expected returns on the projects which such loan contracts would attract were insufficient to cover the full economic costs of intermediation.

Micro-business histories of Raiffeisen banks in the south of the Netherlands by Jonker (1988a) and Brusse (2009) provide evidence that the market for agricultural credit was already satiated by the time the cooperatives entered it, suggesting that the sector's origins were not demand-led. Additionally, Jonker (1988a) shows that the new Raiffeisen banks were largely used as savings institutions, a type of service already provided by incumbents, especially the Post Office Savings Bank. Essentially, the argument is that no new market for banking services—either for borrowing or saving—was created with the arrival of cooperatives, only additional competitors added to an already crowded scene. These studies imply that incumbents were essentially engaging in credit rationing; credit was already available, and incumbents could have attracted more custom by offering services to more risk-loving individuals willing to take on higher interest rates. However, the fact that Raiffeisen banks offered *lower* interest rates than incumbents meant that they were targeting less profitable opportunities; incumbents were likely red-lining rather than credit rationing. The idea here is that a new organisational technology protected Raiffeisen banks from the associated risk of attracting undesirable, riskier, customers, thus helping them survive in a new environment. The innovation in organisational form helped these banks meet the demand for credit in a new environment where farmers' demand for credit had increased and was being unmet.

The hypothesis is therefore that these business organisations chose a unique organisational form that permitted farmers to compete away a share of the existing financial

[8] Credit rationing occurs when borrowers' demands for credit are turned down, even if these borrowers are willing and able to pay both the interest rate and meet the collateral requirements of prevailing loan contracts. By contrast, red-lining occurs when complete categories of borrowers are totally excluded from the credit market because they are unwilling and/or unable to pay the interest rate and/or meet the collateral requirement of prevailing loan contracts.

market from incumbents, and/or deepen the market to capture customers previously excluded from it. Raiffeisen banks may have been able to attract savers in rural parts of the Netherlands and displace incumbents exactly because of their cooperative ownership; capturing producer and consumer surplus meant that the interest rates offered on savings could be consistently above those offered by the Post Office Savings Bank, an organisation which, unlike the Raiffeisen cooperatives, enjoyed a full state guarantee. Cooperators—who were both owners and customers—were able to internalise any profit before it reached the cooperative business organisation itself, by setting below-market interest rates on loans.

4.2 Agricultural Change

The timing of the proliferation of Raiffeisen banks across the Netherlands could have been a response to the Long Depression of the late-nineteenth century (Van Zanden and Van Riel, 2004). This crisis, which lasted from the early-1870s to the mid-1890s, saw sustained falls in agricultural prices. Grain prices were especially affected, and so arable farmers suffered more than those in livestock and horticulture (Wintle, 2000, p. 175; Bieleman, 2010, p. 155). Self-financing agricultural improvement by establishing their own organisations—a form of financial "disintermediation"—was only possible once the rural economy had fully recovered from the Long Depression, when there was sufficient savings surplus to reinvest (Van Zanden and Van Riel, 2004).

Despite the Netherlands' small size, Dutch agriculture was region-specialised and clustered, with areas focusing on plants and animals that best suited their soil type and labour costs. Knibbe (1993) shows significant regional variation in agriculture: coastal provinces were predominantly horticultural, eastern provinces on the German border specialised in growing grains and crops, and northern provinces saw intensive cattle farming. Until the advent of costly artificial fertiliser at the end of the nineteenth century, yields in eastern provinces were far lower than western areas (Wintle, 2000). The hypothesis here, then, is that the demand for Raiffeisen banks arose earlier in land-types affected most severely by the Long Depression, especially in arable lands, and to a lesser extent in pastures.

However, the growth of Raiffeisen banks from the late-nineteenth century may also reflect ongoing changes in agriculture, which were linked, at least to some extent, to the Long Depression period. Small, family farms flourished (Bieleman, 2010, p. 158), as larger farms became less important (Van Zanden and Van Riel, 2004, p. 290); arable farming declined as livestock farming became more prevalent; and the use of inputs such as fertilizers soared (Van Zanden and Van Riel, 2004, p. 284). In addition, the financial position of farmers improved as

time passed, with surplus funds for saving rising as the rural economy recovered from the crisis (Van Zanden and Van Riel, 2004, p. 294). As a result, while different land uses during the crisis may have generated variation in the demand for banks, the aforementioned factors may also have been functionally important in the post-crisis trajectory—the relative performance—of the new Raiffeisen institutions.

Douma (2001) argues that the cooperative form was only successful in the Netherlands where the type of agriculture was most suited to this ownership structure. He takes the example of dairying, where transaction coordination costs meant that cooperative creameries found their niche in areas where consumers did not demand fresh milk to be distributed daily. In practice, this meant that cooperative creameries located away from urban centres did better than those closer to cities. In the context of the present study, then, the hypothesis on regional variation in the performance of Raiffeisen banks can be further embellished to posit that they were: (1) likely most successful where the type of agriculture conducted there was most in need of this new organisational form; but (2) also where the nature and concentration of their target market, or indeed their customers' target market, was the most cost effective for this particular organisational form. In particular, more urban environments, which were more conducive to private enterprise, either did not demand the market entry of Raiffeisen banks, or, where such banks did enter, were not conducive to their subsequent performance.

4.3 Economic Confessionalism

The third argument for the origins of Raiffeisen banks concerns the growing role of confessionalism around the time of the cooperative movement's inception. By the late-nineteenth century, most Dutch citizens identified themselves strongly with one religious denomination: Roman Catholicism or one of the various Reformed denominations. Dutch enterprise and society became highly segregated along religious lines, with the different Christian denominations developing sophisticated parallel social, economic, and political institutions and organisations. This phenomenon, known as pillarisation (*verzuiling*), reached its zenith in the interwar period.[9]

The argument put forward or implied in the work of Jonker (1988a,b), Van Zanden and Van Riel (2004), and Rommes (2014) is that sociopolitical interest groups—the Roman

[9] The origins of this pillarisation have been analysed, among others, by Kruijt (1974), Lijphart (1979), Stuurman (1983), De Rooy (1995), and Luykx (1996), and, in the context of risk-taking in the cooperative bank sector, by Colvin (2017).

Catholic clergy above all—were crucial in the creation of the first cooperative banks and that these groups viewed cooperatives as a way of consolidating or extending their political influence.[10] Pillarisation affected Raiffeisen banks through institutionalised confessional politics, described most completely in this context in Smits (1996), and summarised as follows. Provincial agricultural companies (*landbouwmaatschappijen*), established in the first half of the nineteenth century, aimed to stimulate the improvement of agricultural technology by organising trade fairs, subsidising agricultural consultants, and dealing with pests and diseases. These institutions Were heavily criticised by Catholic elites, who argued that efforts by the agricultural companies were not easing the plight of Catholic farmers. Against this backdrop, there were calls for the creation of business cooperatives from the Catholic priesthood in response to *Rerum Novarum*, a Papal Encyclical (open letter to the clergy) in support of anti-socialist confessional trade unionism (Pecci, 1891).

And so, a new organisation for Dutch agriculturalists was established in 1895: the Dutch Farmers' Union (Nederlandsche Boerenbond, NBB) (Smits, 1996; Van Zanden and Van Riel, 2004). The founding of new regional unions soon followed and most, in turn, joined the NBB on a federal basis. The Noord-Brabant Christian Farmers' Union (Noordbrabantse Christelijke Boerenbond, NCB) was the largest and most influential such regional union. It was instigated and led by a Catholic priest. In practice, the difference between the agricultural companies and the unions was that the latter's aims were religiously motivated, such as the NCB's aim of 'furthering the interests of God, the family and property' (Smits, 1996). These unions were predominantly Catholic affairs; farmers from the two majority-Catholic provinces made up 73 percent of the NBB's membership in 1904. The agricultural companies became *de facto* Protestant when Catholic farmers left them to join their new unions.

Jonker (1988b) argues that it was the regional farmers' unions that were the primary instigators of Raiffeisen banks in majority-Catholic Noord-Brabant. Catholic clergy, and others working on behalf of the unions, would visit villages to spread the idea of cooperation. These propagandists would help villagers write their new organisations' statutes and provide them with a small amount of initial financing. Local priests would be recruited to provide these cooperatives with day-to-day "spiritual guidance". In Protestant parts of the country, it was the agricultural companies and other local elites that performed this same function, but only in

[10] This is much in line with the ideas of Stuurman (1983) and Luykx (1996) in their wider analysis of pillarisation, both of whom argue that the phenomenon was Catholic-led. But while the former sees it as part of a wider political struggle for minority rights, the latter argues that pillarisation was a form of social control by Catholic elites over the working classes rather than a reaction to discrimination.

response to nearby "Catholic-only" cooperative efforts. The hypothesis, then, is that Catholic-majority areas of the country were the first to enjoy Raiffeisen banks, but that religious affiliation became less important over time, as Protestant elites caught up and replicated the work of Catholic elites.

An allied hypothesis concerns banks' local socioreligious status. Following Colvin (2017), the idea here is that Raiffeisen banks functioned as "club goods" for a locality's farmers: the banks functioned as close-knit "credit clubs" which benefitted from improved screening and monitoring, and were strengthened by common social norms, the consequences of which increased the cost of group entry and exit. Banks serving a locality's religious minority group, either Catholic or Protestant, are hypothesised to have been successful at avoiding free riding behaviour, and so could likely organise and enter earlier, and perform better.

5. Data and Empirical Strategy

We construct a dataset which pools information from a variety of sources in order to investigate our three hypotheses for the market entry and subsequent performance of the Raiffeisen banks. First, we obtain bank-level information for various savings and loans institutions from annual reports published by the Centraal Bureau voor de Statistiek, the national statistical agency. The reports collate accounting information for the various banking organisations, and although they are voluntarily reported, there is good coverage and detailed information provided.[11] Bank-level data are available for savings banks and offices, help banks, pawn banks, and Raiffeisen banks, while aggregated data are provided for the Post Office Savings Bank. The information available covers deposit accounts, loans, the balance sheet, the profit and loss account, the investment account, and, although aggregated somewhat, the occupational background of new savers.[12] We direct our attention to the years 1898, 1904, and 1909, to focus on the early years of Raiffeisen bank entry. To these data, we also add information about the location of the Post Office Savings Bank branches using its annual reports, because this information is unavailable in the previously mentioned publications.

[11] In 1909 the number of institutions in the register and the percentage of those reporting statistics is as follows: savings banks – number: 346, reporting: 62 to 71 per cent; Raiffeisen banks – number: 603, reporting: 95 to 97 per cent; help banks – number: 112, reporting: 46 to 62 per cent; pawn banks – number: 17, reporting: 100 per cent.

[12] Unfortunately, this information is not available for all bank types.

We further supplement the bank-level observations with municipality-level information. Land-use information at the municipality-level is available from a tax survey conducted between 1886 and 1890. For each municipality (*gemeente*), we are able to ascertain land area by specific use, including arable, pasture, and horticulture, as well as the tax value.[13] Socioeconomic information is available from the census reports. We use the 1909 census as it provides occupational information for all the municipalities, as well as population density and religious affiliation data. While not all our data are thus from the same year, we take the view that land use and relative tax value did not change radically across the period and so treat these variables as time invariant. Yes, horticulture saw an expansion across the period, but this biases our results against finding an effect for horticulture; any inference we draw is likely to be a lower-bound estimate of the "true" effect.

From the collated data, we construct variables, defined in Table 5, to test the three hypotheses for Raiffeisen bank entry outlined previously. Summary statistics are shown in Table 6. First, we include the presence of incumbents to better understand the effect of pre-existing supply of banking services on entry propensity. We use dummy variables to account for the co-location of savings institutions, help banks, pawn banks, and Post Office Savings Bank branches in the municipality, taking an earlier observation point to capture the pre-existence of these institutions.

<<INSERT TABLES 5 AND 6 HERE>>

Our second set of hypothesis variables relate to the agricultural environment in which the banks existed. First, we include the relative combination of arable, pasture, and horticultural land. Given that the agricultural crisis of the late-nineteenth century may have affected these land types unequally, perhaps the demand for banks arose earlier in land types affected most by the crisis. Alternatively, banks may also have been a source of credit for more capital-intensive farming. We also account for the extent of farming and urbanisation in each municipality as measured by farmer representation in the population and population density. In addition, we include land per farmer and tax value because we expect that these may have affected financial-service demand given their association with capital needs and wealth.

Finally, we test our third hypothesis using the percentage of Catholics in a municipality, given suggestions that the Catholic Church and its clergy may have provided an impetus for

[13] In 1909 there were 1,121 municipalities nationwide.

cooperation. Where the unit of analysis is the bank, as opposed to the municipality, we are also able to account for the minority status of a bank. A minority bank is one where its religious association, as indicated by the network to which it is attached, matches the religious affiliation of the religious minority population in that particular municipality.

Our empirical approach takes two stages. First, as related to our three hypotheses, we address the factors which precipitated the entry of Raiffeisen banks. We begin by using bank age as a dependent variable to ascertain the conditions most critical to the entry of the first Raiffeisen banks. Given that the specification is from the perspective of existing banks, we anticipate that the results will reflect most acutely the initial catalyst for their entry. We utilise an OLS model with robust standard errors.

Following this, we employ the presence of a Raiffeisen bank in a municipality by 1904, and then the presence of a Raiffeisen bank which entered between 1905 and 1909, as dependent variables. This differs from the first set of regressions as we now adopt a municipality viewpoint as opposed to a bank-level perspective. We expect that these specifications likely reflect the initial catalyst(s) less acutely, but instead help to reveal whether the early drivers of entry remained important with the advancement of time. Given that the dependent variable is now a binary variable (0 or 1), we utilise a probit model. To be clear, the motivation for using these alternative specifications is to discern how important the underlying hypotheses variables are across time. Indeed, by using bank age, and then juxtaposing early and late entry, we aim to reveal whether particular hypotheses were consistently relevant, or if instead a nuanced interpretation is more appropriate as the new banking form became exposed to the realities of the marketplace.

This dynamic emphasis extends to the second stage of our empirical approach addresses the factors which contributed to the post-entry "success" of Raiffeisen banks, focusing on the 1909 statistics. Here we are interested in whether the factors that induced entry are similar to those which drive post-entry performance. We expect, given the cooperative nature of Raiffeisen banks, that they are not necessarily concerned with profit maximisation, and so utilise a variety of alternative dependent variables to understand and measure their success. Nevertheless, we begin with return on assets, not to measure profit in a strict sense, but rather to provide an indication of financial sustainability. After all, profits were retained by Raiffeisen banks and paid into a reserve account at the end of each financial year. Secondly, we use deposit growth from the previous financial year. *New* savings deposits were the principal source of funds for *new* loans to members, and so we expect that this year-on-year growth reveals banks' ability to take on *new* business. The final two dependent variables are account size and

outreach, which provide an indication of the amount of funds being saved and the number of persons that were being served. As well as using similar hypothesis variables to those used for considering entry, we also control for bank-specific characteristics. We adopt an OLS model for the regression analysis.

6. Results

6.1 Market Entry

Table 7 reports the results of an OLS model regressing bank age on a selection of potential explanatory factors. Each of the columns represent alternative specifications, with columns 1 to 4 displaying the regression outputs for each of the hypotheses, and column 5 including the full set of hypothesis variables. For hypothesis 2, we split the regressions into two parts to separate out specific categories of variables.

The first set of hypothesis variables relate to market demand and interbank competition, proxied by the presence of incumbents. The results reveal that the presence of another institution in 1898 is generally not significantly associated with Raiffeisen bank age. As such, the presence, or lack thereof, of other banks in an area does not appear to have driven demand for the emergent banks.

The second set of explanatory variables relates to banks' agricultural environment. Perhaps unsurprisingly, given the banks' agricultural emphasis, there is some evidence that the percentage of farmers is positively associated with Raiffeisen bank age. By contrast, land per farmer (in column 3) has a significant negative association with the dependent variable, suggesting that demand for credit among small farmers may have been a driver of earlier bank entry. In addition, horticulture shows a significant negative association with bank age relative to arable and pasture farming. Given that this sector was less affected by the Long Depression, it may have been that there was less demand for credit among farmers in this sector. The magnitude of the horticulture coefficient in column 5 suggests that a bank located in an area that is one standard deviation "to the left" of the mean in terms of horticultural land use is associated with a bank age of 6.6 additional months.

With respect to the final hypothesis, which relates to religion, the results highlight a consistent positive and statistically significant association between bank age and Roman Catholicism. This suggests that a higher Catholic concentration in a bank's catchment area was conducive to the earlier entry of Raiffeisen banks, fitting well with existing evidence on the role of Catholic clergy in catalysing their initial emergence. Furthermore, the second religious

explanatory factor, minority status, also shows a significant positive association with bank age. This suggests that banks also tended to enter earlier into areas where they served the religious minority population, although in statistical significance terms this association is less pronounced. The magnitude of the Roman Catholic and minority bank coefficients in the final specification suggest that a bank located in an area that is one standard deviation "to the right" of the mean in terms of Roman Catholic concentration is associated with a bank age of 13.9 additional months, while being a minority bank is associated with a bank age of 6.9 additional months.

Table 8 provides an alternative perspective to the model used in Table 7. As stated previously, here the focus is directed to the municipality level as opposed to the bank level. The first set of regressions relate to Raiffeisen bank entry by 1904, and the second set to entry after 1904, thus separating "early" from "late" entry of banks. The reported coefficients are marginal effects calculated at the means.

With respect to the variables for hypothesis 1, relating to incumbent presence, there is some evidence of the importance of pre-existing banks. The presence of a Post Office Savings Bank branch in a municipality prior to entry is significantly positively associated with Raiffeisen bank entry in both phases, while the presence of another Raiffeisen bank is significantly negatively associated with entry in the later period (where the variable is first included in the regressions). As such, there is some suggestion that the presence of a Post Office Savings Bank branch may have been associated with conditions favourable for the emergence of a Raiffeisen bank; they were possibly complements, with an existing Post Office Savings Bank branch perhaps conducive to an improved saving propensity, correlated with a better infrastructure, or indicative of an existing pool of savings. Contrasting with this, the negative association with the presence of another Raiffeisen bank suggests a possible competition effect, even between banks serving different religions.

Turning to hypothesis 2, which concerns banks' agricultural environment, there is some evidence that a larger percentage of horticultural land is significantly negatively associated with bank presence by 1904 (similar to the result for bank age), however it is not significant for the later entry horizon. Furthermore, there is some evidence that a greater percentage of arable land is associated with a lower entry propensity in both years. Tax value and land per farmer are statistically significant for the second horizon, perhaps indicative of the rising importance of wealth for later bank entry. Interestingly, the association is negative, suggesting Raiffeisen banks entered more depressed areas, which had a lower tax base, later in the period after entering wealthier places first.

For hypothesis 3, which concerns religion, and similar to the results for bank age, both year subcategories reveal a positive and statistically significant association between Roman Catholic concentration and the presence of a Raiffeisen bank. However, perhaps more interestingly, when only the religion variable is included in the regression, the magnitude of the coefficient and the pseudo R-squared value is noticeably lower for the later entry period. This may reflect the diminishing role of Catholicism, and the diffusion of Raiffeisen banks to all parts of rural society regardless of religion, possibly as the initial impetus provided by the Catholic clergy became less important and as others started to adopt the survival-enhancing cooperative form.

6.2 Post-Entry Performance

We begin in column 1 of Table 9 using return on assets (ROA) as the dependent variable. Here, among the hypothesis variables, only minority bank status shows a statistically significant association with ROA. However, the effect size is small. This limited significance of the hypothesis variables may signal that the conditions which encouraged entry are distinct from those affecting financial sustainability, or, indeed, confirm that ROA was not the most important operational goal of these institutions.

Column 2 presents the results for the second measure of performance: deposit growth. A number of the hypothesis variables are statistically significant for this specification. First, the presence of a help bank or another Raiffeisen bank is negatively associated with deposit growth. The former may reflect greater poverty in an area, or the ability to acquire loans which reduces saving incentives, while the latter may reflect competition between individual Raiffeisen banks. Furthermore, the percentage of farmers is significantly positively associated with deposit growth, suggesting that a rural clientele was favourable for increasing the pool of savings.

Column 3 presents the results for account size as the dependent variable. For the hypothesis variables, the presence of another Raiffeisen bank and minority status have a significant negative association with account size, while tax value and land per farmer have a positive association. The negative association with the presence of another Raiffeisen bank suggests a competition effect between such banks. The positive association of the dependent variable with tax value and land per farmer suggests, perhaps unsurprisingly, the presence of larger accounts in wealthier areas. Furthermore, the negative association between minority status and account size may reflect the extent of the market available to a bank given its religious status, which is possibly smaller where the bank's religious leaning aligns with the

area's minority denomination.

Finally, column 4 presents the results for outreach as the dependent variable, defined as the number of deposit accounts per 1,000 people residing in a bank's municipality. For the first set of hypothesis variables, relating to incumbent presence, the significant negative associations between outreach and the presence of a savings bank, Post Office Savings Bank branch, or another Raiffeisen bank, give some support to active competitive behaviour for savings among these institution types. For the second hypothesis, the positive association with the percentage of farmers and tax value underscores the rural focus of Raiffeisen banks and perhaps the greater availability of funds in more valuable land areas. Furthermore, the extent of horticultural land has a negative association with outreach, which may reflect a reduced necessity for saving in such areas relative to other land types. However, similar to the previous performance measures, Catholic concentration is not significant.

7. Conclusion

This paper has examined the emergence of Raiffeisen banks in the Netherlands at the turn of the twentieth century. The case is particularly interesting as these institutions emerged relatively late in the market for household savings and loans, but thereafter quickly spread, and became highly successful, across the country. Conceptualising the existence of Raiffeisen banks according to the formative phases of (1) entry, (2) diffusion, and (3) early performance, has provided a useful framework to examine the strength of alternative hypotheses raised in the literature for their rise in the Dutch economy. Indeed, the particular motivation of this paper has been to understand the temporal salience of these various possible explanations. In other words, did the factors relevant to the initial emergence of these banks remain the same for later entry and post-entry performance?

Overall, the results suggest that timing did matter for the relevance of the various hypotheses variables. Perhaps most notable, is the particular significance of Roman Catholic concentration, which is stronger for earlier entrants than for later entrants, and lacks significance in explaining variation in performance. In contrast with Catholicism, other hypotheses relating to the presence of incumbents and the agricultural environment are generally more important for the later entry phase and in performance.

Two important conclusions emerge from our analysis. Firstly, socioreligious organisations, and especially Catholic ones, likely provided the necessary impetus for bank emergence, albeit in an environment with important, but perhaps insufficient, economic

rationales for market entry. Yes, the agricultural depression and perceived lack of incumbent financiers provided an obvious justification for entry, but in this period of pillarisation, it was Roman Catholicism which arguably provided the crucial social capital on which the Raiffeisen organisational form relied—a homogenous network with a leadership receptive to cooperation. Secondly, while the relevance of religion wanes over time, the relevance of economic factors relating to the presence incumbents and the agricultural environment become more important. Thus, it appears, that while social capital may provide the necessary catalyst for initial emergence, it is economic factors which matter when a new institutional form becomes more established in the marketplace.

It is important to emphasise that we are not saying that religion is unimportant in the longer term. Yes, the relevance of Catholicism is reduced, but religion—at least in its ability to deliver homogenous networks (Catholic or Protestant)—remains a central tenet of the Raiffeisen organisational form. Indeed, as an evolutionary perspective would predict, Protestants imitated the successful traits of the "Catholic" banks by creating their "own" cooperative banks, and they, like the "Catholic" banks, benefitted from the trust and informational advantages related to their respective communities.

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Table 1. Attributes of Dutch savings and loans institutions, c.1900

	Savings banks	Post Office Savings Bank	Help banks	Pawn banks	Raiffeisen banks
Enterprise form	Society, some others	State	Society, some others	Municipal / society	Society or coop
Scale/coverage	Local (urban)	National	Local (urban)	Local (urban)	Local (rural)
Liability/guarantee	Unlimited	State guarantee	Limited?	Municipal oversight	Unlimited
Source of capital	Deposits	Deposits	Charity, shares	Charity, pawns	Deposits
Unit independence	Yes	No	Yes	Yes	Yes, but federated
Federations	Some	Not applicable	No	No	Yes, by religion
Investment portfolio	Government securities, mortgages	Government securities	Loans	Pawns	Loans to members

Notes: The attributes in this table are from our own research and are based on the schema used in Hollis and Sweetman (1998), Guinnane (2011) and Colvin and McLaughlin (2014).

Table 2. Summary statistics of the main savings institutions

	Post Office Savings Bank			Savings banks			Raiffeisen banks	
	1898	1904	1909	1898	1904	1909	1904	1909
Number of offices/banks	1,304	1,389	1,480	295	330	346	284	603
Number of accounts	693,228	1,111,590	1,462,615	356,666[1]	388,092[2]	432,126[3]	10,986[4]	60,148[5]
Value of deposits	70,012,149	120,434,591	160,423,091	75,933,679[1]	85,026,530[2]	100,896,594[3]	3,616,652[4]	24,889,745[5]

Notes: [1] Based on statistics from 270 banks; [2] Based on statistics from 250 banks; [3] Based on statistics from 244 banks; [4] Based on statistics from 135 banks; [5] Based on statistics from 582 banks.

Sources: CBS (1898; 1904; 1909/10)

Table 3. Bank performance indicators

Indicator	Measured by
Social performance	
Outreach	Number of accounts / (population / 1,000) Number of loans / (population / 1,000)
Client poverty	Average account size Average loan size
Financial performance	
Profitability (ROA)	(Profit*100) / total assets
Efficiency	(Administration costs*100) / revenue
Sustainability	(Reserves*100) / total assets
Liquidity	(Cash*100) / total assets

Sources: Based on UNCDF (2006) and Ledgerwood et al. (2013).

Table 4. Performance statistics by bank type (1909 guilders)

Indicator		Raiffeisen	Savings	PO Savings	Help	Pawn
Account size	Mean	425.66	280.72	109.68	–	–
	Median	394.21	254.79	–	–	–
	Std. dev.	213.92	148.05	–	–	–
Number of accounts	Mean	41.33	128.36	249.67	–	–
	Median	28.61	88.89	–	–	–
	Std. dev.	43.48	152.13	–	–	–
Loan size	Mean	677.10	–	–	265.33	–
	Median	517.83	–	–	131.63	–
	Std. dev.	1015.15	–	–	430.12	–
Number of loans/pawns	Mean	7.13	–	–	6.90	1040.56
	Median	4.23	–	–	3.99	982.69
	Std. dev.	8.02	–	–	13.21	517.26
ROA	Mean	0.25	1.18	0.78	2.47	-0.81
	Median	0.36	1.04	–	1.88	-0.11
	Std. dev.	0.77	0.87	–	3.63	3.13
Admin. to revenue	Mean	11.13	6.48	10.83	29.23	65.78
	Median	7.77	5.04	–	24.31	68.64
	Std. dev.	18.65	4.98	–	23.04	26.57
Reserves to assets	Mean	1.30	13.36	1.06	17.97	9.92
	Median	0.91	13.02	–	8.61	7.40
	Std. dev.	1.80	7.07	–	19.89	12.69
Cash to assets	Mean	5.11	1.99	1.27	6.24	7.21
	Median	3.91	1.25	–	2.12	5.15
	Std. dev.	4.96	2.31	–	11.59	4.97
	Min. obs.*	481	213	1	51	17

Notes: Min. obs. is the minimum number of observations used to compute the statistics. The number of observations differs by statistic because not all information is available for every bank. The statistics are all bank level, except for the Post Office Savings Bank, where the calculations are carried out using the single overall figures for the bank.

Sources: CBS (1909/10); and CBS (1910).

Table 5. Definition of variables

Variable	Description	Source
Bank age	Bank age in years (1910 minus year of entry)	A
Early entry	Dummy variable = 1 if Raiffeisen bank entered by 1904, = 0 otherwise	A
Late entry	Dummy variable = 1 if Raiffeisen bank entered between 1905 and 1909, = 0 otherwise	A
ROA	Profit as a percentage of assets	A
Deposit growth	Percentage change in deposits between 1908 and 1909	A
Account size	Total value of deposits in guilders divided by the total number of accounts	A
Outreach	Number of deposit accounts per 1,000 persons in the municipality	A & D
Savings bank	Dummy variable = 1 if savings bank present, = 0 otherwise	A
Help bank	Dummy variable = 1 if help bank present, = 0 otherwise	A
Pawn bank	Dummy variable = 1 if pawn bank present, = 0 otherwise	A
PO bank	Dummy variable = 1 if Post Office Savings Bank branch present, =0 otherwise	B
Raiffeisen bank	Dummy variable = 1 if Raiffeisen bank present, = 0 otherwise	A
Arable	Percentage of arable land (of arable, pasture, and horticultural)	C
Horticulture	Percentage of horticultural land (of arable, pasture, and horticultural)	C
Farmers	Percentage of farmers in the population	D
Land per farmer	Total land area in hectares / number of farmers	C & D

Continued overleaf

Table 5. Definition of variables (continued)

Variable	Description	Source
Tax value	(Tax value in guilders / 1,000) / total taxable land area in hectares	E
Population density	Population density per km^2 / 1,000	D
Roman Catholic	Percentage of Roman Catholics in the population	D
Minority	Dummy variable = 1 if bank attached to network whose religion matches the minority population, = 0 otherwise	A & D
Bank size	Value of deposits in guilders /10,000	A
Securities	Percentage of assets held in securities	A
Property	Percentage of assets held in property	A
Mortgages	Percentage of assets held in mortgages	A
Loans	Percentage of assets held in loans	A
Cash	Percentage of assets held in cash	A
Administration	Administration costs as a percentage of revenue	A
Reserves	Reserves as a percentage of assets	A

Sources:
A. CBS (1898; 1904; 1909/10).
B. DWHN (1898; 1904).
C. Landbouwcommissie (1890).
D. CBS (1910)
E. Financiën (1890)

Table 6. Summary statistics

Variable	Mean	Std. dev.	Obs.
Bank age regressions (Table 7)			
Bank age	5.70	3.10	579
Savings bank (98)	0.20	0.40	579
Help bank (98)	0.05	0.22	579
Pawn bank (98)	0.03	0.16	579
PO bank (98)	0.90	0.30	579
Arable	42.82	27.56	579
Horticulture	4.10	6.58	579
Farmers	9.36	5.99	579
Land per farmer	13.96	9.36	579
Tax value	0.04	0.03	579
Population density	0.24	0.82	579
Roman Catholic	58.00	38.49	579
Minority bank	0.22	0.41	579
Bank presence regressions (Table 8)			
Early entry / Raiffeisen bank (04)	0.23	0.42	1,121
Late entry	0.25	0.43	1,121
Savings bank (98)	0.21	0.41	1,121
Savings bank (04)	0.24	0.43	1,121
Help bank (98)	0.05	0.22	1,121
Help bank (04)	0.06	0.25	1,121
Pawn bank (98)	0.02	0.14	1,121
Pawn bank (04)	0.02	0.14	1,121
PO bank (98)	0.85	0.36	1,121
PO bank (04)	0.87	0.34	1,121
Arable	41.16	28.66	1,121
Horticulture	4.66	7.98	1,121
Farmers	8.08	6.13	1,121
Land per farmer	17.42	20.64	1,121
Tax value	0.05	0.03	1,121
Population density	0.34	1.08	1,121
Roman Catholic	41.77	40.39	1,121

Continued overleaf

Table 6. Summary statistics (continued)

Variable	Mean	Std. dev.	Obs.
Bank performance regressions (Table 9)			
ROA	0.26	0.77	560
Deposit growth	45.12	111.17	516
Account size	427.92	207.87	560
Outreach	41.07	43.56	560
Savings bank (09)	0.24	0.42	560
Help bank (09)	0.06	0.23	560
Pawn bank (09)	0.02	0.15	560
PO bank (04)	0.92	0.27	560
Other Raiffeisen bank (09)	0.33	0.47	560
Arable	42.86	27.35	560
Horticulture	4.08	6.58	560
Farmers	9.42	6.04	560
Land per farmer	14.05	9.44	560
Tax value	0.04	0.03	560
Population density	0.25	0.83	560
Roman Catholic	57.83	38.66	560
Minority bank	0.22	0.41	560
Bank age	5.72	3.08	560
Bank size	4.75	4.05	560
Securities	3.31	9.18	560
Property	0.91	3.72	560
Mortgages	0.48	3.38	560
Loans	48.95	26.51	560
Cash	5.13	4.99	560
Administration	11.17	18.82	560
Reserves	1.31	1.81	560

Sources: See Table 5.

Table 7. Bank age

	(1)	(2)	(3)	(4)	(5)
Hypothesis 1: Market demand					
Pre-existing savings bank	-0.639*				0.053
	(0.367)				(0.336)
Pre-existing help bank	-0.535				-0.113
	(0.600)				(0.598)
Pre-existing pawn bank	-0.539				-0.981
	(0.783)				(0.929)
Pre-existing PO bank	-0.099				0.377
	(0.445)				(0.432)
Hypothesis 2: Agricultural change					
Arable		0.006			-0.008
		(0.005)			(0.005)
Horticulture		-0.034**			-0.084***
		(0.015)			(0.019)
Farmers			0.057*		0.014
			(0.030)		(0.031)
Land per farmer			-0.026*		-0.009
			(0.014)		(0.014)
Tax value			6.300		8.888
			(5.704)		(5.708)
Population density			-0.227		0.116
			(0.154)		(0.186)
Hypothesis 3: Economic confessionalism					
Roman Catholic				0.024***	0.030***
				(0.003)	(0.004)
Minority bank				0.652**	0.572*
				(0.288)	(0.296)
Constant	5.960***	5.571***	5.327***	4.159***	3.843***
	(0.419)	(0.250)	(0.567)	(0.171)	(0.772)
Observations	579	579	579	579	579
R-squared	0.015	0.009	0.027	0.099	0.135

Notes: OLS model. Robust standard errors in parentheses. Statistical significance: *** p<0.01, ** p<0.05, * p<0.1. Variable definitions in Table 5. Here 'pre-existing' refers to the year 1898.

Table 8. Early versus late bank presence

	Early entry					Late entry				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Hypothesis 1: Market demand										
Pre-existing savings bank	-0.086**				0.027	-0.009				0.049
	(0.036)				(0.037)	(0.034)				(0.035)
Pre-existing help bank	-0.058				-0.012	0.024				0.029
	(0.077)				(0.074)	(0.061)				(0.060)
Pre-existing pawn bank	-0.038				-0.048	0.074				0.209*
	(0.111)				(0.111)	(0.095)				(0.110)
Pre-existing PO bank	0.081**				0.162***	0.104**				0.165***
	(0.037)				(0.037)	(0.042)				(0.044)
Pre-existing Raiffeisen bank						-0.139***				-0.215***
						(0.033)				(0.035)
Hypothesis 2: Agricultural change										
Arable		0.001			-0.002***		-0.0002			-0.001***
		(0.0004)			(0.001)		(0.0005)			(0.001)
Horticulture		-0.002			-0.005**		-0.0004			0.0003
		(0.002)			(0.002)		(0.002)			(0.002)
Farmers			0.007***		0.001			-0.002		-0.0001
			(0.002)		(0.002)			(0.003)		(0.003)
Land per farmer			-0.001		0.001			-0.005***		-0.004***
			(0.001)		(0.001)			(0.001)		(0.001)
Tax value			-0.868		-0.054			-1.841***		-2.171***
			(0.580)		(0.636)			(0.584)		(0.639)
Population density			-0.008		-0.013			0.002		-0.031
			(0.016)		(0.021)			(0.014)		(0.020)
Hypothesis 3: Economic confessionalism										
Roman Catholic				0.003***	0.004***				0.001***	0.002***
				(0.0003)	(0.0004)				(0.0003)	(0.0004)
Observations	1,121	1,121	1,121	1,121	1,121	1,121	1,121	1,121	1,121	1,121
Pseudo R-squared	0.011	0.003	0.024	0.111	0.151	0.020	0.0002	0.022	0.007	0.074

Notes: Probit model. Marginal effects calculated at the means. Standard errors in parentheses. Statistical significance: *** p<0.01, ** p<0.05, * p<0.1. Variable definitions in Table 5. Here 'pre-existing' refers to the year 1898 for the early entry results, and the year 1904 for the late entry results.

Table 9. Bank performance

	Financial sustainability		Social engagement	
	ROA	Deposit growth	Account size	Outreach
	(1)	(2)	(3)	(4)
Hypothesis 1: Market demand				
Other savings bank	0.079	14.843		-12.176***
	(0.081)	(9.200)		(3.255)
Other help bank		-87.189*		-3.007
		(48.428)		(5.174)
Other pawn bank		52.988	161.896	-15.195
		(52.167)	(117.477)	(10.137)
Other PO bank				-31.138***
				(8.185)
Other Raiffeisen bank		-19.804**	-28.497*	-12.304***
		(8.833)	(16.297)	(2.678)
Hypothesis 2: Agricultural change				
Arable				-0.116
				(0.074)
Horticulture			0.890	-0.676**
			(1.360)	(0.289)
Farmers		2.485**	1.407	1.898***
		(1.232)	(1.615)	(0.314)
Land per farmer			2.175*	0.207
			(1.135)	(0.179)
Tax value			701.508**	429.978***
			(351.179)	(72.331)
Population density		42.979	9.370	-1.809
		(34.628)	(24.976)	(2.446)
Hypothesis 3: Economic confessionalism				
Roman Catholic				
Minority bank	0.075*		-79.498***	
	(0.041)		(18.016)	
Control variables: Bank characteristics				
Bank age		-7.839***	-2.386	2.576***
		(1.698)	(2.770)	(0.522)
Bank size	0.020**		17.542***	3.466***
	(0.008)		(2.201)	(0.559)
Securities		-0.949**	-1.174*	-0.129
		(0.376)	(0.652)	(0.108)
Property		-1.919*	2.860**	
		(0.981)	(1.334)	

Continued overleaf

Table 9. Bank performance (continued)

	Financial sustainability		Social engagement	
	ROA	Deposit growth	Account size	Outreach
	(1)	(2)	(3)	(4)
Control variables: Bank characteristics (continued)				
Mortgages			-3.970*	0.860
			(2.148)	(1.076)
Loans		-0.506**	-1.963***	
		(0.204)	(0.324)	
Cash			-4.110***	
			(1.495)	
Administration	-0.014***	4.914**	-1.120***	0.016
	(0.005)	(1.921)	(0.382)	(0.053)
Reserves	0.089***	-4.328*		
	(0.032)	(2.251)		
Constant	0.165*	60.001**	436.643***	16.382
	(0.094)	(23.715)	(45.105)	(12.575)
Observations	560	516	560	560
R-squared	0.215	0.236	0.272	0.425

Notes: OLS model. Robust standard errors in parentheses. Statistical significance: *** p<0.01, ** p<0.05, * p<0.1. Variable definitions in Table 5. Here the 'other' banks refer to the year 1909 except for 'other PO bank' which refers to the year 1904 (due to no data for 1909).

Figure 1. Geographic location of all Raiffeisen banks, 1899–1909

(a) All Raiffeisen banks in 1899

(b) All Raiffeisen banks in 1904

(c) All Raiffeisen banks in 1909

Notes: Black dots depict the approximate locations of Raiffeisen banks. Grey borders represent municipality boundaries.

Sources: CBS (1909/1910); Boonstra (1990).

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