

DNB Working Paper

No 873 / October 2026

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DeNederlandscheBank

EUROSYSTEEM

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* Views expressed are those of the author and do not necessarily reflect official positions of De Nederlandsche Bank.

Working Paper No. 873

October 2026

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CONSUMER MULTI-BANKING AND BANK CROSS-SELLING OF FINANCIAL SERVICES

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October 7, 2026

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Abstract

This paper investigates whether the primary current account that consumers typically use for their everyday shopping and banking transactions remains an effective cross-selling channel for banks amid digitalisation, regulatory reform and increased competition. Using a unique 2024 consumer survey of 2,326 Dutch consumers, we find no evidence of a broad structural decline in banks' overall cross-selling opportunities in the Netherlands. The primary current account continues to “anchor” bank-customer relationships. However, this anchoring role varies by product category and consumer segment. Cross-selling has weakened for savings and investment products, while remaining relatively stable for mortgages. Furthermore, digitalisation is not only associated with more multi-banking but also supports financial product acquisition at the consumers' main bank, suggesting that it does not uniformly erode incumbent banks' cross-selling capacity. Consumer preferences are central: perceived benefits of single-banking strengthen cross-selling and reduce multi-banking, whereas perceived transparency of financial conditions has a modest effect.

Keywords: Consumer behaviour; Retail banking; Cross-selling; Multi-banking; Digitalisation; Transparency

JEL codes: D14; G21; G28; O33

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1. Introduction

Commercial banks have long used current accounts as strategic entry points to cross-sell additional financial products to consumers, thereby generating supplementary revenue (e.g. Li et al., 2005).¹ This strategy has supported the widespread offering of “free” or “low-fee” current accounts, particularly to younger customers, despite the substantial costs associated with providing retail payment services.² Banks anticipate that future revenues from cross-selling would offset these initial losses (Competition & Markets Authority, 2016; Dutch Payments Association (DPA), 2022; Basten & Juelsrud, 2023). However, this model is increasingly under pressure due to the digitalisation of banking services, the entry of fintech competitors and regulatory reforms such as the Payment Services Directive 2 (PSD2) in Europe and legislation enabling open banking in many jurisdictions around the world (McKinsey, 2018; DPA 2022). Notable challengers in the Netherlands that have attracted a significant number of Dutch customers include Amsterdam-based Bunq, Germany’s N26, UK’s Revolut, and Spain’s Openbank. These “young” banks typically offer free current accounts and highly competitive savings rates. Fintech platforms such as Wise and Monese further erode incumbent banks’ positions by offering specialised services like low-cost international transfers and rapid onboarding. In parallel, deposit marketplaces like Raisin have enabled Dutch households to access higher saving rates from foreign banks, intensifying competition for retail deposits. These developments challenge incumbents in banking markets, where profit margins on payment services are “thin” and regulatory changes like PSD2 have lowered entry barriers.

This paper examines whether the primary current account continues to function as an effective cross-selling channel for banks in today’s evolving financial landscape in the Netherlands. A key issue is how consumers’ multi-banking behaviour has changed over time. This refers to the extent to which consumers purchase additional financial products or services from institutions other than the bank that holds their primary current account (i.e. their “main bank”).³ Importantly, multi-banking does not preclude consumers from also purchasing products or services from their main bank, whereas single-banking consumers rely exclusively on their main bank for all financial products and services. However, an increase in the share of consumers that engage in multi-banking is likely to weaken banks’ ability to cross-sell financial products and services. We analyse how the purchase and acquisition of financial products and services from one’s main bank, as well as multi-banking behaviour among Dutch consumers, has evolved over time.⁴

1 With current account we mean the basic account that consumers typically use to have their salary paid in, do their daily shopping from, and to pay their bills from (as opposed to a savings account). In some countries it is sometimes dubbed as “payment account” or “checking account”.

2 DPA (2022) shows that Dutch banks incurred EUR 4.2 billion in costs to provide retail payment services to Dutch households and businesses in 2021, i.e. 0.5% GDP. Junius et al. (2022)’s overview of cost studies in Europe shows that banks’ costs for providing retail payment services range between 0.2-0.6% of GDP.

3 In our paper, the survey respondent chooses which current account is her primary account (if she has more than one) and the bank that holds this account is called her main bank.

4 Strictly speaking, in this paper, cross-selling by the main bank refers to its ability to sell consumers additional financial products beyond their primary current account, which these consumers then choose to purchase or acquire. In this sense, cross-selling involves both the act of selling by the main bank and the act of purchasing by the consumer (who has its primary current account at that bank).

Furthermore, we examine how digitalisation and perceptions have influenced consumer financial behaviour. Our analysis draws on data from a unique one-off 2024 survey, “Financial Products at Your Bank,” conducted among 2,326 members of the Centerpanel. This survey collects detailed information on the financial products currently and previously purchased by panel members from their primary current account bank, the timing of product acquisition, and the extent of product purchases with other providers.

Our research contributes to the literature on retail banking, cross-selling and digitalisation. Firstly, we provide novel empirical evidence on the changing role of consumers’ primary current account as a cross-selling channel taking ongoing digitalisation into account. We evaluate how digital banking affects incumbent banks’ ability to use current accounts for customer retention and product cross-selling, addressing concerns highlighted by industry observers (DPA, 2022; McKinsey, 2018). Secondly, we integrate consumer behavioural insights by analysing how preferences, such as favouring single-banking or valuing the ease of comparing products across providers, influence customers’ propensity to concentrate services with one bank or engage in multi-banking. By connecting these demand-side factors to cross-selling, our research empirically extends theories of switching costs and customer loyalty within the context of fintech-driven competition.

Our analysis suggests that the primary current account is still key for cross-selling by banks, though its impact differs by product type and consumer group. Overall, there are no clear indications of a sustained reduction in cross-selling and no consistent rise in multi-banking across cohorts. Digitalisation exerts a subtle yet significant influence. It is associated with enabling consumers to easily acquire products from other providers, supporting multi-banking, but it is also associated with increased cross-selling. Consumers who favour single-banking are more likely to purchase additional products from their main bank, whereas perceived transparency is not robustly associated with either outcome. Overall, the primary current account remains an important anchor for cross-selling, but its effectiveness is increasingly shaped by consumer preferences and the digital context.

At the product level, cross-selling has declined most notably for certain products (particularly, saving products and investment accounts), while remaining relatively stable for mortgages. Meanwhile, multi-banking has not increased for savings products, mortgages and investment accounts. These patterns highlight that the dynamics of cross-selling are not uniform across financial products. Their prevalence is shaped by product-specific consumer preferences and competitive dynamics in each market segment.

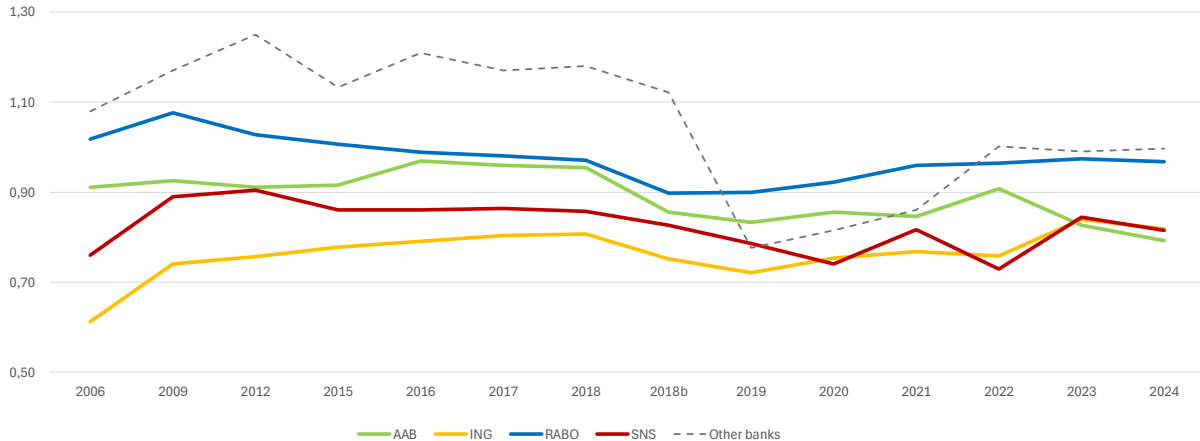
The remainder of this paper is as follows. Section 2 provides background, reviews related literature and presents our hypotheses while Section 3 describes the data and survey design. Section 4 outlines the methodology and Section 5 presents the empirical results, including robustness checks. Section 6 concludes.

2. Background, related literature and hypotheses

2.1 Background

In the Netherlands, most consumers hold their primary current account with one of the four major retail banks: ABN AMRO (AAB), ING, Rabobank or SNS. These accounts have traditionally served as a strategic entry point for banks to cross-sell additional financial products such as savings accounts, mortgages and investment services. Using longitudinal data from the DNB Household Survey (DHS) covering the period 2006–2024, we examine how the role of the current account as a cross-selling channel has evolved over time. Figure 1 presents the average number of additional financial products (excluding current accounts) held by customers at banks where they hold a current account. Between 2006 and 2018, there was a modest increase in product holdings, mainly driven by greater uptake of savings accounts and mortgages. However, this trend reversed around 2019 - 2020, followed by a partial recovery by 2024. Notably, the share of customers with investment accounts declined until 2018 but has since rebounded, although it remains below 2006 levels. The development of savings accounts has been mixed across banks, yet by 2024, all major banks had higher shares of customers with savings products than in 2006.

Figure 1: Average number of financial products at major retail banks in NL, 2006–2024

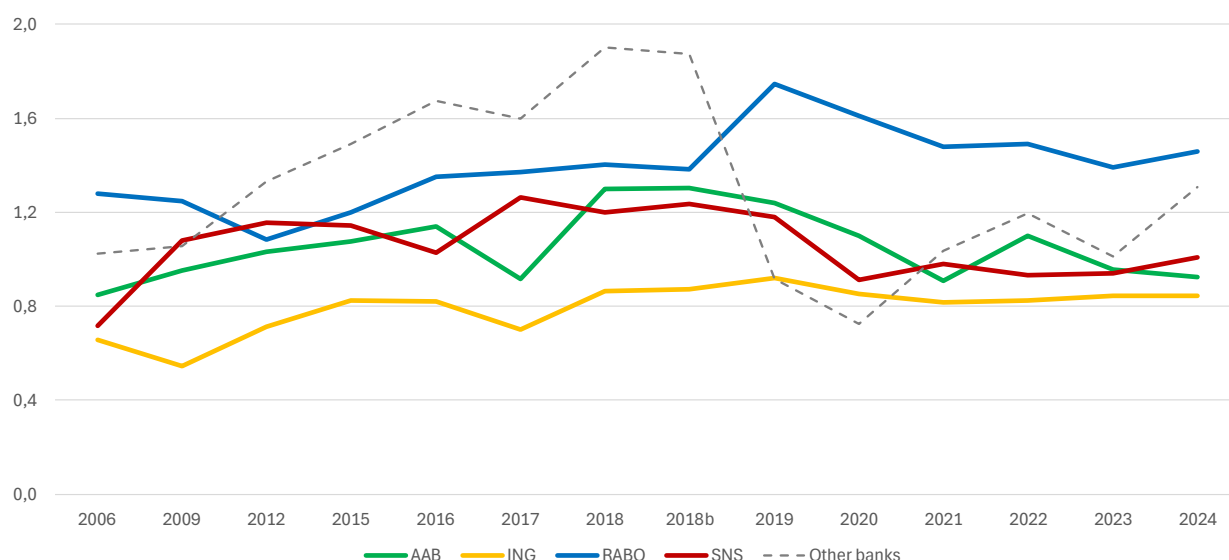


Note: Source: DHS annual surveys 2006–2024. Each panel member is asked every year which financial products they use and the name of the financial institution. Figure 1 shows the average number of different financial products (excluding current accounts) that panel members have at banks where they have a current account. Since 2019 the DHS annual survey removed questions on financial products that few people use. This led to a small drop in the average number of financial products held at banks, see comparison 2018, using the original set of financial products and 2018b, using the limited set available from 2019 onwards.

Figure 2 presents the ratio of financial products held at banks where consumers have a current account versus other financial institutions. This ratio remained broadly stable throughout the period, with a modest uptick in 2024 relative to 2006. Despite increased digitalisation and the rise of alternative providers, there is no evidence of a fundamental decline in cross-selling opportunities associated with current accounts. Rather, the main current account bank's role in consumers' financial portfolios has proven robust. These findings suggest

that while certain product categories have become more difficult to cross-sell, the overall capacity of incumbent banks to leverage the current account for cross-selling has not diminished significantly. This raises important questions about the underlying mechanisms that sustain or challenge cross-selling effectiveness in an increasingly digital and competitive financial landscape.

Figure 2: Ratio of the average number of financial products at the main bank to the average number of financial products at other financial institutions



Note: Source: DHS annual surveys 2006 – 2024. Each panel member is asked every year which financial products they use and the name of the financial institution. Figure 2 shows the ratio of the average number of financial products (excl. current account) people have at banks where they also have a current account divided by the average number of financial products (excl. current accounts) they have at other financial institutions. Since 2019 the DHS annual survey removed questions on financial products that few people use. This led to a small drop in the number of financial products held at banks but hardly changed the ratio (see results 2018 using the original set of financial products and 2018b, using the limited set available from 2019 onwards).

2.2 Review of the literature and key hypotheses

Banks have long regarded the current account as a gateway for cross-selling other financial products, capitalising on consumers' high switching costs and their tendency to "single-bank" (i.e. use the main bank for most services). This strategy is grounded in classic switching-cost theory. Klemperer (1995) describes a "bargain-then-ripoff" dynamic: firms attract customers with low prices, then exploit inertia by raising prices once customers are locked in. Monetary, procedural, and psychological switching costs create entry barriers for competitors and enhance incumbents' ability to cross-sell additional products at higher rates. Theoretical models show that such frictions dampen price competition and foster cross-selling (Zephirin, 1994; Gabaix & Laibson, 2006). Banks also cultivate relationships to raise perceived switching costs, making it harder for clients to leave even without price incentives (Jarrar & Neely, 2002; Zephirin, 1994). So, while long tenure and exclusive single-banking may reflect loyalty, they can also signal exit barriers in retail banking.

Empirical studies show that consumer switching is limited in the banking sector. In the U.S., many households have never changed their main bank, citing hassle or lack of better alternatives (Kiser, 2002; Chakravarty et al., 2004). Kiser (2002) finds that high switching costs reduce consumers' sensitivity to fees and interest rates.

Conversely, those who have switched once become more price-sensitive and prone to shop around. In Italy, Brunetti et al. (2016) report that 80% of consumers were single-banked as of 2006. A pro-competition reform in early 2007, making it easier for consumers to refinance mortgages with a new lender, triggered a surge in bank switching in 2008. Although switching later declined, it remained above pre-reform levels, illustrating how reduced frictions can intensify competition and weaken customer lock-in. The UK presents an interesting case in point however where the Current Account Switch Service (CASS), that was launched in 2013, has now been used by more than 12 million people to switch bank accounts in a secured and guaranteed way (see Financial Conduct Authority, 2015, for an early report on CASS).

Other studies examine how the potential of cross-selling by banks varies by customer characteristics and market conditions. Li et al. (2005) show that U.S. consumers typically open a current account first, then acquire other products (e.g. loans, credit cards, investments) from the same bank. However, relationships with multiple banks tend to reduce cross-selling by banks, especially among older clients who are more sensitive to overall satisfaction with their bank and less constrained by switching costs. Higher-income, time-constrained consumers may still prefer one-stop convenience for routine services but seek better financial terms for “non-convenience” products like mortgages or investment accounts, even if it means going to another provider. Zhao et al. (2013) find that reduced competition in the UK consumer loan market increased customer lock-in and enabled banks to boost non-interest income through intensified cross-selling. In Norway, Basten & Juelsrud (2023) find robust cross-selling effects: banks frequently convert long-term depositors into borrowers, who even pay a modest interest premium on subsequent loans, highlighting the role of customer loyalty (demand-side factors) in sustaining cross-selling.⁵

Reflecting these results and the descriptive findings observed in section 2.1, we propose four sets of hypotheses for the Netherlands. Based on the preceding theoretical arguments, we formulate a set of “directional” research hypotheses concerning cross-selling through the primary current account, consumer multi-banking and the relative intensity of these two behaviours. These hypotheses express substantive predictions and should be distinguished from pure null hypotheses in a statistical sense. Effectively, the corresponding regression tests concern zero, joint-zero or equality restrictions on the relevant model parameters. We regard a research hypothesis as supported only when the relevant statistical restriction is rejected and the estimated association or pattern is in the predicted direction. The first set of directional research hypotheses concerns the development of cross-selling and multi-banking over time:

H1a: Cross-selling financial services by banks to consumers through the primary current account has decreased over time.

H1b: Multi-banking by consumers has increased over time.

⁵ This contrasts with the bank-firm literature, which tends to emphasise supply-side complementarities (Santikian, 2014) or informational advantages in lending to established clients (Qi, 2024).

H1c: The intensity of multi-banking by consumers relative to cross-selling by banks through the primary current account has increased over time.

Beyond general trends, we assess the distinct effect of digitalisation both on bank cross-selling opportunities and consumer multi-banking behaviour (i.e. maintaining accounts or other financial products with multiple banks). Technological innovation and regulatory changes have potentially reduced barriers for consumers to access services from multiple providers. Increasingly, consumers manage their finances through third-party fintech apps or digital platforms outside their main bank. For example, Brits and Jonker (2025) find that 42% of Dutch consumers use at least one non-bank mobile payment app alongside their main bank, while 5% use financial information apps. Such developments intensify competition and facilitate what Casolaro et al. (2025) term “reverse cross-selling”, as fintech firms leverage access to bank account data granted by open-banking rules to offer competing products, thus eroding incumbent banks’ advantages. Consistently, Szopiński (2021) finds that Polish financially conscious consumers, especially those using digital channels to compare offerings, are most likely to open accounts with additional banks. He anticipates that open-banking innovations will further accelerate such switching. However, evidence is mixed: in Brazil, where digital channels remain emergent, Abras & Mattos (2021) observe that social media and online banking have only a modest effect on cross-selling, with traditional channels still more effective for profitability, while social media mainly strengthens ties with younger clients.

On balance, the literature indicates that digitalisation enables easier multi-banking and poses challenges for any single bank to capture the entirety of a household’s financial activity. Accordingly, we propose the following set of hypotheses that centre around digitalisation:

H2a: The digitalisation of financial services has decreased cross-selling opportunities by banks through the primary current account.

H2b: The digitalisation of financial services has increased multi-banking by consumers.

H2c: The association between digitalisation and multi-banking is stronger than the association between digitalisation and cross-selling through the primary current account by banks to consumers.

H2d: The digitalisation of financial services is associated with a higher intensity of multi-banking relative to cross-selling through the primary current account by banks to consumers.

A further line of inquiry examines how consumers’ perceived benefits of single-banking influence their propensity to buy additional products from the main bank with their primary current account, rather than seek services from other providers. Many customers value the convenience, consolidated oversight and potential financial perks of single-banking, which encourages them to concentrate their financial products in a single bank. For example, Van der Cruysen & Diepstraten (2017) find that Dutch consumers often stay with their

main bank out of convenience and trust. These factors in turn promote greater cross-selling opportunities of financial services by the main bank. However, if these single-banking benefits are perceived as insufficient, customers may seek better terms or specialised services from other institutions. Such multi-banking behaviour is associated with customers purchasing fewer additional products from their main bank, thereby limiting the bank's cross-selling opportunities (Li et al., 2005). Conversely, when the perceived benefits of single-banking are substantial, customers tend to remain loyal to their main bank.

The growth of fintech and open-banking services further underscores how perceived benefits influence multi-banking behaviour. Brits & Jonker (2025) demonstrate that customers who perceive substantial value in third-party apps (e.g., budgeting or investment tools not offered by their main bank) are more likely to use financial services of another financial institution, whereas those with greater privacy or security concerns are less inclined to do so. Similarly, Chan et al. (2022) find that the perceived usefulness and efficiency of open-banking services are the strongest drivers of their adoption. These findings reflect a cost-benefit calculus: consumers will add an alternative provider only if its advantages outweigh the perceived risks or effort (e.g. search costs, complex onboarding, etc.). Thus, when customers believe an alternative provider will significantly improve their financial management or offer better deals, they are far more likely to use it, thereby increasing their degree of multi-banking.

Together, these insights lead to our third set of hypotheses that centre around perceived benefits:

H3a: Greater perceived benefits of single-banking are associated with more cross-selling through the primary current account by banks to consumers.

H3b: Greater perceived benefits of single-banking are associated with less multi-banking.

H3c: Greater perceived benefits of single-banking are associated with a lower intensity of multi-banking relative to cross-selling through the primary current account by banks to consumers

Finally, the literature underscores the importance of product transparency and the ease of comparing financial offers across providers. Banks have often employed opaque fee structures and complex pricing to impede consumers' price comparisons, thereby "softening" competition and bolstering cross-selling power. Gabaix & Laibson (2006) demonstrate that firms exploit consumer inertia by shrouding true product prices to discourage customers from seeking alternatives. Fully informing customers can backfire on banks, as better-informed customers often avoid hidden-fee products or switch providers. Along similar lines, Carlin (2009) finds that as competition intensifies, banks often increase price complexity, using consumer confusion as a strategic tool to preserve market share. Opaque pricing thus weakens price competition, reinforces customer lock-in and enables banks to cross-sell additional products at above-competitive prices. Greater transparency of financial terms would reduce consumers' search costs and intensify competition by enabling easier price comparisons.

Empirical evidence supports the link between transparency and customer switching. Inakura & Shimizutani (2010) shows that Japanese households aware of a deposit insurance policy change were significantly more likely to move their savings to another bank than similar households who were unaware of the change. Survey evidence indicates that multi-banking customers are more financially knowledgeable and proactive in comparing products across providers (Szopiński, 2021). Consistent with this, Kiser (2002) observes that households that switched banks at least once became more price-sensitive and more likely to seek better deals, whereas never-switching households remained less price-aware and more inertial. These patterns suggest that when consumers perceive financial product terms as transparent and easy to compare across institutions, they are less likely to obtain all their services from their main bank and more inclined to engage multiple providers. In line with this reasoning, we propose the fourth set of hypotheses that centre around transparency and switching:

H4a: Greater perceived ease of comparing financial product conditions across different institutions is associated with less cross-selling opportunities through the primary current account.

H4b: Greater perceived ease of comparing financial conditions across institutions is associated with more multi-banking.

H4c: Greater perceived ease of comparing financial conditions across institutions is associated with a higher intensity of multi-banking relative to cross-selling through the primary current account.

3. Data

3.1 The questionnaire

The questionnaire, entitled “Financial Products at Your Bank”, was developed to assess how the role of consumers’ primary current account as a cross-selling channel has evolved over time in the Netherlands. The questionnaire includes items on the financial products consumers hold or have held with their main bank, including when each product was acquired. It also includes items on consumers’ holdings of financial products with institutions other than their main bank. Additionally, it incorporates items measuring consumers’ perception on single-banking (benefits and drawbacks), on the ease of comparing financial products across different providers, and on the effect of digitalisation on access to financial services.

3.2 Data collection

Dutch non-profit research institute Centerdata, affiliated with Tilburg University, distributed the one-off questionnaire between 2 and 20 August 2024 to 3,267 Centerpanel members aged 16 and older. Of these, 2,326 participated and 2,303 completed the survey in full, yielding a 70.5% response rate. This sample enables statistically robust conclusions about the Dutch population aged 16 and above in 2024 regarding the role of current accounts in cross-selling.

Established in 1993, the DHS is an annual panel survey conducted by Centerdata using the Centerpanel, a representative online panel of approximately 2,000 Dutch households.⁶ All household members aged 16 and above are eligible to participate. The DHS provides detailed data on financial product usage, provider identity, and a wide range of demographic and psychological characteristics. Researchers can use either the annual data or administer ad hoc surveys to Centerpanel participants.

For the analyses in sections 4 and 5, we integrated demographic data from the annual DHS to complement the “Financial Products at Your Bank” questionnaire. Section 2.1 draws on DHS data from 2006 to 2024 to analyse trends in financial product usage across banks.

3.3 The sample

Table 1 summarises the characteristics of the 2,326 respondents in the sample, of whom 2,303 completed the questionnaire “Financial Products at Your Bank”.⁷ This sample supports statistically robust inferences about the Dutch population aged 16 and above. Nevertheless, results for specific periods in which respondents opened their primary current account require caution due to small sample sizes. This holds especially for the period 2020 and later. Respondents with current accounts at more than one bank at the time of the interview, were asked to select the bank with their most important current account according to them.⁸

The average respondent age is 56.6 years; 52.1% are male, and 43.0% hold at least a bachelor’s degree. While the gender distribution aligns with national figures for 2024, the sample is slightly older (national average:

Table 1: Sample characteristics

Variable	Mean
Age (years)	56.6
Male	52.1%
Education: bachelor or higher	43.0 %
Year opening primary current account	
1979 and earlier	36.7%
1980 – 1989	15.6%
1990 – 1999	13.7%
2000 – 2009	10.8%
2010 – 2019	9.1%
2020 – 2024	3.2%
I don’t know	10.9%

Note: unweighted results. Source: DNB survey “Financial products at your bank”, August 2024.

6 The DHS provides detailed information on panel members' usage of a wide array of financial products, including the identity of the providers, as well as comprehensive data on panel members' personal characteristics. For more information, see Teppa & Vis (2012).

7 The questionnaire “Financial Products at Your Bank” is available upon request.

8 We do not have information whether the respondent is the only account holder of this primary account, or whether it concerns a joint current account with two account holders.

48.8 years) and more highly educated (national share with bachelor's degree or higher: 36.4%). To correct for discrepancies in age, gender, and education, we applied sample weights provided by Centerdata, based on Statistics Netherlands data.

4. Methodology

4.1 Dependent variables

The analysis considers three dependent variables to measure the role of consumers' main current account in cross-selling. The first dependent variable, *D_FP_main_bank*, equals 1 if a respondent currently holds (or previously held) any, additional financial products (FP), such as flexible savings accounts, fixed-term saving deposits, personal loans, mortgages, investment accounts, insurances or credit cards, at the bank providing the primary current account, irrespective of whether the respondent also uses other institutions. It equals 0 if the respondent's relationship with the main bank is limited to only the current account. This variable captures whether the bank has successfully been cross-selling other financial products to the customer, now and in the past.

The second dependent variable, *D_FP_other_fi*, equals 1 if a respondent holds any financial products (excluding current account) from financial institutions (fi) other than the provider of her primary current account in 2024, and 0 otherwise. This variable indicates whether the consumer multi-banks by obtaining financial products from multiple providers beyond her main bank.

The third dependent variable *Share_other_fi*, is defined as the number of other financial products a respondent holds at financial institutions outside their main bank in 2024 divided by the number of such products the respondent holds (or previously held) at their main bank plus the number of other financial products a respondent holds at financial institutions outside their main bank in 2024. This ratio gauges the relative importance of other financial institutions. It is a continuous variable, which ranges from 0 if the respondent only holds financial products with her main bank (implying pure single-banking) to 1 if the respondent holds all eight surveyed product types exclusively with other institutions.

We estimate bivariate probit models to jointly analyse the first two dependent variables *D_FP_main_bank* and *D_FP_other_fi*, allowing the error terms of the two equations to be correlated. The bivariate specification may improve statistical efficiency. For the third outcome (*Share_other_fi*), which is a quasi-continuous measure, we use ordinary least squares (OLS) regression.

4.2 Explanatory variables

Below we describe the key explanatory variables employed to address the research question and test our hypotheses. We include dummy variables for the period in which the respondent opened their primary current account. The cohorts are defined as on or before 1979, 1980-1999, 2000-2009 and 2010-2024. These cohort

indicators (using 2000-2009 as the reference group) proxy structural differences over time in banks' cross-selling opportunities. To ensure enough observations for robust estimation of period effects, we combine respondents who opened their primary current account between 2020 and 2024 with those who did so between 2010 and 2019. However, this means we cannot separately identify effects specific to the most recent period.

We use two variables to capture different aspects of digitalisation. *Digital_experience* measures each respondent's usage of digital financial channels, calculated as the average self-reported frequency using a 5-point scale (1 = never; 5 = very often) of three activities: (i) sending payment requests through social media, (ii) conducting banking affairs via smartphone or tablet, and (iii) via internet banking. *Digitalisation_multi-banking* measures the respondent's agreement with the statement "Digitalisation has made it easier to obtain financial services from multiple banks", using a five-point Likert scale (1 = strongly disagree; 5 = strongly agree). Both questions included a 'don't know' response option. These variables allow us to assess whether heavy use of digital channels or the perception that digitalisation lowers switching barriers is associated with more multi-banking or less cross-selling.⁹

We incorporate two composite indices to capture consumer attitudes. The first, *Benefits_single_banking*, measures the degree to which respondents perceive advantages in obtaining all financial products from a single financial institution. This index is calculated as the average agreement level across three statements regarding: (1) improved financial oversight, (2) time savings, and (3) financial benefits for consumers. Respondents indicate their agreement using a five-point Likert scale (1 = strongly disagree; 5 = strongly agree), with a 'don't know' option available. Higher scores reflect a greater perceived benefit of single-banking. Similarly, *Transparency* captures respondents' perceptions of how easily financial terms can be compared across different institutions. This index is based on the average agreement with five statements concerning the ease of comparing (1) savings interest rates, (2) loan interest rates, (3) maximum loan amounts, (4) maximum mortgage amounts, and (5) costs/returns of investment products. Respondents rate their agreement with these statements on a five-point Likert scale (1 = strongly disagree; 5 = strongly agree), with a "don't know" option. This index reflects perceived transparency in the retail financial market, which may influence consumers' willingness to seek services outside their main bank.

Finally, we include standard demographic control variables and control variables indicating the main bank. The demographic variables include gender, age category, highest educational attainment, household income, marital status, number of children, homeownership status, region of residence, and degree of urbanisation. We also include dummy variables indicating the bank with respondent's primary current account. We distinguish between ABN Amro bank (AAB), Rabobank (RABO), SNS bank (SNS) and other banks (other), with ING Bank (ING) as the reference category. Furthermore, we add wealth, captured by the total amount on the respondent's current, savings and investment accounts. These controls account for individual characteristics

⁹ Respondents who did not answer the digitalisation questions were excluded from the estimation of model 3. In robustness check 2 we re-estimated all three models using the same sample as in model 3.

and bank-specific factors that might affect cross-selling and multi-banking, ensuring that the effects of our key variables are not confounded by differences in customer profiles or by which bank the respondent holds her primary current account.

4.3 Empirical methodology

For the two binary dependent variables ($D_FP_main_bank$ and $D_FP_other_fi$), we estimate two-equation bivariate probit models to examine which factors influence consumers' decisions from which financial institution to purchase other financial products. The general specification of the two-equation bivariate model is as follows, with index i identifying the respondent (see e.g. Greene, 1993):

$$D_FP_main_bank_i^* = \beta_1'x_i + \varepsilon_{1i}, \quad (1)$$

$$D_FP_other_fi_i^* = \beta_2'x_i + \varepsilon_{2i}.$$

This model posits the existence of underlying latent continuous variables $D_FP_main_bank_i^*$ and $D_FP_other_fi_i^*$ that determine the observed ordinal outcomes $D_FP_main_bank_i$ and $D_FP_other_fi_i$:

$$D_FP_main_bank_i = 1 \text{ if } D_FP_main_bank_i^* > 0, 0 \text{ otherwise,} \quad (2)$$

$$D_FP_other_fi_i = 1 \text{ if } D_FP_other_fi_i^* > 0, 0 \text{ otherwise.}$$

We estimate the two binary outcomes jointly using a bivariate probit model. This specification is appropriate because cross-selling by the main bank and multi-banking by the consumer may share unobserved determinants, even though neither outcome enters the other equation. The joint model retains the standard probit marginal probabilities for each outcome while allowing the latent error terms to be correlated. Compared with estimating two separate probits, the bivariate specification enables us to estimate ρ , test the conditional independence of the latent error terms and characterise the joint distribution of the two outcomes. Joint estimation may provide efficiency gains but is not required for consistency of the equation-specific coefficient estimates.

We interpret the estimated coefficients β_1 and β_2 in the usual way: a positive coefficient implies that the explanatory variable x_i increases the likelihood of the outcome (holding an additional product at the main bank or at other institutions), whereas a negative coefficient implies a lower likelihood. Section 5.2 presents the marginal effects of the core explanatory variables on both marginal probabilities individually, irrespective of the outcome on the other probability. Results of the baseline and full model for all explanatory variables can be found in Table A.1 in Appendix A.

For the third continuous dependent variable $Share_other_fi$, we use ordinary least squares (OLS) regression. A positive estimated coefficient β_3 suggests that higher values of the corresponding explanatory variable are

associated with increased multi-banking behaviour and a diminished significance of the current account as a channel for cross-selling:

$$Share_other_fi_i = \beta'_3 x_i + \varepsilon_{3i}. \quad (3)$$

In the OLS regressions, we restrict the sample to respondents who have at least one additional financial product either with their main bank or with another provider.

Our modelling strategy consists of multiple stages, in which we stepwise introduce four sets of explanatory variables. First, we estimate a baseline model which includes only the account-opening cohort dummies and main-bank dummies. This provides an initial assessment of whether banks' cross-selling opportunities differ by cohort and by bank. Second, we add the full set of demographic controls to account for lifecycle and socioeconomic differences across respondents. Third, we introduce the digitalisation variables *Digital_experience* and *Digitalisation_multi-banking* to see if digital banking usage or attitudes explain additional variation in cross-selling or multi-banking. Fourth and finally, we incorporate the attitudinal measures *Benefits_single_banking* and *Transparency* to assess whether consumers' perceptions further account for the observed patterns.

Given the cross-sectional nature of our data, we cannot fully disentangle account cohort effects from age and lifecycle effects. Including demographic, socioeconomic, capability-related characteristics or consumer attitudes does not identify pure account opening cohort effects. The stepwise approach allows us to assess whether the observed estimated cohort differentials are sensitive to the inclusion of these observable characteristics. Any remaining cohort differentials should be interpreted as associations between account - opening cohorts and the dependent variables, not as causal effects.

To test our research hypotheses, we use average marginal effects from the full model bivariate probit regressions and coefficients from the full model OLS regressions, with Wald tests assessing statistical significance. Because the hypotheses are directional, rejection of a statistical null is considered supportive for the corresponding research hypothesis only if the relevant average marginal effects or OLS coefficients have the direction predicted in Section 2.2.

5. Results

Section 5.1 provides descriptive statistics on the prevalence of cross-selling and multi-banking, and on key determinants. Section 5.2 follows with a discussion of bivariate probit and OLS regression results, along with hypothesis testing. The analysis continues in Section 5.3, where we examine which providers consumers use for three financial products: savings accounts, mortgages, and investment accounts. Finally, Section 5.4 presents the results of three robustness checks using alternative model specifications and sample selections.

5.1 Descriptive results

Our 2024 survey indicates that most of Dutch consumers still engage in buying additional financial products at their main bank that holds their primary current account, although many also utilize multiple banks. Specifically, 83% of the Dutch aged 16 and over hold at least one additional financial product with their main bank, and approximately 70% have obtained at least one financial product from another institution. These findings suggest that while the current account remains a key cross-selling channel, multi-banking is also widespread.

The Dutch current account market is highly concentrated. About 88% of respondents maintain their primary current account with one of the three major banks: Rabobank (36%), ING (34%), and ABN AMRO (18%). SNS accounts for 6%, while all other banks combined, including ASN, Bunq, Knab, Regiobank and Triodos, make up the remaining 6%, with no single institution exceeding 3%. Respondents tend to have long-standing relationships with the bank of their primary current account. 55% opened their primary current account before 2000, reflecting a customer base with decades-long loyalty, an important factor in understanding cross-selling opportunities. Less than 5% opened their primary current account recently, between 2020 to 2024. Additionally, 12% of people couldn't remember when they first opened their primary current account.¹⁰

Table 2 shows that 83% of Dutch consumers have purchased at least one additional product from their main bank. However, most of these buyers are not exclusive to one provider: nearly two-thirds of them also hold other financial products at other institutions. Only about a third (30%) of buyers are single-banking and rely solely on their main bank. Meanwhile, 17% did not acquire any additional products from their main bank; about a quarter of this group have products exclusively at other institutions, while the rest do not hold any additional financial products at all.¹¹

Table 2: Incidence cross-selling and multi-banking of other financial products

		Other financial institutions		Total
		Other FP other financial institutions=0	Other FP other financial institutions=1	
Bank primary	Other FP main bank=0	13%	4%	17%
current account	Other FP main bank=1	30%	53%	83%
Total		43%	57%	100%

Note: Table 2 presents weighted shares of respondents who hold or have held other financial products (Other FP main bank) at their main bank or not, as well as weighted shares of respondents who held other financial products in 2024 at other institutions (Other FP other financial institutions) or not. The results are based on 2,326 respondents. Source: DNB survey “Financial products at your bank”, August 2024.

¹⁰ The primary current account may be a current account with only the respondent as account holder, or a mutual current account. We do not have information whether the respondent's primary account has one or two account holders.

¹¹ About 17% of the Dutch aged 16 and over only hold a current account at their main bank and do not hold other financial products. About 75% of them (13% divided by 17%) also do not hold a current account at another institution; they only have a current account at one bank, and nothing else.

On average, Dutch consumers hold or have previously held 1.7 additional financial products with the bank of their primary current account. The most acquired additional financial product is a flexible (instant-access) savings account, held by about 67% (Table 3). Credit cards follow at 36%. Significant minorities have mortgages (23%), insurance products (15%) or investment accounts (13%) with their main bank. Fixed-term savings deposits (7%) and personal loans (6%) are less common. This distribution suggests that main banks are particularly successful at selling everyday financial products to their current account holders, while more complex or higher-value products are less frequently attained in-house.

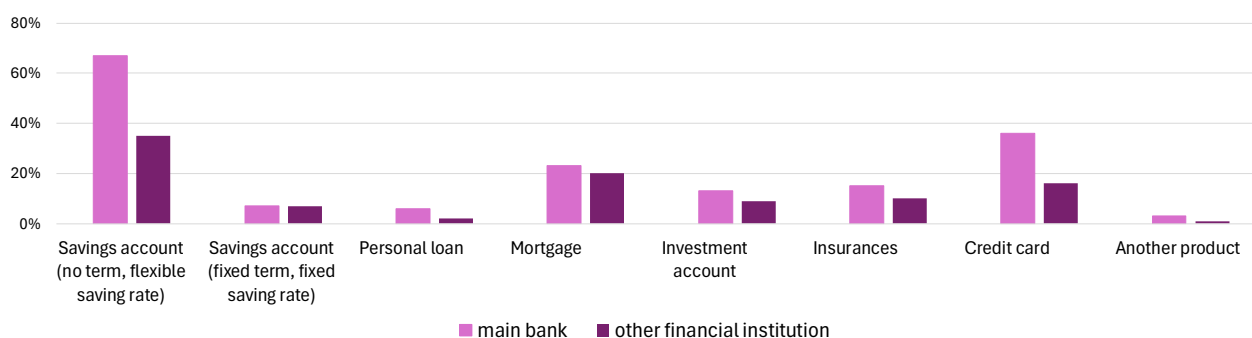
Table 3: Timing acquisition other financial products at the main bank with primary current account

	No. obs.	% obs.	>1 year before	<=1 year before	Simultaneously	<=1 year after	>1 year after
Savings account: no term, flexible saving rate	1,615	67%	8%	1%	59%	7%	25%
Savings account: fixed term, fixed saving rate	2,154	7%	6%	4%	12%	5%	73%
Personal loan	168	6%	2%	2%	6%	8%	82%
Mortgage	638	23%	6%	1%	20%	3%	69%
investment account	364	13%	2%	0%	6%	9%	83%
Insurances	410	15%	4%	1%	13%	8%	74%
Credit card	930	36%	3%	0%	12%	4%	81%
Another product	78	3%	8%	1%	33%	1%	57%
No other products	329	17%					

Note: Weighted results based on 2,323 respondents. Source: DNB survey “Financial products at your bank”, August 2024.

Excluding current accounts, Dutch consumers on average hold one financial product with a financial institution other than their main bank. The most commonly product acquired at another institution is the flexible-rate savings account: about 35% of consumers hold one at another institution (Figure 3). A substantial share also obtains mortgages (20%) and credit cards (16%) from other providers. In contrast, relatively few consumers acquire personal loans (2%) or insurance (10%) outside their main bank. These patterns suggest that Dutch consumers tend to multi-bank selectively. They are seeking better rates or terms for savings and mortgages, while retaining more routine or trust-intensive products with their main bank.

Figure 3: Other financial products: at main bank or multi-banking?



Note: Results are weighed based on 2,323 respondents. The figure shows which financial institution Dutch consumers use for financial products other than their primary current account. Source: DNB survey “Financial products at your bank”, August 2024.

Table 4 presents summary statistics on digital engagement and consumer attitudes, differentiating consumers by product holding behaviour. Individuals without additional financial products report lower experience and are less likely to agree that digitalisation has facilitated multi-banking in the Netherlands. Conversely, those with additional products, whether at the bank with their primary current account or elsewhere, tend to be more digitally active and more open to multi-banking. Regarding financial term transparency, most consumers agree that financial terms from various financial institutions are easily comparable, although this agreement is only moderate. Perceptions show minimal variation between those with additional financial products and those without such products. Notably, people without additional financial products are most optimistic about the potential benefits of using just one bank, even more so than those who hold multiple products with their main bank. As expected, those with products at other institutions are a bit less positive, but differences between groups are small overall. These patterns suggest that digitalisation and consumer preferences may play a role in shaping consumer multi-banking behaviour versus bank cross-selling opportunities.

Table 4: Summary statistics digitalisation, perceived benefits of single-banking and perceived transparency financial terms

	All (n=2,237)	Without other financial products (n=123)	With other financial products at the main bank (n=1,944)	With other financial products at another financial institution (n=1,646)
Digital experience (1-5)	3.43 (0.94)	3.06 (1.11)	3.49 (0.89)	3.48 (0.91)
Digitalisation multi-banking (1-5)	3.89 (0.85)	3.63 (0.95)	3.94 (0.83)	3.94 (0.85)
Perceived transparency financial terms (1-5)	3.17 (0.87)	3.19 (0.99)	3.16 (0.87)	3.17 (0.86)
Perceived benefits single-banking (1-5)	3.69 (0.70)	3.76 (0.63)	3.69 (0.70)	3.63 (0.71)

Note: Table 4 presents weighted averages and standard deviations based on 2,237 respondents. Source: DNB survey “Financial products at your bank”, August 2024. Respondents rate their agreement with various statements on a five-point Likert scale (1 = strongly disagree; 5 = strongly agree), with a “don’t know” option.

5.2 Estimation results

This section presents the results of our multivariate analysis, tests the hypotheses introduced in Section 2, and builds on the descriptive findings in Section 5.1. Detailed estimates for all determinants are reported in Tables A.1 and A.2 in Appendix A.

5.2.1 Bivariate probit results: cross-selling vs. multi-banking

The bivariate probit analysis examines the determinants of consumers’ decisions to acquire additional financial products from their main bank (i.e. “cross-selling by the main bank”) or from other financial institutions (i.e. “multi-banking by the consumer”). Table 5 presents marginal effects and Table 6 the outcomes of the hypothesis tests.

The results of the bivariate probit analysis indicate that consumers who opened their primary account before 1980 are approximately 10 percentage points (pp) more likely to hold additional financial products from their main bank (model 4, Table 5) than those who opened accounts between 2010 and 2024. The 1980–1999 cohort also initially shows a significantly higher likelihood of holding additional products relative to the youngest cohort (baseline model). However, this difference becomes statistically insignificant once demographic and wealth characteristics are controlled for, suggesting that this observed cohort effect is largely attributable to lifecycle and socioeconomic differences rather than structural changes in bank behaviour or consumer preferences.

Overall, the results provide partial support for Hypothesis H1a; consumers who opened their primary account before 1980 are more likely to hold additional financial products from their main bank than those who opened current accounts between 2010 and 2024, but we do not find any significant differences between the other cohorts and the 2010 - 2024 cohort.

Table 5: Bivariate probit results on selling other financial products by the main bank (cross-selling) and by other financial institutions (multi-banking)

	Baseline		Model 2		Model 3		Model 4	
	Main bank	Other f.i.	Main bank	Other f.i.	Main bank	Other f.i.	Main bank	Other f.i.
Opening in or before 1979	0.10*** (0.02)	0.14*** (0.04)	0.08*** (0.03)	0.12*** (0.05)	0.10*** (0.03)	0.12** (0.05)	0.10*** (0.03)	0.08* (0.05)
1980 - 1999	0.07*** (0.02)	0.19*** (0.04)	0.03 (0.02)	0.13*** (0.04)	0.04 (0.02)	0.14*** (0.04)	0.04 (0.03)	0.13*** (0.05)
2000 - 2009	0.04 (0.03)	0.09** (0.04)	0.02 (0.03)	0.07 (0.04)	0.03 (0.03)	0.08* (0.04)	0.03 (0.03)	0.05 (0.05)
ABN	0.01 (0.02)	-0.10*** (0.03)	0.00 (0.02)	-0.09*** (0.03)	0.00 (0.02)	-0.09*** (0.03)	-0.01 (0.02)	-0.09*** (0.03)
RABO	0.05** (0.02)	-0.09*** (0.03)	0.03* (0.02)	-0.09*** (0.03)	0.02 (0.02)	-0.08*** (0.03)	0.02 (0.02)	-0.05* (0.03)
SNS	0.01 (0.03)	-0.06 (0.05)	0.03 (0.03)	-0.02 (0.05)	0.03 (0.03)	-0.03 (0.06)	0.06 (0.04)	0.00 (0.06)
Other banks	0.08** (0.03)	0.08 (0.05)	0.07** (0.03)	0.06 (0.06)	0.08** (0.04)	0.07 (0.06)	0.08** (0.04)	0.08 (0.06)
Dig. experience					0.03*** (0.01)	0.04*** (0.01)	0.03*** (0.01)	0.04*** (0.01)
Dig_multi-banking					0.03*** (0.01)	0.04*** (0.01)	0.03*** (0.01)	0.05*** (0.02)
Benefits single-banking							0.02*** (0.01)	-0.09*** (0.02)
Transparency							-0.01 (0.01)	-0.00 (0.01)
Demographic controls	No		yes		yes		yes	
ρ	0.45*** (0.04)		0.35*** (0.05)		0.33*** (0.05)		0.35*** (0.06)	
Log likelihood	-2007.77		-1,655.50		-1,271.24		-1,169.41	
χ^2	70.61		231.07		197.75		217.99	
No obs.	2,072		1,829		1,469		1,387	

Note: This table shows marginal effects from bivariate probit regression results, explaining whether the respondent held or has hold other financial products than a current account at her main bank (columns heading 'main bank') and whether the respondent held any financial products at other financial institutions in 2024 (columns heading 'other f. i.'). Standard errors are clustered at household level. The sample was restricted to respondents who could indicate in which period they opened their primary current account. The reference person in the regressions is a woman, aged between 35 and 44, who opened her primary current account at ING Bank between 2010 and 2024. Her educational level is below bachelor's degree, her monthly household income is below EUR 1,800, she lives in the Western part of the Netherlands, she is single and not a homeowner. ***, ** and * denote significance at the 0.01, 0.05 and 0.10-level.

Regarding the decision to acquire financial products from other institutions, the results show that although earlier cohorts exhibit a higher likelihood of multi-banking than the 2010 -2024 cohort, these effects diminish after controlling for individual characteristics. In the fully specified model, only the 1980 - 1999 cohort remains significantly more likely to multi-bank than the youngest cohort, indicating no consistent generational trend in multi-banking behaviour. Overall, Hypothesis H1b is not supported; there is no evidence that multi-banking is more common among people who recently opened a current account than among other customers.

With respect to digitalisation, the estimation results indicate that it promotes both cross-selling and multi-banking. A one-unit increase in experience with digitally managing financial affairs is associated with a 3 pp higher likelihood of acquiring other financial products at the main bank and a 4 pp higher likelihood to do so at another financial institution. Additionally, consumers who view digitalisation as easing access to multiple financial institutions are both more likely to purchase additional products at the main bank and to multi-bank; each unit increase in agreement is associated with a 3 pp rise in the likelihood of cross-buying and a 5 pp rise in the likelihood of multi-banking (model 4). These findings support Hypothesis H2b and contradict Hypothesis H2a.

Furthermore, Wald tests indicate no significant difference in the estimated coefficients between the two digitalisation variables for either outcome, individually or jointly, thus not supporting Hypothesis H2c, which presupposes a stronger association of digitisation on the likelihood of multi-banking (table 6). In sum, digitalisation in financial services is positively associated with both acquisition of additional financial products at the main bank and multi-banking, but the estimated associations do not differ significantly between the two outcomes.

Table 6: Hypotheses testing using Wald tests based on bivariate probit regressions

Account opening cohort	Opening in or before 1979		1980 - 1999		2000 - 2009		Jointly	
	χ^2	p-value	χ^2	p-value	χ^2	p-value	χ^2	p-value
H1a: D_FP_main_mank	11.75***	<0.001	2.37	0.124	1.61	0.205	13.36***	0.004
H1b: D_FP_other_fi	2.70*	0.100	7.88***	0.005	1.06	0.304	8.84**	0.032
Digitalisation	Digital_experience		Dig_multi-banking		Jointly			
	χ^2	p-value	χ^2	p-value			χ^2	p-value
H2a: D_FP_main_bank	8.85***	0.003	8.41***	0.004			18.54***	<0.001
H2b: D_FP_other_fi	7.38***	0.007	11.34***	<0.001			23.36***	<0.001
H2c: D_FP_main_bank & D_FP_Other_fi	0.053	0.468	0.07	0.794			0.65	0.723
Benefits single-banking								
	χ^2	p-value						
H3a: D_FP_main_bank	4.08**	0.044						
H3b: D_FP_other_fi	23.84***	<0.001						
Transparency								
	χ^2	p-value						
H4a: D_FP_main_bank	1.73	0.188						
H4b: D_FP_other_fi	0.00	0.990						

Note: This table shows Wald tests based on the outcomes of Model 4 presented in Table 5. ***, ** and * denote significance at the 0.01, 0.05 and 0.10-level.

Consumer attitudes matter. The bivariate probit regression results demonstrate that individuals who perceive greater advantages in single-banking exhibit a higher likelihood of purchasing additional financial products at their main bank, while their propensity to multi-bank is markedly reduced. In the full model, a one-unit increase in average agreement with statements about single-banking benefits corresponds to a 2 pp rise in the likelihood of cross-buying at the main bank and a 9 pp decline in the likelihood of multi-banking.¹² These results support both Hypothesis H3a which states that perceived single-banking benefits strengthen cross-selling and Hypothesis H3b which posits that such benefits diminish multi-banking. Overall, the findings underscore the pivotal role of consumer preferences in shaping financial product acquisition behaviour.

The influence of perceived transparency is negligible. The outcomes of the bivariate probit regression (full model) indicate that perceived ease of comparing financial product terms across financial institutions does not significantly influence either cross-selling opportunities by the main bank or consumer multi-banking.

Therefore, the estimation results do not support Hypotheses H4a and H4b. This suggests that transparency alone may not be sufficient to alter consumer behaviour in favour of multi-banking.

The bivariate probit regression results for bank controls indicate that cross-selling opportunities through the primary current account vary across banks. Compared with ING customers, Rabobank customers and customers of smaller banks are more likely to acquire additional financial products with their main bank. The Rabobank effect disappears once demographic and digitalisation variables are included, suggesting that these factors explain the difference. By contrast, the gap between ING and smaller banks remains. In the full model, customers of smaller banks are 8 pp more likely than ING customers to hold additional financial products with their main bank, with ING being the largest consumer bank in the Netherlands.

Among the other controls, homeowners are more likely to hold additional financial products both at their main bank and at other financial institutions. Furthermore, age, marital status, education, household income, wealth, number of children, and region significantly affect only one of the two outcomes.

Finally, the estimated correlation coefficient (ρ) between the latent error terms is positive and statistically significant across all model specifications, ranging from 0.33 and 0.45. In Model 4, $\hat{\rho} = 0.35$ (s.e. = 0.06). Conditional on the included explanatory variables, respondents with an above-average unobserved propensity to hold additional financial products at their main bank also tend to have an above-average unobserved propensity to hold such products at other financial institutions. This residual association indicates that cross-selling and multi-banking for broader financial-product usage is complimentary.

¹² Respondents were asked to indicate their level of agreement on the scale from 1 (strongly disagree) to 5 (strongly agree) with three different benefits of single-banking.

5.2.2 Relative importance other financial institutions versus main bank

After considering the factors influencing cross-selling by the main bank and consumer multi-banking individually, we now focus on the relative intensity of multi-banking. This subsection presents results from the OLS regressions explaining *Share_other_fi* (Table 7).

The OLS baseline regression results indicate that individuals who opened their primary current account between 2010 and 2024 and possess one or more additional financial products only differ from the 1980 – 1999 cohort in their relative use of other financial institutions. Among account holders of the 1980 – 1999 cohort their relative use of other institutions is higher than among the reference cohort. This finding becomes statistically insignificant after including further controls (Model 4). However, Wald tests in Table 8 suggest that the coefficients for all three earlier account cohorts jointly differ from the 2010–2024 cohort. This holds for both the baseline and the full model. As the estimated coefficients do not show a clear systematic trend in line with increased multi-banking intensity, we conclude that the regression results do not support H1c, which posits that multi-banking intensity has risen over time at the expense of cross-selling through the current account by the main bank.

Table 7: OLS regression results Share multi-banking for other financial products

Variables	Baseline	Model 2	Model 3	Model 4
Opening current account in or before 1979	0.01 (0.02)	0.03 (0.03)	0.01 (0.03)	-0.01 (0.03)
1980 – 1999	0.06** (0.02)	0.05* (0.03)	0.06* (0.03)	0.05 (0.03)
2000 – 2009	0.03 (0.03)	0.02 (0.03)	0.02 (0.03)	0.00 (0.03)
ABN	-0.07*** (0.02)	-0.07*** (0.02)	-0.08*** (0.02)	-0.07*** (0.02)
RABO	-0.09** (0.01)	-0.08*** (0.02)	-0.09*** (0.02)	-0.07*** (0.02)
SNS	-0.04 (0.03)	-0.01 (0.03)	-0.03 (0.04)	-0.02 (0.04)
Other banks	0.04 (0.02)	0.05 (0.04)	0.04 (0.04)	0.05 (0.04)
Digital experience			0.00 (0.01)	0.00 (0.01)
Digitalisation multi-banking			0.01 (0.01)	0.01 (0.01)
Benefits single-banking				-0.07*** (0.01)
Transparency				0.01* (0.01)
Constant	0.35*** (0.05)	0.29*** (0.04)	0.28*** (0.06)	0.51** (0.20)
Demographic controls	No	Yes	Yes	Yes
R ²	0.03	0.06	0.07	0.10
No obs.	1,911	1,694	1,376	1,303

Note: This table shows OLS regression results explaining the share of other financial institutions in the number of other financial products held in 2024 relative to the total number of other financial products that are held or have been held at the main bank and are held at other financial institutions in 2024. The sample was restricted to respondents who hold or have held other financial products. Furthermore, they should have provided in which period they opened their primary current account. The reference person is a woman, aged between 35 and 44, who opened her primary current account at ING Bank between 2010 and 2024. Her educational level is below bachelor's degree, her monthly household income is below EUR 1,800, she lives in the Western part of the Netherlands, she is single and not a homeowner. ***, ** and * denote significance at the 0.01, 0.05 and 0.10-level.

Regarding digitalisation, the OLS results reveal that neither digital experience nor the perception that digitalisation facilitates access to multiple providers has a statistically significant effect on the multi-banking intensity. This implies that, although digitalisation is associated with higher levels of both cross-selling by the main bank and consumer multi-banking (as shown in Section 5.2.1), it does not appear to shift the relative emphasis away from the main bank towards alternative providers. Furthermore, the Wald test confirms that their combined effect is not significant. Consequently, our results do not support H2d, which presupposes a positive association between digitalisation and the relative importance of multi-banking compared to cross-selling by the main bank.

Table 8: Hypotheses testing using Wald tests based on OLS regressions

	Share multi-banking in total number of other financial products			
	Baseline model		Model 4	
	χ^2	p-value	χ^2	p-value
H1c: Current account cohorts $\leq$ 1979, 1980 – 1999 and 2000 - 2009	4.59***	0.003	2.92**	0.033
H2c: Digitalisation: Dig_experience & Dig_Multi-banking			0.42	0.657
H3c: Benefits single-banking			43.45***	<0.001
H4c: Transparency			2.91*	0.088

Note: This table shows Wald tests performed based on the outcomes presented in Table 7. ***, ** and * denote significance at the 0.01, 0.05 and 0.10-level.

With respect to consumer attitudes, the OLS-results show that perceived single-banking benefits significantly reduce the relative importance of multi-banking. Each one-point increase in the single-banking benefits index is associated with a 0.07 reduction in the ratio, indicating that consumers who value single-banking tend to concentrate their financial products within their main bank. This finding supports hypothesis H3c, which assumes that greater perceived single-banking benefits correspond with a lower propensity for multi-banking relative to cross-selling through the primary current account for additional financial products.

Furthermore, the perceived ease of comparing financial product conditions across institutions is significantly and positively associated with the relative intensity of multi-banking, providing support for hypothesis H4c at the 10% level. This suggests that consumers who perceive greater transparency tend to allocate a larger share of their additional financial products to institutions other than their main bank. In contrast, transparency is not significantly associated with the likelihood of multi-banking itself (Section 5.2.1). So, transparency appears to be associated with the allocation of products across providers rather than with the decision to engage in multi-banking, although the relatively weak statistical significance warrants cautious interpretation.

Taken together, the OLS-results indicate that consumer preferences and perceived transparency are associated with the relative intensity of multi-banking, with the perceived advantages of single-banking showing the strongest association.

Regarding the control variables, the OLS-results reveal differences among current account holders by main bank (Table A.2 in Appendix A). Compared with ING as their main bank, ABN AMRO and Rabobank customers show the lowest relative intensity of multi-banking for additional financial products; in the full model their indices are 0.07 points lower. Among the demographic controls, age, education, home ownership and the number of children remain significant in the full model.

5.3 Product-level analysis of cross-selling versus multi-banking

Building on the aggregate results in Section 5.2, this section examines whether the patterns of cross-selling through the primary current account and multi-banking differ across specific product categories. We focus on three major product types, i.e. savings products, mortgages and investment accounts.

The baseline bivariate probit regressions reveal notable cohort patterns in cross-selling through the primary current account by the main bank and multi-banking that differ by product type (Table 9). Individuals who opened their primary current account in or before 1999 are more likely to also have opened savings products from their main bank compared to the 2010 - 2024 cohort. Furthermore, all three older cohorts are more likely than the 2010 - 2024 cohort to hold savings products at other institutions. These cohort effects remain significant in the full model. The direction of the cohort coefficients and the Wald tests (Table 10) support hypotheses H1a for saving products but not H1b: more recent current account cohorts are associated with being less likely to hold saving products both at their main bank and at other institutions.

For mortgages, the full model provides no evidence of a decline in cross-selling by the main bank. Individuals who opened current accounts in earlier decades are not systematically more likely than the 2010 - 2024 cohort to hold, or to have held, a mortgage with their main bank. The Wald tests based on the full model likewise show no significant joint cohort effect. Hypothesis H1a is therefore not supported for mortgages. With respect to multi-banking, the results indicate that holding a mortgage with another institution is less common among the most recent cohort than among older cohorts. In the full model, the three older cohorts are 10 to 17 pp more likely than the 2010 - 2024 cohort to hold a mortgage with another institution. The coefficient estimates and Wald tests therefore do not support H1b for mortgages. Overall, our findings do not suggest that multi-banking in the mortgage market has become more prevalent among more recent current account cohorts. A possible explanation may be that younger cohorts are less likely to have purchased a house and consequently are less likely to have a mortgage.

For investment accounts, both the baseline and full models indicate a significant decline in cross-selling by the main bank across different cohorts of current account holders. In the full model, individuals who opened their current account before 1980 or between 1980 - 1999 are, respectively, 17 pp and 8 pp more likely to have obtained an investment account from their main bank than the 2010 - 2024 cohort. The direction of the coefficient estimates and the Wald tests support hypothesis H1a for investment accounts. By contrast, there is no evidence of an increase in multi-banking for investments accounts among more recent cohorts. While the

baseline results suggest lower multi-banking among the newest cohort than among older cohorts, the full model shows no significant differences across cohorts. Taken together, the coefficient estimates and Wald tests do not support hypothesis H1b for investment accounts.

Overall, the direction of the cohort coefficients of the full models and the outcomes of the Wald tests support H1a but not H1b for saving products and hypothesis H1a for investment accounts. These results suggest that banks face increasing difficulties in cross-selling saving products and investment accounts through the primary current account, while cross-selling mortgages remains less affected.

We next assess whether digitalisation affects cross-selling by the main bank and multi-banking across product categories. Full-model results show that greater digital experience increases the likelihood of holding savings products at the main bank but is unrelated to the acquisition of mortgages or investment accounts.

Unexpectedly, respondents who perceive digitalisation as facilitating the acquisition of financial products from multiple Dutch banks are also more likely to hold savings products and investment accounts at their main bank, while mortgages remain unaffected. The coefficient estimates and Wald tests indicate that digitalisation strengthens cross-selling of savings products and investment accounts by the main bank and does not reduce cross-selling of mortgages. Hypothesis H2a, which states that digitalisation reduces cross-selling opportunities by the main bank, is therefore not supported for any of the three products categories.

With respect to multi-banking, the full model results show that digital experience has no significant effect for any of the three product categories. By contrast, individuals who agree that digitalisation facilitates the acquisition of financial products from multiple Dutch banks are significantly more likely to hold saving products, mortgages, and investment accounts with other institutions. These results support Hypothesis H2b for all three product categories.

The Wald tests show no significant differences between the coefficients of the two digitalisation variables in their effects on cross-selling and multi-banking across any of the three product categories. Hypothesis H2c is therefore not supported, suggesting that digitalisation has a broadly similar influence on both behaviours.

Perceived benefits of consolidating all financial products with a single bank show product-specific effects. Full model results show that stronger perceived single-banking benefits are associated with significantly higher likelihoods of holding saving products and mortgages at the main bank, but not investment accounts. The Wald tests confirm significance for mortgages, but not for saving products. Overall, the findings support hypothesis H3a for mortgages and not for saving products and investment accounts. Moreover, stronger perceived single-banking benefits are significantly associated with lower likelihoods of multi-banking across all three product categories. These findings support hypothesis H3b for each product category, indicating that perceived single-banking benefits primarily discourage customers from obtaining financial products from alternative institutions, while their impact on cross-selling by the main bank varies by product.

Finally, we examine whether perceived ease of comparing financial product terms across institutions (transparency) influences cross-selling or multi-banking. Full model regression outcomes indicate that perceived transparency of financial terms solely and negatively affects the likelihood of holding an investment account at another institution than one's main bank. It does not affect cross-selling any of the three financial products by the main bank nor does it affect other multi-banking behaviours. Wald test results confirm these findings. Therefore, both hypotheses H4a and H4b are not supported for all three products. These findings imply that greater perceived ease in comparing financial conditions neither diminishes cross-selling nor encourages multi-banking across the three examined financial products.

Regarding the other controls, we find among others that cross-selling by the main bank varies by financial product and bank. Customers with their primary current account at Rabobank are more likely to hold saving products and mortgages at their main bank than ING account holders. However, no significant difference is found for cross-selling of investment accounts. Primary current account holders at smaller banks are also more likely to hold saving products and investment accounts at their main bank than ING current account holders. Unlike section 5.2.1, where product distinctions were not made, including digitalisation controls does not eliminate Rabobank's cross-selling advantage vis-a vis ING, suggesting digitalisation primarily affected Rabobank's cross-selling of products other than saving products and mortgages. In contrast, for smaller banks, additional controls notably reduce the cross-selling effect for mortgages relative to ING customers.

The residual association is product-specific: ρ is positive and statistically significant for savings ($\rho=0.33$, $SE=0.05$) and investment accounts ($\rho=0.54$, $SE=0.05$), but it is small and statistically insignificant for mortgages ($\rho=-0.09$, $SE=0.06$). This suggests that unobserved characteristics associated with acquiring products both at the main bank and elsewhere are more salient for savings and investments than for mortgages. This may be expected as respondents who are homeowners, usually have no or a single mortgage on their house, not multiple from different institutions.

Table 9: Marginal bivariate probit results on selling saving products, mortgage and investment account by the main bank and other financial institutions

	Saving products				Mortgage				Investment account			
	Baseline		Model 4		Baseline		Model 4		Baseline		Model 4	
	Main bank	Other f.i.	Main bank	Other f.i.	Main bank	Other f.i.	Main bank	Other f.i.	Main bank	Other f.i.	Main bank	Other f.i.
Opening in or before 1979	0.14*** (0.03)	0.15*** (0.04)	0.15*** (0.05)	0.12** (0.06)	0.18*** (0.04)	0.08** (0.04)	-0.03 (0.06)	0.13** (0.06)	0.17*** (0.03)	0.07** (0.03)	0.17*** (0.05)	0.03 (0.05)
1980 - 1999	0.08*** (0.03)	0.15*** (0.04)	0.10*** (0.04)	0.14*** (0.05)	0.15*** (0.04)	0.15*** (0.04)	-0.03 (0.05)	0.17*** (0.05)	0.10*** (0.03)	0.09*** (0.03)	0.08*** (0.04)	0.05 (0.04)
2000 - 2009	0.05 (0.04)	0.13*** (0.04)	0.06 (0.04)	0.10*** (0.06)	0.05 (0.04)	0.04 (0.04)	-0.03 (0.06)	0.10* (0.06)	0.09** (0.04)	0.02 (0.03)	0.06 (0.05)	-0.00 (0.05)
ABN	0.04 (0.03)	-0.06* (0.03)	0.01 (0.03)	-0.06 (0.04)	0.06** (0.03)	-0.04 (0.03)	0.04 (0.04)	-0.06* (0.03)	-0.02 (0.03)	-0.04* (0.02)	0.02 (0.04)	-0.02 (0.03)
RABO	0.08*** (0.02)	-0.05** (0.03)	0.07** (0.03)	-0.04 (0.03)	0.13*** (0.02)	-0.06*** (0.02)	0.12*** (0.03)	-0.08*** (0.03)	-0.01 (0.02)	-0.05*** (0.02)	0.02 (0.03)	-0.04* (0.03)
SNS	0.04 (0.04)	-0.01 (0.05)	0.09* (0.05)	0.05 (0.07)	0.22*** (0.05)	-0.06 (0.05)	0.18*** (0.07)	0.01 (0.07)	-0.16*** (0.05)	0.00 (0.04)	-0.17** (0.03)	0.05 (0.05)
Other banks	0.24*** (0.05)	0.00 (0.06)	0.24*** (0.06)	0.02 (0.07)	-0.07 (0.06)	0.12*** (0.04)	-0.16** (0.07)	0.16*** (0.06)	0.12*** (0.04)	0.06 (0.04)	0.14** (0.06)	0.04 (0.06)
Dig. experience			0.03** (0.01)	0.02 (0.02)			0.01 (0.02)	-0.00 (0.02)			0.02 (0.02)	0.01 (0.01)
Dig_multi-banking			0.04** (0.01)	0.04** (0.02)			-0.01 (0.02)	0.04** (0.02)			0.08*** (0.02)	0.06*** (0.01)
Benefits single-banking			0.01* (0.02)	-0.10*** (0.02)			0.06*** (0.02)	-0.04*** (0.02)			-0.00 (0.02)	-0.05*** (0.02)
Transparency			0.00 (0.01)	0.02 (0.01)			-0.01 (0.01)	0.01 (0.01)			-0.01 (0.01)	-0.02* (0.01)
Demographic controls	no		yes		no		yes		no		yes	
ρ	0.42*** (0.03)		0.33*** (0.05)		0.06 (0.04)		-0.09 (0.06)		0.63*** (0.03)		0.54*** (0.05)	
Log likelihood	-2,491.06		-1,530.83		-1,306.28		-1,139.70		-1,571.78		-835.43	
χ ²	58.74		167.92		114.16		8,391.24		75.00		216.18	
No obs.	2,068		1,343		2,068		1,091		2,068		1,015	

Note: This table shows marginal effects from bivariate probit regression results, explaining whether the respondent held or has hold other financial products than a current account at her main bank (columns heading 'main bank') and whether the respondent held such financial products at other financial institutions in 2024 (columns heading 'other f. i.'). Standard errors are clustered at household level. The sample was restricted to respondents who could indicate in which period they opened their primary current account. The reference person is a woman, aged between 35 and 44, who opened her primary current account at ING Bank between 2010 and 2024. Her educational level is below bachelor's degree, her monthly household income is below EUR 1,800, she lives in the Western part of the Netherlands, she is single and not a homeowner. ***, ** and * denote significance at the 0.01, 0.05 and 0.10 level.

Table 10: Hypotheses testing using Wald tests bivariate probit regressions saving products, mortgage and investment account

Opening current account ...								
	in or before 1979		between 1980 - 1999		between 2000 - 2009		Jointly	
Saving products	χ^2	p-value	χ^2	p-value	χ^2	p-value	χ^2	p-value
H1a: D_FP_main_bank	10.74***	0.001	6.37**	0.012	2.01	0.157	11.03**	0.012
H1b: D_FP_other_fi	4.02**	0.045	7.07***	0.008	3.43*	0.064	7.13**	0.068
Mortgage								
H1a: D_FP_main_bank	0.31	0.579	0.37	0.542	0.22	0.642	0.40	0.941
H1b: D_FP_other_fi	5.47**	0.019	10.57***	0.001	3.47*	0.062	10.75**	0.013
Investment account								
H1a: D_FP_main_bank	9.26***	0.002	2.53	0.112	1.24	0.266	11.38***	0.010
H1b: D_FP_other_fi	0.49	0.482	1.35	0.246	0.00	0.992	2.60	0.457
	Dig_experience		Dig_multi-banking		Jointly			
Saving products	χ^2	p-value	χ^2	p-value			χ^2	p-value
H2a: D_FP_main_bank	3.90**	0.048	5.68**	0.017			11.25***	0.003
H2b: D_FP_other_fi	1.94	0.164	4.33**	0.038			7.28**	0.026
H2c: D_FP_main_bank & D_FP_Other_fi	0.34	0.560	0.09	0.769			0.49	0.782
Mortgage								
H2a: D_FP_main_bank	0.37	0.545	0.30	0.586			0.59	0.745
H2b: D_FP_other_fi	0.03	0.866	4.69**	0.030			4.77*	0.092
H2c: D_FP_main_bank & D_FP_other_fi	0.28	0.593	4.10**	0.043			4.13	0.127
Investment account								
H2a: D_FP_main_bank	2.34	0.126	25.83***	<0.001			29.10**	<0.001
H2b: D_FP_other_fi	1.09	0.298	22.72***	<0.001			24.86***	<0.001
H2c: D_FP_main_bank & D_FP_other_fi	0.13	0.719	0.05	0.827			0.19	0.908
Benefits single-banking								
Saving products	χ^2	p-value						
H3a: D_FP_main_bank	0.32*	0.573						
H3b: D_FP_other_fi	23.87***	<0.001						
Mortgage								
H3a: D_FP_main_bank	8.25***	0.004						
H3b: D_FP_other_fi	5.44**	0.019						
Investment account								
H3a: D_FP_main_bank	0.05	0.819						
H3b: D_FP_other_fi	10.11***	0.002						
transparency								
Saving	χ^2	p-value						
H4a: D_FP_main_bank	0.16	0.693						
H4b: D_FP_other_fi	2.55	0.110						
Mortgage								
H4a: D_FP_main_bank	0.42	0.518						
H4b: D_FP_other_fi	0.19	0.660						
Investment account								
H4a: D_FP_Main_Bank	0.60	0.437						
H4b: D_FP_Other_fi	3.71*	0.054						

Note: Wald tests performed based on outcomes Models 4, presented in Table 9. ***, ** and * denote significance at the 0.01, 0.05 and 0.10 level.

To recap, Table 11 provides an overview of the hypotheses testing. It summarises the results found in Sections 5.2 and 5.3. The product-level distinctions found in Section 5.3 underscore that cross-selling by the main bank and multi-banking dynamics are not uniform across financial products.

Table 11: Overview outcomes hypotheses testing

	all products (excl current account)	Saving products	Mortgage	Investment account
Cohort effects				
H1a: Cross-selling financial services by banks to consumers through the primary current account has decreased over time.	limited support	supported	not supported	supported
H1b: Multi-banking by consumers has increased over time.	not supported	not supported	not supported	not supported
H1c: The intensity of multi-banking by consumers relative to cross-selling by banks through the primary current account has increased over time.	not supported	n.a.	n.a.	n.a.
Digitalisation				
H2a: The digitalisation of financial services has decreased cross-selling opportunities by banks through the primary current account.	not supported	not supported	not supported	not supported
H2b: The digitalisation of financial services has increased multi-banking by consumers.	supported	supported	supported	supported
H2c: The association between digitalisation and multi-banking is stronger than the association between digitalisation and cross-selling through the primary current account by banks to consumers.	not supported	not supported	not supported	not supported
H2d: The digitalisation of financial services is associated with a higher intensity of multi-banking relative to cross-selling through the primary current account by banks to consumers.	not supported	n.a.	n.a.	n.a.
Benefits single-banking				
H3a: Greater perceived benefits of single-banking are associated with more cross-selling through the primary current account by banks to consumers.	supported	supported	supported	not supported
H3b: Greater perceived benefits of single-banking are associated with less multi-banking.	supported	supported	supported	supported
H3c: Greater perceived benefits of single-banking are associated with a lower intensity of multi-banking relative to cross-selling through the primary current account by banks to consumers	supported	n.a.	n.a.	n.a.
Transparency				
H4a: Greater perceived ease of comparing financial product conditions across different institutions is associated with less cross-selling opportunities through the primary current account.	not supported	not supported	not supported	not supported
H4b: Greater perceived ease of comparing financial conditions across institutions is associated with more multi-banking.	not supported	not supported	not supported	not supported
H4c: Greater perceived ease of comparing financial conditions across institutions is associated with a higher intensity of multi-banking relative to cross-selling through the primary current account.	supported	n.a.	n.a.	n.a.

Note: This table provides an overview of the outcomes of hypothesis, based on the outcomes in tables 5 - 10. The outcomes are based on the alignment between the direction of the estimated coefficients, the statistical significance of all relevant coefficients together and the hypotheses. ***, ** and * denote significance at the 0.01, 0.05 and 0.10 level and n.a. denotes "not applicable".

5.4 Robustness checks

To validate the robustness of our findings, we conduct three checks. First, we include *Financial knowledge* as an additional control, measured by respondents' self-assessed financial expertise. Respondents are asked to rate their financial expertise on a four-point scale (1 = not knowledgeable to 4 = very knowledgeable). This check allows us to assess whether observed differences in cross-selling by the main bank and multi-banking might be driven by heterogeneity in financial knowledge. Second, we re-estimate the baseline, model 2 and model 3 regressions using the same sample as in the fully specified model 4. This check verifies that changes in coefficient estimates reflect added controls rather than shifts in sample composition. Third, we refine the dependent variable for cross-selling through the primary current account by the main bank by excluding products obtained prior to opening of the current account. The adjusted *D_FP_main_bank* variable equals 1 only if additional financial products are acquired at or after account initiation. Together, these checks address omitted variable bias, sample selection, and the temporal consistency of the cross-selling measure. Results are presented in Tables B.1 to B.4 in Appendix B.

In the first robustness check, adding financial knowledge as a control variable does not materially alter our results. Its inclusion yields a modest, statistically significant positive effect: a one-unit increase in self-assessed financial knowledge raises the likelihood of cross-selling at the main bank by 2 pp. Financial knowledge does not significantly affect the likelihood of multi-banking, or its relative intensity compared to product acquisition at the main bank. Crucially, all other key coefficients and significance levels remain stable. So, variation in financial knowledge does not explain observed patterns in cross-selling by the main bank and multi-banking. Our main conclusions regarding cohort, digitalisation, perceived single-banking advantages and transparency persist after controlling for financial knowledge.

The estimation results from the second robustness check, employing the same respondents for both the baseline and extended models, confirm that our findings are not influenced by sample differences. The estimated effects of key explanatory variables in both bivariate probit and OLS regressions remain stable. This indicates that changes in coefficients and marginal effects from the baseline to the full model in Section 5.2 are attributable to the added controls rather than shifts in the sample.

In the third robustness check, we use a refined cross-selling dependent variable genuinely acquired through the current account relationship. Consequently, the share of respondents with additional purchases at their main bank decreases slightly from 83% to 77%. Re-estimating the bivariate probit and OLS models with this stricter measure yields results nearly identical to the original analysis. The direction and significance of key variables remain consistent. Thus, our main conclusions are robust to this more stringent definition of cross-selling.

Overall, the three robustness checks support the validity of our results. We find no evidence that our main conclusions are driven by omitted variables, by changes in the sample of respondents, or the way cross-selling defined. These exercises strengthen confidence in the core findings reported in Section 5.2.

6. Concluding remarks and discussion

This study examines whether the primary current account remains an effective cross-selling channel for traditional banks amidst digitalisation, regulatory changes, and heightened competition. Using a unique 2024 survey of Dutch consumers, we find that the current account still facilitates cross-selling, though its efficacy varies by product and consumer segment. This aligns with Li et al. (2005) and Basten & Juelsrud (2023), who note the current account's persistent role in sequential product acquisition and loyalty-driven lending. Our findings provide nuanced perspectives on changing retail banking dynamics, which may be useful for both the banking sector and public authorities.

At an aggregate level, the current account continues to act as an anchor, supporting cross-selling, with no signs of a broad decline. Nonetheless, there are differences across products: cross-selling is weaker among more recent cohorts for savings and investment accounts, while remains relatively stable for mortgages. These trends echo Brunetti et al. (2014), suggesting consumers are more likely to shop around for basic products while remaining loyal for complex services.

Digitalisation plays a dual role: it is associated with an increased likelihood of multi-banking, probably by reducing search and switching costs, especially for digitally active individuals, yet does not necessarily undermine cross-selling. Our findings do not support the hypothesis that digitalisation diminishes cross-selling through the primary current account. Digital tools may bolster cross-selling when tailored to customer preferences, enhancing convenience and personalisation. This dual effect concurs with Brits & Jonker (2025) and Abras & Mattos (2021), who observe that digital tools facilitate both diversification and relationship reinforcement.

Consumer preferences are pivotal in determining cross-selling and multi-banking. We find that perceived single-banking benefits are associated with increased cross-selling opportunities and less multi-banking, consistent with Van der Cruysen & Diepstraten (2017), who highlight trust and convenience as primary drivers of product bundling. Conversely, those less convinced of the benefits of single-banking are more likely to diversify their financial relationships.

We observe limited impact from perceived transparency of financial terms on cross-selling or multi-banking. It appears that perceived transparency is positively associated with the allocation of financial products across providers rather than with the decision to engage in multi-banking. Although economic theory posits that transparency intensifies competition, our results differ from Carlin (2009) and Inakura & Shimizutani (2010), who argue that transparency can reduce customer lock-in and promote switching. This divergence may reflect persistent behavioural frictions, such as inertia, trust, or cognitive overload, that deter switching despite accessible information.

For policy purposes, our results imply that traditional banks may continue leveraging the primary current account for cross-selling, but must adapt strategically. Where cross-selling opportunities have weakened, notably in savings, banks may need to revise pricing strategies and value propositions. Digital innovation and personalised services could enhance single-banking, especially for those valuing convenience.

More broadly, digitalisation has broadened consumers' use of financial products across providers. Yet, the shift towards digital banking, risks marginalising bank customers with limited digital skills, potentially threatening financial inclusion. Banks should ensure accessibility for all, including digitally vulnerable customers and support initiatives aiding online financial management. In this regard, initiatives by the banking and public sector aimed at supporting digitally vulnerable individuals in managing their financial affairs online may increase overall welfare.

Regulators also play a key role. Continued efforts to lower switching frictions are essential for competition. While reforms have not yet led to widespread multi-banking, they have expanded consumer choice in certain product markets. Ensuring that the benefits of increased competition extend to all consumers, not just the digitally adept, requires parallel investments in digital literacy and the preservation of inclusive service channels.

The study has limitations. It fully relies on Dutch data, which may not be directly applicable to countries with differing banking structures, digital adoption, or demographics. While the sample size supports robust conclusions about general financial product acquisition trends, caution is warranted for specific product analyses. Furthermore, our survey does not allow to distinguish which financial product triggers the acquisition of another product when someone simultaneously opens a current account and another financial product. Future research should address these limitations through cross-country comparisons and further exploration of drivers behind product acquisition.

In conclusion, the current account has remained an important anchor for the bank-customer relationships. Our findings suggest that overall, cross-selling shows no broad decline, although cross-selling is becoming more contingent on product type, consumer preferences, and digital engagement. Banks and policymakers alike must navigate this evolving landscape to ensure that retail banking remains cost-efficient, competitive and inclusive.

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Appendix A

Table A.1: Bivariate probit results selling financial products by the main bank and other financial institutions

	Baseline		Model 2		Model 3		Model 4	
	Main bank	Other f.i.	Main bank	Other f.i.	Main bank	Other f.i.	Main bank	Other f.i.
Prim. current account ≤ 1979	0.10*** (0.02)	0.14*** (0.04)	0.08*** (0.03)	0.12*** (0.05)	0.10*** (0.03)	0.12** (0.05)	0.10*** (0.03)	0.08* (0.05)
1980 - 1999	0.07*** (0.02)	0.19*** (0.04)	0.03 (0.02)	0.13*** (0.04)	0.04 (0.02)	0.14*** (0.04)	0.04 (0.03)	0.13*** (0.05)
2000 - 2009	0.04 (0.03)	0.09** (0.04)	0.02 (0.03)	0.07 (0.04)	0.03 (0.03)	0.08* (0.04)	0.03 (0.03)	0.05 (0.05)
ABN	0.01 (0.02)	-0.10*** (0.03)	0.00 (0.02)	-0.09*** (0.03)	0.00 (0.02)	-0.09*** (0.03)	-0.01 (0.02)	-0.09*** (0.03)
RABO	0.05** (0.02)	-0.09*** (0.03)	0.03* (0.02)	-0.09*** (0.03)	0.02 (0.02)	-0.08*** (0.03)	0.02 (0.02)	-0.05* (0.03)
SNS	0.01 (0.03)	-0.06 (0.05)	0.03 (0.03)	-0.02 (0.05)	0.03 (0.03)	-0.03 (0.06)	0.06 (0.04)	0.00 (0.06)
Other banks	0.08** (0.03)	0.08 (0.05)	0.07** (0.03)	0.06 (0.06)	0.08** (0.04)	0.07 (0.06)	0.08** (0.04)	0.08 (0.06)
Dig. experience					0.03*** (0.01)	0.04*** (0.01)	0.03*** (0.01)	0.04*** (0.01)
Dig. multi-banking					0.03*** (0.01)	0.04*** (0.01)	0.03*** (0.01)	0.05*** (0.02)
Benefits single-banking							0.02*** (0.01)	-0.09*** (0.02)
Transparency							-0.01 (0.01)	-0.00 (0.01)
Male			0.00 (0.01)	0.05** (0.02)	-0.00 (0.02)	0.04 (0.02)	0.01 (0.02)	0.03 (0.02)
Age ≤ 24			-0.06 (0.04)	-0.07 (0.07)	-0.02 (0.05)	-0.03 (0.08)	-0.02 (0.05)	-0.01 (0.08)
Age 25 - 34			-0.00 (0.03)	-0.08 (0.05)	0.00 (0.03)	-0.11** (0.05)	0.01 (0.03)	-0.10* (0.05)
Age 45 - 54			-0.01 (0.02)	-0.02 (0.04)	0.02 (0.03)	-0.01 (0.04)	0.01 (0.03)	-0.02 (0.04)
Age 55 - 64			-0.00 (0.03)	-0.07 (0.04)	0.02 (0.03)	-0.04 (0.04)	0.03 (0.03)	-0.05 (0.04)
Age ≥ 65			-0.01 (0.03)	-0.10** (0.04)	0.02 (0.03)	-0.03 (0.05)	0.02 (0.03)	-0.04 (0.05)
Education ≥ BA			0.02 (0.02)	0.11*** (0.02)	0.01 (0.02)	0.08*** (0.03)	0.01 (0.02)	0.08*** (0.03)
Monthly HH income EUR 1801 – 2600			0.07*** (0.02)	0.08** (0.04)	0.04* (0.03)	0.00 (0.04)	0.04 (0.03)	0.01 (0.05)
Monthly HH income ≥ EUR 2601			0.09*** (0.02)	0.10*** (0.04)	0.07*** (0.03)	0.06 (0.04)	0.07** (0.03)	0.06 (0.04)
Region north			-0.03 (0.02)	-0.00 (0.04)	-0.03 (0.03)	-0.01 (0.04)	-0.04 (0.03)	-0.01 (0.04)
Region east			-0.03 (0.02)	-0.06* (0.03)	-0.03 (0.02)	-0.07** (0.03)	-0.03 (0.02)	-0.06* (0.03)
Region south			-0.01 (0.02)	0.00 (0.03)	0.00 (0.02)	0.03 (0.03)	0.00 (0.02)	0.05 (0.03)
Homeowner			0.07*** (0.02)	0.16*** (0.03)	0.05*** (0.02)	0.15*** (0.03)	0.05** (0.02)	0.12*** (0.03)
Partner			-0.05** (0.02)	-0.02 (0.03)	-0.06*** (0.02)	-0.03 (0.03)	-0.06** (0.02)	-0.03 (0.03)
Children (#)			-0.00 (0.01)	-0.03** (0.01)	0.00 (0.01)	-0.03** (0.01)	0.00 (0.01)	-0.04*** (0.01)
Urbanisation degree			0.00 (0.01)	-0.01 (0.01)	0.01 (0.01)	-0.01 (0.01)	0.01 (0.01)	-0.01 (0.01)
Wealth/EUR 100,000			0.03** (0.01)	0.04 (0.02)	0.03** (0.01)	0.03 (0.02)	0.03** (0.01)	0.02 (0.02)
ρ	0.45*** (0.04)		0.35*** (0.05)		0.33*** (0.05)		0.35*** (0.06)	
Log likelihood	-2007.77		-1,655.50		-1,271.24		-1,169.41	
χ ²	70.61		231.07		197.75		217.99	
No obs.	2,072		1,829		1,469		1,387	

Note: This table shows marginal effects from bivariate probit regression results, explaining whether the respondent held or has hold other financial products than a current account at her main bank (columns heading 'main bank') and whether she held other financial products at other financial institutions in 2024 (columns heading 'other f. i.'). Standard errors are clustered at household level. The reference person is a woman, aged between 35 and 44, who opened her primary current account at ING Bank between 2010 and 2024. Her educational level is below bachelor's degree, her monthly household income is below EUR 1,800, she lives in the Western part of the Netherlands, she is single and not a homeowner. ***, ** and * denote significance at the 0.01, 0.05 and 0.10-level.

Table A.2: OLS regression results Share multi-banking in total number of other financial products

Variables	Baseline	Model 2	Model 3	Model 4
Primary current account ≤ 1979	0.01 (0.02)	0.03 (0.03)	0.01 (0.03)	-0.01 (0.03)
1980 - 1999	0.06** (0.02)	0.05* (0.03)	0.06* (0.03)	0.05 (0.03)
2000 - 2009	0.03 (0.03)	0.02 (0.03)	0.02 (0.03)	0.00 (0.03)
ABN	-0.07*** (0.02)	-0.07*** (0.02)	-0.08*** (0.02)	-0.07*** (0.02)
RABO	-0.09** (0.01)	-0.08*** (0.02)	-0.09*** (0.02)	-0.07*** (0.02)
SNS	-0.04 (0.03)	-0.01 (0.03)	-0.03 (0.04)	-0.02 (0.04)
Other banks	0.04 (0.02)	0.05 (0.04)	0.04 (0.04)	0.05 (0.04)
Digital experience			0.00 (0.01)	0.00 (0.01)
Digitalisation multi-banking			0.01 (0.01)	0.01 (0.01)
Benefits single-banking				-0.07*** (0.01)
Transparency				0.01* (0.01)
Male		0.01 (0.01)	0.01 (0.01)	0.00 (0.02)
Age ≤ 24		0.00 (0.04)	0.01 (0.04)	0.02 (0.04)
Age 25 - 34		-0.05* (0.03)	-0.07** (0.03)	-0.06* (0.03)
Age 45 - 54		-0.01 (0.02)	-0.02 (0.03)	-0.02 (0.03)
Age 55 - 64		-0.05* (0.02)	-0.05* (0.03)	-0.06** (0.03)
Age ≥ 65		-0.07*** (0.03)	-0.05 (0.03)	-0.06* (0.03)
Education ≥ BA		0.04*** (0.01)	0.03** (0.02)	0.04** (0.02)
Monthly HH income 1801 - 2600		0.02 (0.03)	-0.01 (0.03)	-0.00 (0.03)
Monthly HH income ≥ 2601		0.02 (0.02)	0.01 (0.03)	0.03 (0.03)
Region north		0.00 (0.02)	-0.00 (0.03)	-0.00 (0.03)
Region east		-0.03 (0.02)	-0.03 (0.02)	-0.02 (0.02)
Region south		-0.01 (0.02)	0.02 (0.02)	0.03 (0.02)
Homeowner		0.06** (0.02)	0.06*** (0.02)	0.05** (0.02)
Partner		0.02 (0.02)	0.02 (0.02)	0.01 (0.02)
Children (#)		-0.02** (0.01)	-0.02* (0.01)	-0.02** (0.01)
Urbanisation degree		-0.00 (0.01)	-0.00 (0.01)	-0.01 (0.01)
Wealth/EUR 1,000		0.01* (0.00)	0.01 (0.02)	0.07 (0.07)
Constant	0.35*** (0.05)	0.29*** (0.04)	0.28*** (0.06)	0.51** (0.20)
R ²	0.03	0.06	0.07	0.10
No obs.	1,911	1,694	1,376	1,303

Note: This table shows OLS regression results explaining the ratio of the number of other financial products held at other financial institutions in 2024 relative to the number of other financial products that are held or have been held at the main bank +1. Standard errors are clustered at household level. The sample was restricted to respondents who hold or has held other financial products at their main bank or held other financial products at other financial institutions in 2024 and who could indicate in which period they opened their primary current account. The reference person in the regressions is a woman, aged between 35 and 44, who opened her primary current account at ING Bank between 2010 and 2024. Her educational level is below bachelor's degree, her monthly household income is below EUR 1,800, she lives in the Western part of the Netherlands, she is single and not a homeowner. ***, ** and * denote significance at the 0.01, 0.05 and 0.10-level.

Appendix B

Table B.1: Robustness checks bivariate probit estimation results

	Check 1: financial knowledge				Check 2: equal sample size baseline and model 4								Check 3: adjusted cross-selling			
	Baseline		Model 4		Baseline		Model 2		Model 3		Model 4		Baseline		Model 4	
	Main bank	Other f.i.	Main bank	Other f.i.	Main bank	Other f.i.	Main bank	Other f.i.	Main bank	Other f.i.	Main bank	Other f.i.	Main bank	Other f.i.	Main bank	Other f.i.
Prim. current account ≤ 1979	0.10*** (0.02)	0.14*** (0.04)	0.10*** (0.03)	0.08* (0.05)	0.10*** (0.03)	0.12*** (0.05)	0.09*** (0.03)	0.09*** (0.05)	0.10*** (0.03)	0.10* (0.05)	0.10*** (0.03)	0.08* (0.05)	0.13*** (0.03)	0.14*** (0.04)	0.12*** (0.04)	0.08 (0.05)
1980 - 1999	0.07*** (0.02)	0.19*** (0.04)	0.04 (0.03)	0.13*** (0.05)	0.05* (0.03)	0.16*** (0.05)	0.03 (0.03)	0.14*** (0.05)	0.04 (0.03)	0.14*** (0.05)	0.04 (0.03)	0.13*** (0.05)	0.10*** (0.03)	0.19*** (0.04)	0.07** (0.03)	0.13*** (0.05)
2000 - 2009	0.04 (0.03)	0.09** (0.04)	0.03 (0.03)	0.05 (0.05)	0.04 (0.03)	0.07 (0.05)	0.03 (0.03)	0.07 (0.05)	0.03 (0.03)	0.07 (0.05)	0.03 (0.03)	0.05 (0.05)	0.06 (0.03)	0.09** (0.04)	0.04 (0.04)	0.05 (0.05)
ABN	0.01 (0.02)	-0.10*** (0.03)	-0.01 (0.02)	-0.09*** (0.03)	-0.00 (0.02)	-0.08** (0.04)	-0.01 (0.02)	-0.08** (0.04)	-0.01 (0.02)	-0.08** (0.04)	-0.01 (0.02)	-0.09*** (0.03)	-0.02 (0.02)	-0.10*** (0.03)	-0.03 (0.03)	-0.09*** (0.03)
RABO	0.05** (0.02)	-0.09*** (0.03)	0.02 (0.02)	-0.05* (0.03)	0.03 (0.02)	-0.08*** (0.03)	0.03 (0.02)	-0.08** (0.03)	0.03 (0.02)	-0.07** (0.03)	0.02 (0.02)	-0.05* (0.03)	0.03 (0.02)	-0.09*** (0.03)	0.01 (0.02)	-0.05* (0.03)
SNS	0.01 (0.03)	-0.06 (0.05)	0.05 (0.04)	0.00 (0.06)	0.04 (0.04)	-0.04 (0.06)	0.05 (0.04)	-0.01 (0.06)	0.06 (0.04)	0.01 (0.06)	0.06 (0.04)	0.00 (0.06)	-0.02 (0.04)	-0.06 (0.05)	0.01 (0.04)	0.00 (0.06)
Other banks	0.08** (0.03)	0.08 (0.05)	0.08** (0.04)	0.08 (0.06)	0.08* (0.04)	0.08 (0.06)	0.08** (0.04)	0.07 (0.06)	0.09** (0.04)	0.04*** (0.01)	0.08** (0.04)	0.08 (0.06)	0.10** (0.04)	0.08 (0.05)	0.08** (0.04)	0.08 (0.06)
Dig. experience			0.02*** (0.01)	0.04*** (0.01)					0.03*** (0.01)	0.04*** (0.01)	0.03*** (0.01)	0.04*** (0.01)			0.02*** (0.01)	0.04*** (0.01)
Dig. multi-banking			0.03*** (0.01)	0.05*** (0.02)					0.03*** (0.01)	0.05*** (0.01)	0.03*** (0.01)	0.05*** (0.02)			0.04*** (0.01)	0.05*** (0.02)
Benefits single-banking			0.03*** (0.01)	-0.09*** (0.02)							0.02*** (0.01)	-0.09*** (0.02)			0.02* (0.01)	-0.09*** (0.02)
Transparency			-0.02 (0.01)	-0.00 (0.01)							-0.01 (0.01)	-0.00 (0.01)			-0.01 (0.01)	0.00 (0.01)
Financial knowledge			0.02** (0.01)	-0.00 (0.02)												
Demographic controls	no		yes		no		yes		yes		yes		no		yes	
ρ	0.45*** (0.04)		0.35*** (0.06)		0.41*** (0.05)		0.34*** (0.06)		0.32*** (0.06)		0.26*** (0.06)		0.37*** (0.04)		0.35*** (0.06)	
Log likelihood	-2007.77		-1,166.80		-1272.51		-1,204.97		-1,186.28		-1,315.84		-2,202.03		-1,169.41	
χ ²	70.61		223.89		43.44		156.38		191.85		204.72		67.03		217.99	
No obs.	2,072		1,387		1,387		1,387		1,387		1,387		2,072		1,387	

Note: This table shows for three robustness checks the marginal effects from bivariate probit regression results, explaining whether the respondent held or has hold other financial products than a current account at the main bank (columns heading 'main bank') and whether she held such financial products at other financial institutions in 2024 (columns heading 'other f. i.'). Standard errors are clustered at household level. The sample was restricted to respondents who could indicate in which period they opened their primary current account. The reference person in the regressions is a woman, aged between 35 and 44, who opened her primary current account at ING Bank between 2010 and 2024. Her educational level is below bachelor's degree, her monthly household income is below EUR 1,800, she lives in the Western part of the Netherlands, she is single and not a homeowner. ***, ** and * denote significance at the 0.01, 0.05 and 0.10-level.

Table B.2: Hypotheses testing robustness checks bivariate probit regressions

Current account cohort	Check 1: financial knowledge		Check 3: adjustment cross-selling	
	χ^2	p-value	χ^2	p-value
H1a: D_FP_main_bank	13.95***	0.003	10.27**	0.016
H1b: D_FP_other_fi	8.88**	0.031	8.76**	0.032
Digitalisation				
H2a: D_FP_main_bank	15.65***	<0.001	16.93***	<0.001
H2b: D_FP_other_fi	23.23***	<0.001***	23.40***	<0.001
H2c: D_FP_main_bank & D_FP_other_fi	0.22	0.894	0.16	0.923
Benefits single-banking				
H3a: D_FP_main_bank	4.53**	0.033	2.82*	0.093
H3b: D_FP_other_fi	23.99***	<0.001	23.67***	<0.001
Transparency				
H4a: D_FP_main_bank	2.29	0.130	1.29	0.256
H4b: D_FP_other_fi	0.00	0.994	0.00	0.995

Note: This table shows Wald tests performed based on the outcomes of Model 4, presented in Table B.1. ***, ** and * denote significance at the 0.01, 0.05 and 0.10-level.

Table B.3: Robustness checks OLS regression results relative intensity multi-banking for other financial products

Variables	Check 1: financial knowledge		Check 2: equal sample size				Check 3: adjustment cross selling	
	Baseline	Model 4	Baseline	Model 2	Model 3	Model 4	Baseline	Model 4
Primary current account $\leq$ 1979	0.01 (0.02)	-0.01 (0.03)	-0.00 (0.03)	-0.00 (0.03)	0.00 (0.03)	-0.01 (0.03)	-0.00 (0.03)	-0.02 (0.04)
1980 - 1999	0.06** (0.02)	0.05 (0.03)	0.06* (0.03)	0.05* (0.03)	0.05* (0.03)	0.05 (0.03)	0.04 (0.03)	0.03 (0.03)
2000 - 2009	0.03 (0.03)	0.00 (0.03)	0.01 (0.03)	0.01 (0.03)	0.01 (0.03)	0.00 (0.03)	0.02 (0.03)	0.00 (0.04)
ABN	-0.07*** (0.02)	-0.07*** (0.02)	-0.07*** (0.02)	-0.07*** (0.02)	-0.07*** (0.02)	-0.07*** (0.02)	-0.06*** (0.02)	-0.05** (0.02)
RABO	-0.09** (0.01)	-0.07*** (0.02)	-0.09*** (0.02)	-0.08*** (0.02)	-0.08*** (0.02)	-0.07*** (0.02)	-0.08*** (0.02)	-0.06*** (0.02)
SNS	-0.04 (0.03)	-0.02 (0.04)	-0.05 (0.04)	-0.03 (0.04)	-0.02 (0.04)	-0.02 (0.04)	-0.02 (0.04)	0.01 (0.04)
Other banks	0.04 (0.02)	0.05 (0.04)	0.04 (0.04)	0.05 (0.04)	0.05 (0.04)	0.05 (0.04)	0.03 (0.04)	0.06 (0.04)
Digital experience		0.00 (0.01)			0.00 (0.01)	0.00 (0.01)		0.00 (0.01)
Digitalisation multi-banking		0.01 (0.01)			0.01 (0.01)	0.01 (0.01)		0.00 (0.01)
Benefits single-banking		-0.07*** (0.01)				-0.07*** (0.01)		-0.07*** (0.01)
Transparency		0.02* (0.01)				0.01* (0.01)		0.02* (0.01)
Financial knowledge		-0.01 (0.01)						
Constant	0.35*** (0.02)	0.54*** (0.08)	0.37*** (0.03)	0.33*** (0.04)	0.29*** (0.06)	0.51*** (0.08)	0.38*** (0.03)	0.55*** (0.09)
Demographic controls	No	Yes	No	Yes	Yes	Yes	No	Yes
R ²	0.03	0.11	0.03	0.07	0.07	0.10	0.02	0.09
No obs.	1,911	1,303	1,303	1,303	1,303	1,303	1,870	1,279

Note: This table shows the OLS regression results of three robustness checks. The OLS regression results explaining the share in the number of other financial products held at other financial institutions in 2024 relative to the total number of other financial products that are held or have been held at the main bank and at other institutions in 2024. In the first robustness check the variable 'Financial knowledge' is added to the set of controls. In the second robustness check we use the same sample of respondents for the baseline as for the other models. In the third robustness check, we use an adjusted dependent variable explaining the share in the number of other financial products held at other financial institutions in 2024 relative to the total number of other financial products that are held or have been held at the main bank at or after opening a current account and those held at other institutions in 2024. Standard errors are clustered at household level. The sample was restricted to respondents who hold or has held other financial products at their main bank, once they opened their account or later, or who hold other financial products at other financial institutions in 2024 and who could indicate in which period they opened their main current account. The reference person in the regressions is a woman, aged between 35 and 44, who opened her primary current account at ING Bank between 2010 and 2024. Her educational level is below bachelor's degree, her monthly household income is below EUR 1,800, she lives in the Western part of the Netherlands, she is single and not a homeowner. ***, ** and * denote significance at the 0.01, 0.05 and 0.10-level.

Table B.4: Hypotheses testing robustness checks OLS regressions

	Check 1: financial knowledge				Check 3: adjustment cross-selling			
	Baseline model		Model 4		Baseline model		Model 4	
	χ^2	p-value	χ^2	p-value	χ^2	p-value	χ^2	p-value
H1c: Current account cohorts ≤ 1979 , 1980 – 1999 and 2000 - 2009	4.59***	0.003	2.99**	0.030	3.21**	0.022	1.57	0.194
H2c: Digitalisation: Dig_experience & Dig_Multi-banking			0.57	0.564			0.16	0.852
H3c: Benefits single-banking			44.33***	<0.001			36.87***	<0.001
H4c: Transparency			3.29*	0.070			2.81*	0.094

Note: This table shows Wald tests performed based on the outcomes presented in Table B.3. ***, ** and * denote significance at the 0.01, 0.05 and 0.10-level.

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