The Origins of the (Cooperative) Species: Raiffeisen Banking in the Netherlands, 1898–1909[*]

Christopher L. Colvin[†] Stuart Henderson[‡] John D. Turner[§]

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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 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 cooperative enterprises ensured the subsequent survival and success of these banks.

Keywords: Cooperative banking, the Netherlands, Raiffeisen, religion.

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[†] Queen's Management School, Queen's University Belfast, 185 Stranmillis Road, Belfast BT9 5EE, UK. Email: chris.colvin@qub.ac.uk.

[‡] Ulster University Business School, Ulster University, Jordanstown Campus, Shore Road, Newtownabbey, BT37 0QB, UK. Email: s.henderson1@ulster.ac.uk.

[§] Queen's Management School, Queen's University Belfast, 185 Stranmillis Road, Belfast BT9 5EE, UK. Email: j.turner@qub.ac.uk.

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

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

1. Introduction

Raiffeisen banks were first introduced to the Netherlands' rural communities right at the end of the nineteenth century. These banks arrived very late in the market for personal finance, but quickly proliferated and spread to all parts of the country. Raiffeisen banks were novel: (1) they adopted a cooperative organisational form, (2) they provided both savings and loans services, and (3) they had a distinctly rural emphasis. Raiffeisen banks also reflected contemporary societal concerns: (1) their ideological alignment mirrored the increasing religious division of Dutch society, and (2) they were promoted as a financial solution to agrarian problems in a period of agricultural depression and change. In this article, we examine this interesting episode of successful financial innovation to understand the determinants of success. In particular, we focus on the initial rise of the Raiffeisen banks in the Dutch context, and attempt to discern which factors were the most important for their initial entry and early performance.

Our analysis is motivated by two key questions. Firstly, why did these financial institutions emerge in the first place? And secondly, did the same factors which underpinned their emergence subsequently also contribute to their early success? In essence, we are attempting to understand whether the influences which helped give birth to this institution in the Dutch context can also explain its subsequent growth, or whether different factors matter at different times. Indeed, we postulate it was social factors—specifically, the efforts of religious elites—which spurred the creation of the first banks, but thereafter that their success was largely due to their adoption of the cooperative enterprise form, 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 banks—they simply chose an organisational form they saw working elsewhere in rural society, and adapted it to their situation. Our article is, therefore, in the spirit of Alchian (1950), who argues new organisational forms emerge or mutate when the environment changes, and their institutional attributes help these new enterprises to survive and compete.

In light of previous literature, we formulate three testable hypotheses to account for the timing of Raiffeisen bank entry. Firstly, the rise of Raiffeisen banks may relate to the presence of an untapped demand for financial services from the unbanked and underbanked (Sluyterman et al., 1998). Such an explanation is supported by the need for finance identified by

contemporaries, although is challenged by evidence of a savings glut at Raiffeisen banks early in their existence (Jonker, 1988a). Secondly, bank entry may relate to the agricultural depression and rapid technological change in agriculture, which created a need for agricultural credit (Bieleman, 2010). However, this demand is unlikely to have been homogenous, but rather related to land use—which varied significantly across the country (Brusse, 2009b). Finally, bank arrival may relate to the increasing influence of confessional sociopolitical organisations across Dutch society (Jonker, 1988a,b). Raiffeisen banks were promoted by religious groups, and many were led by their leaders (Rommes, 2014).

We test our hypotheses by conducting an econometric analysis of a new dataset which we hand collected from primary sources. It 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 the entry of Raiffeisen banks occurred, and adopt two different units of analysis: individual bank-level and municipal administrative region-level. In short, we explore the factors which are associated with: (1) bank age (bank-level); (2) bank entry into particular areas (region-level); and (3) bank performance (bank-level).

In terms of the entry of Raiffeisen banks, we find limited evidence to suggest unmet demand for financial services was an important factor in their initial foundation. However, we find the presence of incumbents was negatively associated with performance as measured by deposit growth and outreach. While Raiffeisen banks offered financial services to a new clientele, they also "competed" with their contemporaries for business. The cooperative enterprise form—an important facet of which was their choice of unlimited liability—played a vital role in helping the Raiffeisen banks garner funds and compete in the market for savings.

In relation to the agrarian environment, we find a negative association between areas in which a greater proportion of land was being used for horticulture and the emergence of the first banks, and also with their early performance. This reflects a greater resilience in this sector to the agricultural crisis of the late-nineteenth century, and thus a reduced demand for credit. This implies 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.

Finally, we find the percentage of Roman Catholics in a municipality played an important role in stimulating the entry of Raiffeisen banks. However, with regards to their subsequent performance, religious differences played a more limited role. 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 the existence of Raiffeisen banks should be understood as a response to both economic *and* social 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 networks, 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.

In terms of our contribution to Dutch economic history, our analysis is the first to adopt a cliometric approach to systematically compare the various hypotheses for the entry of cooperative banks advanced in the literature. We argue the methodologies adopted in extant works—which rely on archival, narrative evidence—run the risk of propagating popular "origins stories", without sufficient scrutiny of alternative possibilities. Our article expands the scope of Jonker's (1997) analysis of the late emergence of modern banking in the Netherlands by showing how the structure of the country's financial services sector left room for new types of banking organisations to enter and thrive. Our article is closest to Brusse (2009b), who develops a macro region-level analysis of Raiffeisen banks in the Netherlands which highlights the role of region-specific agrarian factors in their emergence—especially a region's soil conditions and, therefore, agricultural specialisation.

Our research is motivated by previous scholarship which has underscored the gap between bank founders' philanthropic intentions and the subsequent realities of the marketplace (Polsi, 1996; Ó Gráda, 2008; Perriton and Maltby, 2012, 2015; McLaughlin, 2014). In particular, our study augments the literature on the experience of early cooperative banks in Europe (Guinnane and Henriksen, 1998; Galassi, 2001; Guinnane, 2001; Garrido, 2007; Beltrán Tapia, 2012; Martinez-Soto et al., 2012; Colvin and McLaughlin, 2014; Henriksen et al., 2015; Suesse and Wolf, 2019). Guinnane's (2001) pioneering work on German credit cooperatives points to their informational and enforcement advantages over other types of organisational form. Our analysis extends this by showing how the organisational form interacted with a new socioeconomic environment to ensure its success. Our work is closest to the analysis of Suesse and Wolf (2019), who explore the emergence of credit cooperatives in East Prussia in the second half of the nineteenth century. Their region-level

econometric analysis measures the role of ethnic and economic heterogeneity alongside the polity's shift to capital-intensive farming.

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.

Table 1 summarises the institutional attributes of the incumbents in order to highlight the features which made the new entrants unique. It shows 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 tended to be set up in more urban settings, while Raiffeisen banks, which originally had been exclusively targeted at agriculturalists, tended to target rural areas. The Post Office Savings Bank enjoyed national scope; it was bolted onto the country's pre-existing post office network. 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.

<<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. 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*). Additionally, specialist

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

mortgage banks (*hypotheekbanken*) provided mortgage loans for asset-rich individuals. 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 (Jacobs, 2005). Meanwhile, mortgage banks emerged from the 1860s and provided just over 40 per cent of all new mortgage loans by 1905 (Van Bochove and Hasken, 2018). 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. Mortgage banks raised capital though selling shares and covered bonds. Raiffeisen banks differed because 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. 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. Private pawn shops operated in urban centres, on the fringes of the law. However, these "informal" providers were decreasing in importance as financial markets were becoming more impersonal (Van Bochove and Hasken, 2018).

Figure 1 depicts the geographic expansion of the Raiffeisen banks across the period of our study. Notice the particular concentration of the cooperatives in the south and north-west early on. Such concentration correlates well with religion, with Catholics being particularly prevalent in the south, as shown in Figure 2. By contrast, in the north-east, where banks appear slower to enter, there was a more homogenous Protestant population. Based on this descriptive spatial insight alone, it appears banks entered more Catholic-concentrated areas first.

<<FIGURES 1 AND 2 HERE>>

2.2 Quantitative Description

Here we adopt a "performance" framework to consider the distinctions between the various savings and loans bank types operating in the Netherlands in 1909. 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 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.[2] The measures used are defined in appendix Table A1.

Table 3 displays the performance statistics for the main bank types. Where possible, these are computed using bank-level observations. 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, but reach fewer persons than either of the other organisation types. By contrast, the Post Office Savings Bank has substantially smaller accounts, but reaches a much larger clientele. Savings banks hold a more intermediate position both in terms of account size and outreach.

<<TABLE 3 HERE>>

The next two indicators in Table 3 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. 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. By contrast, mortgage banks lend comparatively large amounts—averaging *fl* 4,188 in 1909. For outreach, there is less difference between help banks, Raiffeisen banks and mortgage banks. However, pawn banks are noticeably different and making a very large number of loans—in 1909, 17 pawn banks made a total 2.1 million pawns.

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 lower returns than either of the other savings institutions. This is unsurprising as

[2] The definition of microfinance institutions varies across the development economics literature, but can be defined as being small in scale, making use of group lending and non-traditional collateral, are deeply embedded within their local communities and have a social mission (Hermes and Hudon, 2018). While we are not claiming an exact equivalency with modern microfinance institutions, there are some important parallels with our Raiffeisen banks.

many Raiffeisen banks are new institutions which focus on reinvesting profits within a simple savings-and-loans model, and enjoy an ownership structure whereby profits are 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 enjoying a comparatively high ROA relative to Raiffeisen banks, while for pawn banks ROA is negative.

Turning to efficiency as measured by the extent of administration costs, savings banks enjoyed 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. On the loan side, the administrative burden is high for the help banks and especially high for pawn banks. This differential reflects transaction size; help banks, and to a much greater extent pawn banks, were dealing with smaller loan transactions than Raiffeisen banks.

The final two indicators reveal further differentiation. For liquidity, as measured by cash to assets, Raiffeisen banks held on average the most cash and the Post Office Savings Bank the least. The higher cash holdings of Raiffeisen banks may reflect their simple business model, which creates a time imbalance issue in liquidity terms. The lack of cash at the Post Office Savings Bank may reflect its savings specialism and its state guarantee. The other loan organisations—help banks and pawn banks—were similar to the Raiffeisen banks in holding more cash per assets than savings banks or the Post Office Savings Bank.

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, when systematic statistics on Dutch Raiffeisen banks are first available, there were already 924 cooperative organisations across the agricultural sector, 416 of them in dairying (Wintle, 2000). Raiffeisen banks were in one sense just the latest institution to adopt this organisational form. Why did these banks adopt this enterprise 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 which 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, because 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 (Colvin, 2017). In the Dutch case, Raiffeisen banks belonged to one of three networks, which depended to some extent on their religious-leaning. Each of these networks had their own central bank, which acted as a clearinghouse, auditing authority, and lender-of-last resort.

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. 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 which they co-use, co-own, and co-manage.

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-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 was to finance the expansion of their loan portfolio to 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 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, 2011). 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 better 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 which were instrumental in founding and subsequently using these banks. Indeed, cooperative banks could be viewed as extensions of these other cooperatives, an attempt to further internalise any gains from trade.[3] 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.

The success of the Dutch Raiffeisen banks does not imply their founders foresaw the triumph of the cooperative form 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 the cooperative form was ideologically aligned with Roman Catholicism 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 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 learnt an important lesson about the cooperative form from the successes of the original Raiffeisen banks in Germany and the agricultural cooperatives in the Netherlands.

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

4. Hypothesis Development

This section considers three "preconditions" for cooperative entry. These are non-mutually-exclusive hypotheses which may explain the general conditions influencing the entry propensity and subsequent performance of Raiffeisen banks. We wish to understand how the socioeconomic environment enabled this innovative organisational form to survive and thrive.

4.1 Unmet Market Demand

The traditional argument is Raiffeisen banks were created in response to an unfulfilled demand for credit from the unbanked and underbanked in rural areas of the country that were not being served well by incumbent financial institutions (Sluyterman et al., 1998; Van Zanden and Van Riel, 2004; Bieleman, 2010). The roots of this view lie principally with the government agricultural inquiries conducted in the late-nineteenth century (Landbouwcommissie, 1890), but more importantly with the propaganda emanating from the cooperative banks themselves.

Van der Marck (1924), a laudatory note used as propaganda, argued the market entry of cooperative banks meant farmers no longer had problems finding external financing. If true, this means incumbent financial intermediaries must have been engaging in "credit rationing" or "red-lining" behaviour (Colvin and McLaughlin, 2014). While both phenomena force farmers to abandon their projects, they imply different conduct by the incumbent suppliers of financial services (Freixas and Rochet, 2008). Credit rationing implies incumbents could have increased their market share still further and attract additional creditors by increasing the price of their loan contracts, but were unwilling to do so due to the potential high risk of such borrowers' projects, or due to the presence of hidden information about the projects which could make verification too costly. Red-lining, by contrast, implies 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 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 (2009a) provide evidence that the market for agricultural credit was satiated by the time the cooperatives entered, suggesting the sector's origins were not demand-led. Additionally, Jonker (1988a) shows the new Raiffeisen banks were largely used as savings institutions, a service already provided by incumbents, especially the Post Office Savings Bank. Essentially, 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 incumbents were 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 Raiffeisen banks offered *lower* interest rates than incumbents meant they were targeting less profitable opportunities; incumbents were likely red-lining rather than credit rationing. The idea is the cooperative enterprise form—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 enterprise 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 these business organisations chose a unique organisational form which permitted farmers to compete away a share of the existing financial 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 the interest rates offered on savings could be consistently above those offered by the post office, 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 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 an important precondition had been met: there was sufficient savings surplus to reinvest in the rural economy—i.e., once the sector had fully recovered (Van Zanden and Van Riel, 2004).

Despite the Netherlands' small size, Dutch agriculture was region-specialised and clustered, with areas focusing on the plants and animals which best suited their soil type and labour costs. Knibbe (1993) shows 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, yields in eastern provinces were far lower than western areas (Wintle, 2000). Our hypothesis is 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.

The growth of Raiffeisen banks may also reflect ongoing changes in agriculture. 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). The financial position of farmers improved, with surplus funds for saving rising as the rural economy recovered from the crisis. 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.

The peculiar position of horticulture renders the emergence of cooperatives in the west perhaps somewhat atypical. Horticultural areas along the coast were insulated from the Long Depression. Horticulturalists did particularly well out of growing vegetables for the export market (Siemens, 2007). The sector professionalised from the late-1880s by the establishing test farms and training programmes, opening (cooperatively-owned) auction institutions and establishing plant disease monitoring services. They improved yields by enriching their soils with artificial fertiliser, and making extensive use of glass-covered hotbeds and greenhouses—an expansion from 81 hectares of glass-covered farming land in 1895, to 584 hectares in 1912 (Sangers, 1952, p. 234). While the credit needs of this capital-intensive type of farming would appear higher, the parts of the country where horticulture was most prevalent tended to be wealthier, more urbanised, and already had access to financial services.

Douma (2001) argues 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 cooperative creameries found their niche in areas where consumers did not demand fresh milk distribution. In practice, this meant cooperative creameries located away from urban centres did better than those closer to cities. Adapted to our context, Raiffeisen banks 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 was the most cost effective for this particular organisational form. In particular, urban environments, which were more conducive to private enterprise, did not demand the 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 strongly with one of the several available religious denominations: Roman Catholicism or one of the Reformed denominations. Dutch enterprise and society became highly segregated, with the different Christian denominations developing parallel social, economic, and political institutions and organisations. This phenomenon, known as pillarisation (*verzuiling*), reached its zenith in the interwar period.[4]

The argument put forward in the work of Jonker (1988a,b), Van Zanden and Van Riel (2004), and Rommes (2014) is sociopolitical interest groups—the Roman Catholic clergy above all—were crucial in the creation of the first cooperative banks and these groups viewed cooperatives as a way of consolidating or extending their influence.[5] Pillarisation affected Raiffeisen banks through institutionalised confessional politics, described most completely in this context in Smits (1996). There were calls for the creation of Catholic-only business organisations 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).[6] Catholic elites were already highly critical of provincial agricultural companies (*landbouwmaatschappijen*) —institutions founded to stimulate the improvement of agricultural technology—arguing their efforts were failing to ease the plight of Catholic farmers.

A new organisation for Dutch agriculturalists, the Dutch Farmers' Union (Nederlandsche Boerenbond, NBB), was established in 1895 (Smits, 1996; Van Zanden and Van Riel, 2004). The founding of regional unions followed and most joined the NBB on a federal basis. Instigated by a Catholic priest, the Noord-Brabant Christian Farmers' Union (Noordbrabantse Christelijke Boerenbond, NCB) was the most influential. In practice, the difference between the agricultural companies and the unions was the latter's aims were religiously motivated, such as the NCB's aim of 'furthering the interests of God, the family

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

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

[6] The Encyclical coincided with the birth of a new Political Catholicism movement, which Nentjes (2017) credits as leading to a set of "corporatist" institutions which brought together employers and workers to make decisions in the common good.

and property' (Smits, 1996). These unions were predominantly Catholic affairs; the agricultural companies became *de facto* Protestant when Catholic farmers left them to join their new unions.

Jonker (1988b) argues the regional farmers' unions instigated Raiffeisen banks in majority-Catholic provinces. Catholic clergy and farming union leaders visited villages to spread the idea of cooperation. These propagandists helped villagers by providing seed capital. Local priests were recruited to provide day-to-day "spiritual guidance". In Protestant parts of the country the agricultural companies and other local elites performed this same function. Our hypothesis is Catholic-majority areas of the country were the first to enjoy Raiffeisen banks, but 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 is 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 be more successful at avoiding free riding behaviour, and so could organise and enter earlier, and perform better. This may have worked particularly well in the small close-knit rural communities explicitly targeted by Raiffeisen banks, as opposed to urban areas where local ties were less pronounced.

5. Data and Empirical Strategy

We construct a dataset which pools information from a variety of sources in order to investigate our three hypothesised preconditions for the market entry of cooperative Raiffeisen banks, and subsequent determinants of their performance. First, we obtain bank-level information 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.[7] We are interested specifically in the bank-level information pertaining to the Raiffeisen banks and direct our attention to the years 1898, 1904, and 1909, to focus on the early years of their entry. To these data, we add information about the location of incumbents.

We also gather information at the municipality level. Land-use information is available

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

from a tax survey conducted between 1886 and 1890. We are able to ascertain land area by specific use, including arable, pasture, and horticulture, as well as the tax value. Socioeconomic information is available from census reports. We use the 1909 census as it provides occupational information for all 1,121 municipalities nationwide, as well as population density and religious affiliation data. While not all our data are thus from the same year, we take the view land use and relative tax value did not change radically across the period and so treat these variables as time invariant. Yes, horticulture in particular 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 a set of variables, defined in Table 4, to test the three hypotheses for Raiffeisen bank entry outlined previously. We report summary statistics in appendix Table A2. 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.

<<TABLE 4 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 have been a source of credit for more capital-intensive farming. We 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 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, to measure whether the Catholic Church and its clergy may have provided an impetus for 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. This specification is from the perspective of existing banks, and so we anticipate the results will effectively reflect the initial catalyst for their entry. We use an OLS model with robust standard errors.

Next we consider the factors affecting Raiffeisen bank entry in a municipality by 1909, and then after excluding municipalities with no entry consider the factors affecting early entry.[8] These analyses differ from the first set of regressions as we now adopt a region-level rather than bank-level perspective. The dependent variable is now a binary variable (0 or 1), and so we use a probit model. Our 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. In addition, we carry out a spatial analysis of bank entry, which we report in an appendix.

This dynamic emphasis extends to the second stage of our empirical approach, which addresses the factors which contributed to the post-entry "success" of Raiffeisen banks. Here we are interested in whether the factors which induced entry are similar to those which drive post-entry performance in 1909. We expect, given the cooperative nature of Raiffeisen banks, they are not necessarily concerned with profit maximisation. We therefore define dependent variables to understand and measure their success. We begin with ROA, 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 to act as an emergency buffer. 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 year-on-year savings 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 which 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.

[8] In the appendix, we also examine the factors associated with early and late bank entry across all municipalities.

6. Results

6.1 Market Entry

Table 5 reports the results of an OLS model regressing bank age on a selection of potential explanatory factors. Each column represents an alternative specification, 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. We think of competition in the widest sense, and so view savings and loans services as potential competitors; if a market has access to good savings services, then this may render the necessity to borrow unnecessary. The results reveal 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, the percentage of farmers in a bank's target market 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 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. Horticulture was less affected by the Long Depression, and so it is conceivable there was less demand for credit among farmers in this sector. The magnitude of the horticulture coefficient in column 5 suggests a bank located in a municipality 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. 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. The second religious explanatory factor, minority status, also shows a significant positive association with bank age. Banks 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 a bank located in an area which 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.

In appendix Table A3, we consider whether the bank age relationships hold when we focus only on Noord-Holland and Zuid-Holland, the most developed regions in the country which specialised in high-value farming like greenhouse horticulture. Our results are similar to the full set of provinces, with horticulture and Roman Catholic again the most relevant in statistical significance terms. Interestingly, however, the magnitude of the Roman Catholic coefficient is noticeably larger than before—perhaps indicative of the greater importance of religion here as these provinces are very religiously heterogeneous.

Table 6 provides an alternative perspective to the model used in Table 5. 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 1909. In the second set, municipalities which did not see the entry of a Raiffeisen bank are excluded (leaving only observations where entry occurred). This then enables us to explore the factors associated with early bank entry. 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. In particular, the prior presence of a Post Office Savings Bank branch is significantly positively associated with Raiffeisen bank entry. This was more important for the earlier entry phase. The results suggest the presence of a Post Office branch is associated with conditions favourable for the emergence of a Raiffeisen bank; they were complements, with the Post Office being conducive to an improved saving propensity, correlated with a better infrastructure, or indicative of an existing pool of savings.

In appendix Table A4, we extend our analysis and compare the factors associated with early entry across *all* municipalities, followed by the factors associated with late entry. The results are broadly consistent with our earlier findings. One important additional insight is the negative association found between late bank entry and the presence of another pre-existing Raiffeisen bank. Banks were likely affected by competition, possibly even among banks serving different religions.

Turning to Hypothesis 2, which concerns the agricultural environment, an area which has a larger percentage of horticultural land is significantly negatively associated with early bank entry (similar to the result for bank age). And the cultivation of a greater percentage of arable land is associated with a lower entry propensity—although there appears to be no

significant difference between early and late entrants. Interestingly, tax value and land per farmer are statistically significant for the entire horizon in Table 6. The negative coefficients suggest banks were more likely to enter into areas with smaller and less valuable land areas. Hence, our analysis suggests Raiffeisen banks were responsive to smaller, less affluent farming needs.

For Hypothesis 3, which concerns religion, there is a positive and statistically significant association between Roman Catholic concentration and the presence of a Raiffeisen bank. However, perhaps more interestingly, Roman Catholic concentration is positive and significant when we focus on early entry among areas where entry occurred. Consequently, we suggest religion was more important for the initial diffusion of cooperatives. This is corroborated by appendix Table A4. Notice when only the religion variable is included in the regression, the magnitude of the coefficient and the pseudo R-squared value are 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.

We carry out an additional analysis of bank entry by employing a spatial regression framework, focusing on the factors which are relevant to bank entry. The desirability of this spatial approach is justified by an initial Moran test, which shows spatial dependence in the data. However, these spatial results, reported in appendix Table A5, do not change our earlier findings. If anything, they underscore the role of religion in bank entry.

To take the presence of mortgage bank incumbents into consideration, we also consider the correlates of their activity in appendix Table A6. Data for such banks only exist at an aggregate level and so cannot be incorporated in our econometric modelling. Note particularly the negative correlation of mortgage banking activity with both Roman Catholicism and horticulture, but the lack of correlation with Raiffeisen bank presence or farmers.

<<TABLES 5 AND 6 HERE>>

6.2 Post-Entry Performance

We begin in column 1 of Table 7 using ROA as the dependent variable. Here, among the hypothesis variables, only minority bank status shows a statistically significant association with ROA. However, the economic effect is small. This limited significance of the hypothesis

variables may signal the conditions which encouraged entry are distinct from those affecting financial sustainability, or, indeed, confirm 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 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 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.

<<TABLE 7 HERE>>

7. Conclusion

We examined the emergence of Raiffeisen banks in the Netherlands at the turn of the twentieth century. Our case is interesting because 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 with which to examine the strength of alternative hypotheses raised in the literature. Indeed, the particular motivation of this article was to understand the temporal salience of these 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?

Our results suggest timing mattered for the relevance of our three hypothesised pre-conditions for entry and success. Most notable is the 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 became more important for the later entry phase and in performance.

Two important conclusions emerge. 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. 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 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, 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.

We are not arguing religion became 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.

At this point, we might speculate whether the Dutch Raiffeisen banks were a necessary

addition to the market for household financial services. After all, incumbents already provided deposit and credit facilities—so if there was untapped demand, why did they not expand or diversify their operations? The answer lies in the particular ability of cooperatives to exploit the trust propagated by pillarised social networks in promoting acceptance and diffusion of this new wave of financialisation. Indeed, with Dutch society increasingly pillarised, the ability of religious actors to promote cooperation was likely heightened—especially following a period of economic crisis. These financial cooperatives had other organisational advantages which likely contributed to their success, such as a better savings rate than incumbents, minimal management expenses, and their agricultural emphasis. Yet, since incumbents were not heavily displaced by the new arrivals, we suggest the cooperatives were able to woo *new* unbanked customers with their *new* organisational innovation. It was possibly the element of local community control offered by Raiffeisen banks which differentiated them from existing financiers and propelled them to success. Indeed, in an environment where religious elites had increasing civic power, financial cooperatives extended their sphere of influence—albeit in exchange for valuable legitimising capital for the new institutional actor. Such legitimacy was critical, as clerical support unlocked access to a network of religious adherents.

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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	Mortgage banks	Raiffeisen banks
Enterprise form	Society, some others	State	Society, some others	Municipal / society	Public company	Society or coop
Scale/coverage	Local (urban)	National	Local (urban)	Local (urban)	Local	Local (rural)
Source of capital	Deposits	Deposits	Charity, share capital	Charity, pawns	Share capital, covered bonds	Deposits
Federations	Some	Not applicable	No	No	No	Yes, by religion
Investment portfolio	Government securities, mortgages	Government securities	Loans	Pawns	Mortgages	Loans to members

Notes: Attributes are from own research, in addition to the findings of Dankers et al. (2001) and Van Bochove and Hasken (2018). Presented in a schema used in Hollis and Sweetman (1998) and Colvin and McLaughlin (2014).

Table 2. Growth of principal savings institutions (1898-1909)

	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 ('000s)	693	1,111	1,462	356[1]	388[2]	432[3]	10[4]	60[5]
Value of deposits (*fl* millions)	70	120	160	75[1]	85[2]	100[3]	3[4]	24[5]

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

Sources: CBS (1898; 1904; 1909/1910a).

Table 3. Performance statistics by bank type (1909 guilders)

Indicator		Raiffeisen	Savings	PO Savings	Help	Pawn	Mortgage
Account size (*fl*)	Mean	425.66	280.72	109.68	–	–	–
	Median	394.21	254.79	–	–	–	–
	Std. dev.	213.92	148.05	–	–	–	–
Number of accounts (per 1,000 people)	Mean	41.33	128.36	249.67	–	–	–
	Median	28.61	88.89	–	–	–	–
	Std. dev.	43.48	152.13	–	–	–	–
Loan size (*fl*)	Mean	677.10	–	–	265.33	–	4,188.01
	Median	517.83	–	–	131.63	–	3,289.56
	Std. dev.	1,015.15	–	–	430.12	–	2,319.08
Number of loans (per 1,000 people)	Mean	7.13	–	–	6.90	1,040.56	8.32
	Median	4.23	–	–	3.99	982.69	8.28
	Std. dev.	8.02	–	–	13.21	517.26	2.11
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 (*fl*)	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 (*fl*)	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 (*fl*)	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	–
	Obs.*	481	213	1	51	17	34

Notes: 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 and the mortgage banks. For the Post Office Savings Bank the calculations are carried out using the single overall figures for the bank, while for the mortgage banks the calculations are based on data at a regional (circle) level.

Sources: CBS (1909/1910a); CBS (1909/1910b); and CBS (1910).

Table 4. 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 total of arable, pasture, and horticultural)	C
Horticulture	Percentage of horticultural land (of total of arable, pasture, and horticultural)	C
Farmers	Percentage of farmers in the population in the municipality	D
Land per farmer	Total land area in hectares / number of farmers	C & D

Continued overleaf

Table 4. 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 in the municipality	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; 1909/1910a).
B. DWHN (1898; 1904).
C. Landbouwcommissie (1890).
D. CBS (1910).
E. Financiën (1890).

Table 5. 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 models, regressing bank age on three sets of hypothesis variables. Robust standard errors in parentheses. Statistical significance: *** p<0.01, ** p<0.05, * p<0.1. Variable definitions in Table 4. Here 'pre-existing' refers to the year 1898.

Table 6. Bank entry (at the municipality level)

	Bank entry by 1909					Early entry (among municipalities where entry occurred)				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Hypothesis 1: Market demand										
Pre-existing savings bank	-0.044				0.118***	-0.144**				-0.044
	(0.041)				(0.045)	(0.064)				(0.071)
Pre-existing help bank	-0.073				-0.041	-0.025				0.013
	(0.083)				(0.087)	(0.142)				(0.148)
Pre-existing pawn bank	0.085				0.151	-0.146				-0.211
	(0.115)				(0.130)	(0.189)				(0.220)
Pre-existing PO bank	0.131***				0.285***	0.047				0.129*
	(0.043)				(0.048)	(0.072)				(0.078)
Hypothesis 2: Agricultural change										
Arable		0.0004			-0.003***		0.001			-0.002
		(0.001)			(0.001)		(0.001)			(0.001)
Horticulture		-0.002			-0.003		-0.004			-0.012***
		(0.002)			(0.003)		(0.003)			(0.004)
Farmers			0.005		0.003			0.007		-0.001
			(0.003)		(0.003)			(0.005)		(0.005)
Land per farmer			-0.007***		-0.004**			0.0005		0.004
			(0.002)		(0.002)			(0.002)		(0.003)
Tax value			-2.305***		-1.802**			0.430		1.321
			(0.695)		(0.792)			(1.002)		(1.222)
Population density			-0.002		-0.033			-0.019		0.021
			(0.017)		(0.023)			(0.030)		(0.042)
Hypothesis 3: Economic confessionalism										
Roman Catholic				0.004***	0.005***				0.004***	0.006***
				(0.0004)	(0.0005)				(0.001)	(0.001)
Observations	1,121	1,121	1,121	1,121	1,121	487	487	487	487	487
Pseudo R-squared	0.007	0.001	0.042	0.082	0.138	0.013	0.004	0.005	0.064	0.095

Notes: Probit models, in two parts: (1) bank entry by 1909, including all 1,121 municipalities; and (2) early entry (among municipalities where entry occurred), including only the 487 municipalities where entry occurred by 1909. 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 4. Here 'pre-existing' refers to the year 1898.

Table 7. 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)	
Constant	0.165*	60.001**	436.643***	16.382
	(0.094)	(23.715)	(45.105)	(12.575)
Bank controls included	Yes	Yes	Yes	Yes
Observations	560	516	560	560
R-squared	0.215	0.236	0.272	0.425

Notes: OLS models, regressing performance on three sets of hypothesis variables. Robust standard errors in parentheses. Statistical significance: *** p<0.01, ** p<0.05, * p<0.1. Variable definitions in Table 4. Bank controls constitute: bank age, bank size, securities, property, mortgages, loans, cash, administration, and reserves. 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).

Table A1. 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 A2. Summary statistics

Variable	Mean	Std. dev.	Obs.
Bank age regressions (bank level)			
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 entry regressions (region level)			
Bank entry by 1909	0.43	0.50	1,121
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 A2. Summary statistics (continued)

Variable	Mean	Std. dev.	Obs.
Bank performance regressions (bank level)			
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 4.

Table A3. Bank age (Noord-Holland and Zuid-Holland only)

	(1)	(2)	(3)	(4)	(5)
Hypothesis 1: Market demand					
Pre-existing savings bank	-0.217				-0.464
	(0.600)				(0.539)
Pre-existing help bank	0.505				1.106
	(1.297)				(1.149)
Pre-existing pawn bank	-1.129				-0.007
	(1.286)				(1.286)
Pre-existing PO bank	0.371				1.279*
	(0.600)				(0.655)
Hypothesis 2: Agricultural change					
Arable		-0.022**			-0.016*
		(0.009)			(0.009)
Horticulture		-0.042**			-0.076***
		(0.020)			(0.024)
Farmers			0.110		0.064
			(0.080)		(0.077)
Land per farmer			0.004		0.003
			(0.033)		(0.031)
Tax value			14.253		9.504
			(13.494)		(13.811)
Population density			-0.265		-0.178
			(0.195)		(0.211)
Hypothesis 3: Economic confessionalism					
Roman Catholic				0.045***	0.044***
				(0.010)	(0.010)
Minority bank				-0.340	-0.123
				(0.588)	(0.582)
Constant	5.656***	6.515***	4.296***	4.370***	2.894*
	(0.536)	(0.336)	(1.430)	(0.324)	(1.584)
Observations	158	158	158	158	158
R-squared	0.007	0.042	0.038	0.141	0.212

Notes: OLS models, regressing bank age on three sets of hypothesis variables, for the 158 municipalities in the provinces of Holland. Robust standard errors in parentheses. Statistical significance: *** p<0.01, ** p<0.05, * p<0.1. Variable definitions in Table 4. Here 'pre-existing' refers to the year 1898.

Table A4. 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 models, in two parts: (1) entry by 1904; and (2) entry between 1905 and 1909. 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 4. Here 'pre-existing' refers to the year 1898 for the early entry results, and the year 1904 for the late entry results.

Table A5. Bank presence (spatial regression)

	(1)	(2)	(3)	(4)	(5)
Hypothesis 1: Market demand					
Pre-existing savings bank	-0.061*				0.052
	(0.037)				(0.037)
Pre-existing help bank	-0.048				-0.029
	(0.070)				(0.067)
Pre-existing pawn bank	0.065				0.123
	(0.096)				(0.105)
Pre-existing PO bank	0.129***				0.222***
	(0.038)				(0.039)
Hypothesis 2: Agricultural change					
Arable		0.001			-0.002***
		(0.000)			(0.001)
Horticulture		-0.001			-0.002
		(0.002)			(0.002)
Farmers			0.003		0.001
			(0.003)		(0.003)
Land per farmer			-0.002**		-0.001
			(0.001)		(0.001)
Tax value			-1.495**		-0.984
			(0.620)		(0.641)
Population density			-0.001		-0.023
			(0.014)		(0.017)
Hypothesis 3: Economic confessionalism					
Roman Catholic				0.003***	0.004***
				(0.000)	(0.000)
Constant	0.179***	0.262***	0.337***	0.175***	0.077
	(0.044)	(0.040)	(0.054)	(0.027)	(0.072)
W * Bank entry	0.471***	0.467***	0.521***	0.364***	0.370***
	(0.081)	(0.083)	(0.079)	(0.079)	(0.075)
Observations	1,176	1,176	1,176	1,176	1,176
Pseudo R-squared	0.034	0.024	0.056	0.119	0.175

Notes: Spatial autoregressive models, GS2SLS estimates, regressing bank entry on three sets of hypothesis variables. Moran test for spatial dependence indicates spatial dependence. Standard errors in parentheses. Statistical significance: *** p<0.01, ** p<0.05, * p<0.1. Variable definitions in Table 4. Here 'pre-existing' refers to the year 1898.

Additional Source: Boonstra (1990).

Table A6. Correlates of mortgage banking activity (1904 and 1909)

Year	Raiffeisen banks per 10,000 persons in 1909	Farmers in 1909 (%)	Horticulture in 1909 (%)	Roman Catholics in 1909 (%)
1904	0.01	−0.13	−0.29	−0.31
1909	0.08	0.15	−0.23	−0.22

Notes: Mortgage banking activity is the value of mortgages (*fl*) given by mortgage banks and other institutions of land credit on rural property in that year, divided by the population in 1909. There were 34 regional circles, defined in Soutendijk (1916).

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

(a) All Raiffeisen banks in 1899

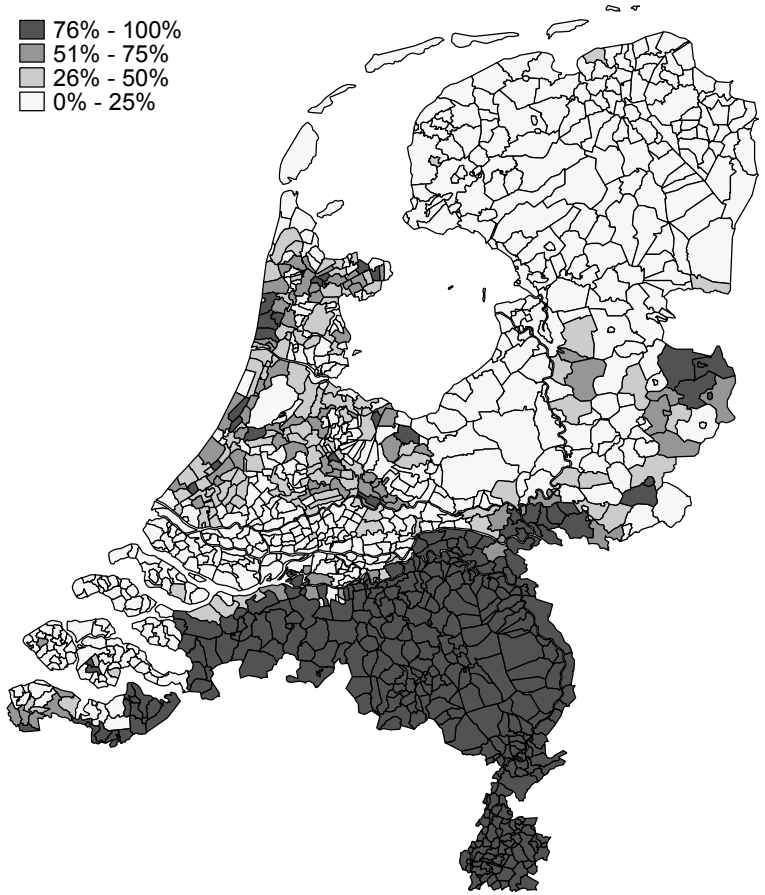
(b) All Raiffeisen banks in 1904

(c) All Raiffeisen banks in 1909

Notes: Black dots depict the approximate locations of Raiffeisen banks. Grey borders represent municipality boundaries in 1920.

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

Figure 2. Percentage of Roman Catholics by municipality (1909)



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