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Costs and benefits of alias use in the payment system

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Summary

Large-scale use of aliases could help increase competition in the payment system by lowering switching barriers. The mandatory, market-wide adoption of a new, robust alias would deliver structural benefits, but its introduction would entail high one-off costs for all operators in the payment chain. In the case of existing aliases (such as a telephone number or e-mail address) the cost-benefit balance is likely to be less favourable.

One of the measures that could help reduce switching costs in the payment system, and which has been debated for a long time, is bank account number portability (the ability to keep your payment account number when you switch to a new provider). The use of aliases is an alternative to number portability that can make it easier to switch payment account provider, thereby increasing the switching threat. Alias use involves linking an alias (such as a telephone number or e-mail address) to the IBAN. It then becomes easier to switch payment account provider because account holders do not have to inform their contacts about their new IBAN, as long as those contacts already have the alias. The alias remains unchanged and is used in payment transactions. The introduction costs may be lower, so the cost-benefit analysis of alias use could prove more favourable than that of number portability. This report provides insight into the costs and benefits of alias use as part of a wider examination by DNB of different types of aliases that could be used.

We first assess the costs and benefits of the central project alternative: a new mandatory, robust alias introduced in (and possibly only in) the Netherlands. If the alias is not mandatory, it will not be adopted widely in the market. The benefits will then be much lower, because it will still be necessary to notify some payment contacts of the switch. Our assumption is that the alias would only be introduced in the Netherlands, because the Dutch government cannot impose its use throughout the EU. We have calculated the costs and benefits of this mandatory, robust alias by comparison with the current situation (with no payment account portability but with the availability of the Switching Service).

The costs and benefits have been assessed on the basis of existing literature. For the benefits we have adopted the approach used in Decisio (2016), adjusting and updating a number of assumptions. The main adjustment is that we have assumed, on the basis of recent research (Panteia, 2018), that the scope for limiting the x-inefficiency through greater competition is limited because key parts of the Dutch payment system are already relatively efficient. We have based the costs largely on an ex-post evaluation of the migration to IBAN by Europe Economics (2016). Various operators in the payment chain confirm that the activities and costs of a large-scale transition to alias use are broadly comparable to those of the IBAN introduction. On some points we have taken a reasoned decision to diverge from Europe Economics. For payment account providers the introduction of an alias requires a less fundamental system modification than the IBAN introduction, so we have reduced the costs. The Europe Economics assessment was also based on the costs of large direct debit issuers with economies of scale. In our calculation we have therefore added a mark-up to the costs for smaller direct debit issuers.

The *direct benefits* are lower switching costs (administrative operations) for payment account holders (private individuals and SMEs) and direct debit issuers after the introduction of the alias. Over a ten-year period these benefits amount to more than €420 million. There are also *indirect benefits* since lower switching costs lead to greater competition in the payment account market, putting downward pressure on market prices and profit margins. A lower market price reduces the producer surplus in favour of the consumer surplus. This shift has no impact on the overall social benefits, so has not been included in the table. The total benefits do increase, however, if the increased competition leads to reduced inefficiency. These benefits accrue in the first place to the providers of payment services, but can be passed on fully or partly to the account holders. Since large parts of the Dutch payment system are already relatively competitive, we estimate the indirect benefits from reducing inefficiency at €66 million. Another reason for assuming that the indirect benefits are limited is that market competition increases organically due to the arrival of new entrants, so inefficiencies are already reduced. In that case it is likely that the additional positive effect of alias use on competition in the future will be less than in our estimate. A second observation is that alias use would lead to lower switching barriers in the domestic payments market, but at the same time erect a barrier to foreign entrants, as they would have to implement the alias in their systems before they can enter. This would also limit the increase in competition in the Dutch market as a result of the introduction of a robust alias.

Table S.1 Present value of costs and benefits of introducing a robust alias over a ten-year period

Structural direct benefits (switching costs)	421
Structural indirect benefits (inefficiency)	66
Total benefits	487
One-off costs of public administrative bodies	-27
One-off and structural system costs of payment account providers, direct debit issuers and others	-825
One-off costs of payment account holders	-81
Structural costs of public administrative bodies (alias register)	-8
Structural costs of payment account providers and others	-125
Total costs	-1,067
Net benefits and costs	-580

The government and DNB incur *one-off costs* for the introduction of the alias due to legislative changes, implementation plans and support and information for all account holders concerning the alias. An alias register must also be provided and maintained, in which all aliases are linked to the underlying IBAN. Payment account providers, direct debit issuers and operators delivering bulk SCT files incur high one-off costs (including system costs) as a result of the transition to a robust alias, because all operators have to implement changes in their accounting records and systems to introduce the alias, including system modifications, look-up costs and conversion costs.

The present value of the costs over a ten-year period (also used in Decisio, 2016) is estimated to be well over €800 million. All private individuals and SMEs also incur one-off look-up costs (as a result of having to look up all the aliases of their payment contacts once at the time of introduction). There are also structural costs for the government (maintenance of the alias register) and for payment account providers and others, as systems become more complex, for example because two payment data fields (IBAN and Alias) have to be maintained on an ongoing basis. In addition, ongoing checks have to be made in the alias register to ascertain which payment account provider is linked to the alias at a given time. Overall, this results in a negative balance of almost €600 million over a ten-year period.

The intuition behind this major difference between costs and benefits is that the benefits are driven by a relatively small group of switching individuals and SMEs. The positive effect of greater competition due to reduced inefficiency in the payment system is presumably limited because the Dutch payment system is already relatively efficient. In order to make these benefits possible, all operators in the payment chain (including 13 million individuals and 1.2 million SMEs) have to make a substantial one-off effort to incorporate the aliases into their existing accounting records and systems. It would take time (over 30 years assuming constant costs and benefits) to recoup this one-off effort. The sensitivity analyses show that the cost-benefit balance is sensitive to assumptions concerning the percentage of switchers using the Switching Service, the number of primary account holders, the indirect benefits and the system costs. That analysis also shows that switching costs could be substantially reduced from the current level (by €100-150 million over 10 years) by significantly increasing the use of the Switching Service by private payment account holders to 80%. If that increases the switching threat, indirect benefits may also arise due to greater competition.

Our second step involved scoring the existing or prospective aliases – telephone number, e-mail address, Citizen Service Number (BSN), chamber of commerce number, chamber of commerce establishment number, VAT ID and Legal Entity Identifier (LEI) – against this central project alternative. That comparison shows that the existing aliases are likely to have a less favourable cost-benefit balance than the robust alias. Those with the greatest potential reach are the mobile telephone number and e-mail address. Since these are not necessarily self-checking numbers, however, additional costs would have to be incurred in order to guarantee the necessary reliability. The BSN has potential as it is a self-checking number. A disadvantage is that the BSN is currently a privacy-sensitive number and its use by third operators is subject to tight legal restrictions. Using the BSN as an IBAN alias would compromise holders' privacy and probably lead to a need for a 'new BSN' with associated costs. Of the four business aliases, the VAT ID scores best in relative terms. The LEI is an identifier that by no means all businesses possess. The establishment number and the chamber of commerce number (issued before 2010) are not self-checking. These aliases are not available to households, so they would not provide a comprehensive solution for the lowering of switching barriers.

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1 Introduction and research question

Background and question

Competition generally leads to a better offering at a lower price. Switching barriers impede active consumer behaviour, potentially leading to higher prices, lower efficiency and less innovation in the retail banking sector. A greater switching threat is one of the ways in which competition between payment account providers can be promoted. One of the measures that could help reduce switching costs in the payment system, and which has been debated for a long time, is bank account number portability (the ability to take your payment account number with you when you switch to a new provider). A previous cost-benefit analysis by the European Commission (EC) (2013), however, showed that the benefits of introducing generic number portability were outweighed by the costs.

Alias use is an alternative to number portability that can make it easier to switch payment account provider and hence increase the switching threat, potentially at lower cost to the payment account provider. Alias use involves linking an alias (such as a telephone number or e-mail address) to the IBAN. It then becomes easier to switch payment account provider because account holders do not have to inform their contacts about their new IBAN, as long as those contacts already have the alias. The alias remains unchanged and is used in payment transactions. The alias is linked to the new IBAN of the payment account in the background. The introduction costs may be lower, so the cost-benefit analysis of alias use could prove more favourable than that of number portability.

Question

Following the long-standing policy discussion on number portability (including with regard to payment accounts) and alias use as a means of reducing switching costs and increasing competition between payment account providers (see National Forum on the Payment System, 2018), the Minister of Finance in the House of Representatives promised to request DNB to examine the potential for promoting switching through the use of aliases. The purpose of the DNB examination is to answer the following question:

“Which type of alias use would simplify bank account switching at national level for:

- consumers;*
- business customers;*
- both consumers and business customers?”*

The examination indicates: (1) which aliases are suitable for linking to an IBAN, the advantages and disadvantages, and (2) the costs and benefits of alias use. DNB carried out the first part itself.¹ This report focuses on the second part: *providing insight into the costs and benefits of the different types of alias use.*

¹ De Nederlandsche Bank (2020). *Verlaging van overstapdrempels in het Nederlandse betalingsverkeer: geen nummerbehoud, maar aliasgebruik?* Amsterdam: DNB

Approach and method

This implies that separate cost-benefit analyses are made for an exhaustive list of different aliases. We start with the central project alternative of a new, mandatory, robust alias. This is an alias that meets all – or almost all – criteria for a robust alias. It is described in more detail in Chapter 2 (see also DNB, 2020). The obligation is necessary to guarantee the large-scale introduction of the alias (among both households and small business users and by all their direct debit contacts and payment agencies (for example for allowances and benefit payments), so as to maximise the benefits of introducing it. We also assume that this alias will only be introduced in the Netherlands (for electronic payments from and to IBANs with the country code ‘NL’), because the Dutch government cannot impose the mandatory introduction of the alias throughout the EU. We calculate the costs and benefits of this mandatory, robust alias. We then score the existing or prospective aliases – telephone number, e-mail address, Citizen Service Number (BSN), chamber of commerce number, chamber of commerce establishment number, VAT ID and Legal Entity Identifier (LEI) – against this central project alternative. In all cases we use the current situation as a zero alternative, i.e. including the existence of the Switching Service in its current form. A more detailed description of our step-by-step plan can be found in Annex A.

The assessment of costs and benefits is based on existing literature and documentation (such as previous research on the benefits of number portability by ACM/Decisio, previous research by DNB, the ECB and Europe Economics). These calculations have been validated with cost estimates as supplied by various banks and other players in the payment services market, a number of large direct debit issuers and the Dutch Payments Association (administrator of the Switching Service). These estimates have been discussed in interviews and incorporated in a cost model designed in consultation with DNB and the Dutch Payments Association. These are rough estimates of the introduction costs that in some cases are based on cost estimates for the previous transition to IBAN in 2013/2014 in the light of the transition to the Single Euro Payments Area (SEPA).

Reader’s guide

In the following chapter we describe the (central) project alternative, the mandatory robust alias. In Chapter 3 we then deal in turn with the benefits and costs of the robust alias. In that chapter we also present a number of sensitivity analyses for the main parameters and uncertainties in the calculations. In Chapter 4 we score the existing aliases relative to the robust alias.

2 Robust alias

2.1 Introduction

DNB concludes that no existing alias is sufficiently suitable for large-scale alias use (for IBANs) in the payment system (see DNB, 2020). This means an alternative, newly developed, robust alias will be required if it is decided to introduce the use of aliases in the Netherlands. The cost-benefit analysis in the next chapter is therefore based on this new, alternative robust alias. This alias must meet the following requirements according to the National Forum on the Payment System (2018):

- a standardised numerical or alphanumerical identifier;
- owned by the consumer or business;
- neutral (no reference to the name of a bank, private individual or business);
- issued centrally (no discretionary options);
- self-checking;
- unique and issued only once (so no reissue);
- stable (allocated semi-permanently to consumers and businesses indiscriminately);
- privacy-insensitive (not linked to any other purposes);
- capable of expansion for use with multiple accounts (serial numbers);
- able to be used throughout the SEPA and, to enforce such use, mandatory under European law.

This chapter describes the main points of a system of robust aliases for IBANs. The starting point is a robust alias that meets all the above requirements, except for the last one (we assume that aliases will only be used for Dutch payment accounts because the Netherlands cannot unilaterally impose their use in the EU).

We use the Swedish Bankgiro system as a framework to illustrate the potential use of aliases for IBANs in the Netherlands.² Business customers in Sweden³ have both a payment account number and a Bankgiro number. This Bankgiro number is used to send and receive payments. Bankgiro numbers are not issued by banks but by Bankgirot, the national payments processor. The idea was there would be no need for debtors and creditors to know each other's account details. In communications with their customers, such as invoices, businesses could simply state their Bankgiro number.

The Bankgiro number is a self-checking number linked to the relevant company's account number in Bankgirot's central back office. Multiple Bankgiro numbers can be linked to a single payment account. Bankgiro numbers can only be used for domestic payments in Swedish kronas. The payment account number (IBAN) must still be stated in communications with non-domestic contacts.

² <https://www.bankgirot.se/en/about-bankgirot/our-offer/payment-systems/bankgiro-system/>

³ Although Bankgiro numbers are available to consumers, they make little use of them. Specifically for direct debits, a direct debit issuer gives consumers a unique identification number that is linked to their account number centrally at Bankgirot. If they switch to a different provider, Bankgirot links the identification number to the new payment account number.

The Bankgiro number is translated into a bank account number to execute payments. When switching to a different bank, the customer retains the same Bankgiro number. Since this is the number that is used in the payment system, the customer does not have to notify his or her contacts of a new payment account number. The new payment account number (at the new bank) is linked to the existing, ported Bankgiro number. The Bankgiro number thus acts as an ‘alias’ for the payment account number.

2.2 Project alternative

Compared to the current situation, the introduction of a robust alias requires the main changes set out below. These also form the basis for the cost-benefit analysis in the following chapter.

Introduction and scope

- A robust alias is introduced in line with the requirements set out in section 2.1. This new numerical or alphanumeric self-checking number is introduced centrally and issued by payment account providers.
- Support for aliases is mandatory for payment account providers operating in the Netherlands (or issuing IBANs containing the country code ‘NL’). Aliases can be used for consumers, business and public authorities and for all common payment products and channels in the Netherlands.
- This cost-benefit analysis is based on full migration for payments between Dutch IBANs.⁴ This means that consumers, businesses and public authorities in principle initiate payments based on an alias and no longer on the basis of an IBAN. The IBAN thus disappears into the background. The alias is stated on debit cards and in digital payment environments, but the IBAN is also still shown. Although the alias becomes the primary form of payment identification, the IBAN still has to be used for payments from and to parties outside the Netherlands (who have a non-Dutch IBAN).
- Dutch and possibly also European legislation would have to be amended to allow Dutch rules in this area to differ from SEPA, which requires electronic payments to be based on the IBAN.

Central link table

- After the aliases have been created, they must be linked to the IBANs. This should be done centrally. This requires cooperation and coordination of payment account providers. Only in that way can a payment account holder be allocated a consecutive series of alias numbers for multiple payment accounts at different banks.
- Payment account providers then issue the linked aliases to their customers. These customers must carry out a once-only check that the payment accounts/aliases belong to them and they must confirm this to the payment account provider.
- The linked alias/IBAN combinations are entered in a centrally managed link table. This must then be administered and mutated as necessary.

⁴ This follows from the National Forum on the Payment System (2018): “For robust European aliases to effectively remove the (switching) barrier, they must be implemented in as large-scale a migration as possible. Market operators must make the one-off effort of switching from IBANs to aliases as a method to address payments. To maximise the effect on customer mobility, the use of aliases should be enforced by law. All this would require major investment, communications and legislative trajectories.”

- The link table must be able to be accessed confidentially, have a very high level of availability and cope with large volumes (and be suitable for processing bulk files with direct debit instructions and credit transfers). When a payment account holder switches bank account, the new payment account number (issued by the ‘new’ bank) is linked to the existing alias.

Modifications to be made by payment account providers

- Payment account providers must have technical facilities enabling their payment account holders to initiate SCT, SCT Inst and SDD transactions with an alias (instead of the IBAN) as identification. This functionality is required for all common payment products and channels in the Netherlands. In addition to the internal front and back office systems, payment account providers must also modify their user environments (websites, apps, APIs⁵) to allow the use of aliases.
- Similar modifications are required in digital delivery methods/instruments (e.g. files used by business operators for bulk payments) and other standards that are currently used for the European credit transfers (SCT and SCT_{INST}) and direct debits (SDD) in the SEPA payment system.
- Payment account providers convert aliases to IBANs in their customer interaction systems (front offices). The back offices of payment account providers can therefore continue to use the IBAN for identification purposes. It must nevertheless be possible to share a payment originator’s alias with the recipient. This means that the alias also has to go ‘through’ the back office. A field must be made available for it in the payment systems.
- The largest payment account providers will probably have to integrate a local copy of the link table in their own systems. Invoking the link table remotely for each transaction would probably cause excessive delay.
- The IBAN will continue to exist in the front office as a parallel system for transactions from and to non-Dutch IBANs, since only Dutch IBANs have an alias.

Modifications to be made by direct debit issuers and payment agencies

- Direct debit issuers and payment agencies (for example payroll processors) currently have the IBANs of their bank contacts. After the introduction of alias use, these agencies have to forward the alias concerned (and no longer the IBAN) to the payment account provider when originating a transaction.
- Direct debit issuers therefore have to add the aliases of all their bank contacts to their accounting records. Extra fields must be included to provide space for this. These fields must also be able to accommodate the self-checking nature of the robust alias.
- The aliases can probably best be retrieved by means of an online tool, linked to the central link table, enabling a direct debit issuer to obtain the associated aliases by entering a bulk file containing IBANs.

⁵ API stands for Application Programming Interface. APIs enable different operators’ computer systems to communicate with each other and are therefore important for sharing digital information.

Changes for payment account holders

- Payment account holders will have to actively confirm once that they have received their alias and that from then on they will originate payments based on this alias. This can be done, for example, by activating the alias online in the payment account provider's customer environment.
- Immediately after the introduction of alias use, payment account holders must endeavour to obtain the correct alias for their contacts. Here too it is possible to use an online tool, connected to the central link table, enabling the user to obtain the associated alias by entering an IBAN.
- A consumer or business that switches bank can continue to use the same alias in electronic payments. To enable this the old and the new payment account provider must agree the precise conversion time, as is the case with number portability when switching telephone provider. The payment account holder then does not have to notify any domestic direct debit issuers and creditors of any changes. These in turn do not have to implement any changes and are thus spared the associated administrative costs.

Migration and information

Public authorities and payment account providers must inform payment account holders fully about the changes made. This requires a general, national information campaign and various rounds of communication from payment account providers to their customers. A strategy needs to be developed particularly for inactive people who do not read communications on this subject or take no action because a payment account holder that has no working alias at the end of the transition period will be unable to participate in the Dutch payment system.

3 Costs and benefits of a robust alias

3.1 Introduction

We assess the costs and benefits of the robust alias on the basis of cost and benefits of similar transitions. We base the benefits on the previous ex-ante assessments of number portability (Decisio, 2016), because a robust alias, once introduced, offers the same benefits as number portability (switching without having to inform direct debit issuers and regular payers). With regard to costs, we assume that the level of costs incurred in a transition to a robust alias is comparable to the costs of introducing the IBAN: in some cases the costs of the alias are somewhat lower (banks' system costs), whereas in others they are higher (need to actively inform each account holder of the change). The IBAN transition costs are taken from an ex-post evaluation of this transition (Europe Economics, 2016).

An overview of the costs and benefits in a mostly unfavourable, a mostly favourable and a baseline scenario is provided in Table 3.1. The benefits due to lower switching barriers and greater competition are structural and exceed the structural costs in all three scenarios. The benefits accrue mainly to payment account holders, and if we assume that both the structural benefits and structural costs are passed on to them, the cost-benefit balance for this group is clearly positive (see also Annex B.3). The government and DNB incur limited one-off costs. The transition to a robust alias nevertheless entails high one-off costs (including system costs) because payment account providers, direct debit issuers, large payers and private and business account holders all have to modify their accounting records and systems in order to introduce the robust alias. These one-off costs are driven by the cost of system modifications by the payment account provider, direct debit issuers and organisations with a large number of outgoing payments (submitters of bulk credit transfer files). Most of the one-off costs for the transition to the alias are therefore borne primarily by the payment account providers and to a lesser extent by the other businesses (such as direct debit issuers). The larger the proportion of these one-off costs passed on to payment account providers, the further their cost-benefit balance decreases (see Annex B.3).

Table 3.1 Summary table of costs and benefits of the robust alias, (present) value in millions of euros

	Most unfavourable scenario	Baseline scenario	Most favourable scenario
Direct benefits			
Payment account holders			
Reduction in switching costs for private payment account holders	91	234	234
Reduction in switching costs for SMEs	62 ⁶	56	56
Direct debit issuers and submitters of SCT bulk files			
Reduced administrative costs	96	130	130
Indirect benefits			
Payment account providers			
Efficiency gain	0	66	331
Total benefits	248	487	751
One-off costs			
Public administrative bodies			
Development and implementation of migration plans	-4	-4	-4
Information for payment account holders	-19	-19	-5
Development and provision of alias register	-4	-4	-4
Payment account providers, direct debit issuers and submitters of SCT bulk files			
Letters to payment account holders	-29	-29	-29
System modifications	-750	-625	-375
Look-up costs	-52	-52	-52
Conversion costs	-119	-119	-119
Payment account holders			
One-off IBAN alias verification costs	-23 ⁷	-34	-34
Look-up costs	-60 ⁸	-47	-47
Structural costs			
Public administrative bodies			
Alias register maintenance costs	-8	-8	-
Payment account providers, direct debit issuers and submitters of SCT bulk files			
Structural costs	-125	-125	-78 ⁹
Total costs	-1,194	-1,067	-747
Balance	-946	-580	5

⁶ We calculate the average number of bank relationships per payment account holder as the total number of bank relationships divided by the total number of payment account holders. Consequently, the lower the number of private payment account holders, the higher is the average number of bank relationships per business payment account in the most unfavourable low scenario. The average switching costs without alias use are therefore higher, and the benefits of alias use in the form of cost reductions for business payment account holders are higher than in the median baseline and favourable high scenario.

⁷ The costs are linked to the number of payment account holders, and they are lower in this scenario (see also the lower benefits). The one-off verification costs therefore decrease.

⁸ In this scenario the number of account holders is lower, so the number of payment relationships per account holder is higher. These costs are determined by the number of payment relationships.

⁹ Lower because in this scenario the one-off and structural system costs for maintaining dual data (IBAN and Alias) are lower.

In order to compare the one-off costs with the structural costs and benefits, we have discounted all costs and benefits for the first 10 years in Table 3.1.¹⁰ This shows that over 10 years the cost-benefit balance in the baseline scenario is still negative by almost €600 million. According to the assumptions made in this scenario it will take over 30 years to recoup the one-off costs of the alias introduction. The sensitivity analyses shows that the cost-benefit balance is sensitive to assumptions concerning the percentage of switchers using the Switching Service, the number of primary account holders, the indirect benefits and the system costs. On the basis of this sensitivity analysis variations have been applied for relatively unfavourable or favourable assumptions for these parameters.

In the most unfavourable scenario the assumptions concerning direct and indirect benefits and system costs are gloomier than in the baseline scenario and result in a negative balance of around €950 million. In the most favourable scenario the assumptions particularly with regard to indirect benefits are more positive due to greater competition and we assume considerably lower one-off system costs. In that case the one-off costs of the alias introduction are recouped in around 10 years. The method we use to estimate benefits and costs is explained in the following sections. Section 3.6 contains a number of sensitivity analyses that have served as a basis for constructing the most unfavourable and most favourable scenarios.

3.2 Direct benefits

We quantify the structural benefits of IBAN alias use on an annual basis using the same format as that used in Decisio (2016). The purpose of that report, drawn up on behalf of ACM, was to quantify the total benefits of *number portability* for payment accounts. The extent to which these calculations apply to the use of aliases for IBANs logically depends on the extent to which the outcome of alias use for account holders is similar to that of number portability. We assume (see also the previous chapter) that in terms of the advantages for the account holder a robust alias that is used on a large scale is similar to number portability: our definition of a large-scale migration to a robust alias then generates benefits for the account holder that are comparable in size to those of number portability. As a result, the calculations below are based on the scenario of a newly developed, robust alias with every switcher actually using his or her alias.¹¹

We discuss the benefits for private payment account holders, business payment account holders and direct banking relationships. Benefits are defined here as the reduction in the administrative and other costs of switching. In sections 2 to 4 inclusive we describe the main quantity and price effects that determine the level of the benefits for these three different bank customers. In some cases we diverge from the assumptions made in Decisio (2016) when updating the calculations of the benefits of number portability. We have more up-to-date information for some of the information and parameters used there. We also use different assumptions in some cases. In Attachment A we state the precise reasons for the differences in the quantified benefits.

¹⁰ In line with the General Guidance for Cost-Benefit Analysis we use a discount rate of 3%. In the main text we discount the costs and benefits over a 10-year period in line with the calculations in Decisio (2016). Annex B.3 also contains the cost-benefits over a 30-year period.

¹¹ The benefits only apply to the switchers who also actually use the alias. If the alias is only used by a fraction of the switchers, we multiply this fraction by the total benefits calculated in this chapter to calculate the actual level of the benefits.

Below we distinguish three types of direct benefits of the introduction of a robust alias. In the first place the switching costs for households (effect A) decrease. A reduction of the switching costs results in the first place from a decrease in the switching workload. Second, the switching costs decrease because there is no longer a bridging period in which the costs of the old and the new payment accounts have to be paid.

For all switchers – both business and private, with and without the Switching Service – at least three-quarters of the total benefit comes from time saving due to a lighter workload. The proportion of the benefit due to time saving is even greater for private payment account holders. First, the fixed costs of payment accounts are lower for private payment account holders and, second, the average bridging period is shorter for private payment account holders. For private and business payment account holders as a whole, 90% of the total cost reduction comes from a time saving due to the lighter workload.

This has a direct benefit for the switchers that were already planning to switch. There is also a group that decides to switch because of the robust alias and would not have done so without it. For this group the actual or perceived benefits of switching outweigh the costs in the new situation, whereas they would not without a robust alias. We attribute half of these higher benefits to the alias (see below). In second place the costs for SMEs decrease (effect B), and once again there is a group that would switch anyway and a group that decides to do so due to lower switching costs with an alias. Finally, the administrative expenses for switchers' permanent payment relationships are lower over time (effect C). These are relationships with direct debit issuers, such as energy companies and municipal and other tax authorities, but also organisations with a large number of outgoing payments (submitters of SCT bulk files) such as the Tax Administration (allowances) and employers or payroll processors administering salaries on behalf of employers. After all, in the new situation, they no longer have to amend the IBAN when they switch payment account provider and can continue to make credit transfers or collect direct debits using the robust alias. They must of course make a one-off transition from IBAN to the robust IBAN alias (see 23 3.4).

Reduction in switching costs for private payment account holders

Quantity effect

Alias use reduces the costs incurred by payment account holders when switching to a new payment account provider. The lower switching costs in the case of alias use leads to an increase in the number of switchers.

The population in the third column in Table 3.2, consisting of all private account holders, remains the same. We base the total number of relevant private account holders on the 13.0 million persons who form part of the workforce and the non-working population in 2019 (CBS StatLine). This approach assumes that the institutional population does not have a payment account, so the number of private payment account holders is lower than the 13.9 million adults in 2019 (CBS StatLine). This is probably an upper limit, because some couples only have a primary payment account for the whole household. An alternative approach is therefore based on the assumption that almost all automatic credits and debits (care allowances, child benefit, mortgage interest deductions, energy bills, rent/mortgage interest, repayments etc.) are household-related, and that the household therefore has a single primary account. That is a lower limit for the number of primary payment accounts

because in some households both partners will have their own primary payment account. At the end of this chapter the effect of this assumption on the costs and benefits is examined in a sensitivity analysis.

The use of aliases increases the proportion of *active* account holders¹². The proportion of active private payment account holders in the situation without alias use (Table 3.2, column 4) is the percentage of respondents stating in the DNB Survey (2019) that they switched their main payment account less than a year ago. This is well below the percentage of respondents stating in the survey that they will switch next year. Starting with the percentage of respondents stating that they have actually switched, we apply an adjustment *to take the fullest account possible of the hypothetical bias*¹³.

Since aliases are not yet in use, we have taken the number of switchers in the situation with alias use from the same DNB Survey enquiring about the switching inclination with and without number portability (DNB Survey, 2019). This survey suggests that introducing number portability (equivalent to a widely introduced alias) roughly doubles the likelihood that an account holder will switch. Both cases, however, concern *switching intentions*. To correct as accurately as possible for the *hypothetical bias*, we double the percentage of account holders who say they have actually switched in the past 12 months. On the basis of the DNB Survey we therefore assume that the number of switchers roughly doubles compared to the number of self-reported switchers in the past 12 months, as a result of large-scale alias use. This is reflected in Table 3.2: in the initial situation without a widely used robust alias 1.6% switch, and that percentage roughly doubles due to the introduction of the alias.

Table 3.2 Number and percentage of active private payment account holders, broken down by scenario with and without alias use.

Scenario	Private payment account holders who switch (numbers in thousands)	Population (numbers in millions)	Proportion of active private payment account holders (%)
Without alias	209	13	1.6
With alias	433	13	3.3
Difference	225	-	1.7

Price effect

The price effect is the same as the change in the administrative costs of the switch with alias use compared to a switch without alias use. This cost reduction produces a direct benefit for payment account holders who already switched in the situation without an alias. The size of this benefit depends on the way in which switching takes place (with or without Switching Service):

- Switchers who switch without an alias but use the Switching Service (**‘Switching Service’**; **‘SS’**) or do not use the Switching Service (**‘Do It Yourself’**; **‘DIY’**): for the first group the benefits

¹² The definition of “active” refers to payment account holders who switch payment account provider within a 12-month period.

¹³ The percentage of households that have been prepared to switch in the current situation with the current switching costs gives an indication of the *revealed preference* of households. It would be even better to use the number of actual switchers, but as far as we can ascertain there are no hard administrative or other data; the payment account providers are not aware of the reasons for account closures.

of moving to an alias when switching are smaller than for the second group because with the Switching Service the switching costs are lower.

- A distinction is drawn between payment account holders who only switch if there is an alias (**with IBAN alias**) and those who switch regardless of this facility (**without IBAN alias**). These are payment account holders who become active as a result of the alias. The cost reduction for this group is determined by the switching method that they would have chosen if there had been no alias (with or without Switching Service). The size of the average cost reduction, however, is smaller for this group; the last switcher in this group would not have switched if the switching costs had been €1 higher, whereas for the first the alias results in a cost reduction that is fractionally lower than for those who switch without an alias (just under €27 for Switching Service and €124 without). For the new switchers group as a whole we therefore base our calculation on half of the cost reduction of switchers who even switch without an alias.¹⁴

The different combinations lead to four groups of switchers in Table 3.3. The cost reduction concerns the difference between the total switching costs (with or without Switching Service) and the total costs in the case of alias use. We see that the cost saving for switchers who do not use the Switching Service is many times greater, since both the switching workload and the bridging period in which the old and new accounts run in parallel are many times greater in comparison with the cost saving for switchers that do use the Switching Service. As a result, the use of aliases leads to an increase particularly in the switchers who would not use the Switching Service if aliases were not used. The 34% of private switchers with the Switching Service is the result of 72,000 private switchers using the Switching Service in 2018 (counter, as reported by Switching Service) and the total number of private switchers in that year, just under 209,000 (Table 3.2). The fraction is therefore based on the Switching Service's administrative data concerning the number of switchers using the Switching Service, divided by the percentage of switching individuals based on the DNB Survey times the population of 13 million adults. The fraction using the Switching Service is therefore much smaller than the 80% assumed in Decisio (2016).

¹⁴ The introduction of alias use will reduce the switching barriers so that the perceived advantages of switching prevail. The extent to which this changes will depend on individual preferences. We do know, however, that it is greater than zero, but smaller than the reduction in switching costs. If we assume a linear demand curve, the benefits for new switchers will on average be half of the cost reduction. See also Annex B and Decisio (2016).

Table 3.3 Cost reduction for private switchers per year

		Proportion of SS/DIY (%)	Switchers (numbers in thousands)	Cost reduction (in EUR)	Total (in EUR thousands)
Switching without alias	SS	34	72	27	1,967
	DIY	66	137	124	17,027
Extra switchers if alias	SS	34	77	14	1,058
	DIY	66	147	62	9,156
Total					29,207

Reduction in switching costs for SMEs

Quantity effect

The population on which the quantification of effect B is based comprises the total number of SMEs with at least one business payment account. We approximate the fraction of SMEs without a business payment account by multiplying the total number of SMEs less the fraction of sole traders without a business payment account (ZZP Barometer, 2018) by the fraction of sole traders in the total SME population (CBS StatLine).

Here too we multiply the population by the switching percentages with and without IBAN alias use. In the absence of more up-to-date estimates, we use the SME switching percentage used in Decisio (2016) in the current situation of 2%. In line with the households methodology we then extrapolate this percentage to the situation with a robust alias by roughly doubling the percentage, according to the same reasoning as we apply to private individuals.¹⁵

Table 3.4 Number and percentage of SME switchers per year, with and without alias use

Scenario	SMEs that switch (numbers in thousands)	Population (numbers in millions)	Proportion of active SMEs (%)
Without alias	25	1.24	2.0
With alias	51	1.24	4.2
Difference	26		2.2

Price effect

The cost reduction for business switchers is higher than for private switchers. The number of business switchers benefiting from alias use is lower, but the benefit (cost reduction) per switching account holder is higher. This is due to both a higher initial workload for a business switch and

¹⁵ Given the lack of data on the switching intentions of business users with and without an alias (or number portability), we therefore assume that the relative increase in switching inclination due to the introduction of an alias is similar to that of private individuals.

additional costs during the bridging period, since it is longer, and due to higher, fixed monthly account charges compared to a private bank account package. The fixed monthly charges for a business payment account package are roughly three times the fixed charges for the private package. We also use the bridging periods for DIY switchers in Decisio (2016), where the bridging period for business switchers is over four times longer than for private switchers, i.e. 13 versus three months respectively.¹⁶ Overall the total benefits for SMEs are in the same range as those for households. The percentage of 77% switchers with the Switching Service is derived from the number of 19,000 business switchers with the Switching Service in 2018¹⁷ and the total of 25,000 business switchers (see Table 3.4).

¹⁶ Decisio (2016) states that in the case of the Switching Service it is not always necessary to maintain the entire 13-month bridging period, but it is recommended to do so to prevent erroneous transfers (p. 56). In view of the bridging periods they use for private and business payment account holders of three and 13 months respectively, they assume a higher risk and/or risk aversion on the part of business payment account holders, possibly due to higher-frequency transfers and/or amounts moving from and to business payment accounts.

¹⁷ This percentage is calculated on the basis of a business percentage of 21% of the total of 91,000 payment account holders who used the Switching Service in 2018, according to figures supplied by the Switching Service.

Table 3.5 Cost reduction for SMEs switchers, per year

		Proportion of SS/DIY (%)	Active account holders (num- bers in thou- sands)	Cost reduction (in EUR)	Total (in EUR thousands)
Switch re- gardless of Alias	SS	77	19	88	1,678
	DIY	23	6	514	2,876
Switch if alias	SS	77	21	44	902
	DIY	23	6	257	1,547
Total					7,003

Reduced administrative costs for direct debit issuers and submitters of SCT bulk files

Quantity effect

We calculate the reduction in the workload for direct debit issuers and submitters of SCT bulk files in the administrative adjustment of the payment data. We quantify this as the total benefit – in the form of a cost reduction for permanent bank relationships due to the elimination of this workload. We approximate the total number of bank relationships by multiplying the average number of permanent credit and debit relationships per switcher by the total number of private and business switchers in the situation without alias use.

Price effect

We then determine the price effect by multiplying the total estimated time involved in the administrative adjustment for the bank relationship by the internal hourly rate for administrative personnel. When estimating the required time we draw a distinction between SS and DIY switchers. We assume that for users of the Switching Service the time and cost involved in notifying the change in the payment account number is half of the time and cost for DIY switchers.¹⁸ This speeds up the handling (system processing) of the change in the payment account number for the bank relationship, halving the required time for bank relationships of SS switchers.

The difference in the average number of bank relationships between private (14) and business payment account holders (15) is due to a difference in the average number of crediting relationships for private and business payment account holders; this number is roughly twice as high for business payment account holders: 1.8 versus 3.5. The averages of the two groups have been determined on the basis of the DNB Household Survey (DHS) (2019) for private payment account holders and on the basis of the DHS (2019) combined with the number of clients per business payment account holder (CBS, 2018) for business payment account holders.

¹⁸ We apply the correction on the basis of discussions with direct debit issuers in which they stated that they spent a lot less time on amendments to payment data if they were notified through the Switching Service.

Table 3.6 Effect C, broken down into price and quantity effect per year

Switchers		Proportion of SS/DIY (%)	Permanent crediting and debiting relationships (numbers)	Active payment account holders (numbers in thousands)	Cost reduction per crediting and debiting relationship (in EUR)	Total (in EUR thousands)
	SS	34	14	72	3	3,176
Private	DIY	66	14	137	7	12,101
	SS	77	15	19	3	949
Business	DIY	23	15	6	7	556
Total						16,226

3.3 Indirect benefits

Introduction

Redistribution effects vs efficiency gain

Lower switching costs lead to greater competition in the payment account market, putting downward pressure on market prices and profit margins.¹⁹ A lower market price reduces the producer surplus in favour of the consumer surplus. Since this is a shift, the total social benefits remain the same. We therefore disregard it in the analysis. This shift from producer surplus to consumer surplus can be considerable, however (around €400 million in the estimate in Decisio, 2016).

The total benefits increase due to higher pressure on profit margins as a result of greater price competition following the reduction in switching costs. To preserve profit margins as far as possible, the producers are under more pressure to be efficient. The total reduction in costs due to reduced inefficiency is a benefit (in the first place for the producers), which fully or partly offsets the loss in market benefits. The size of that decrease depends on the current level of efficiency in the market, which in turn depends on the current level of competition.

It should be noted that for the future we have assumed a constant level of structural indirect benefits in terms of reduced inefficiencies calculated below. It is quite possible, however, that the entry of new players to the payments market in the years ahead will increase competition in the market and reduce inefficiencies. In that case the additional positive effect of alias use on the competition is likely to be lower than our estimate in future. A second observation is that alias use does lower switching barriers in the domestic payments market, but at the same time erects a barrier to foreign entrants, as they have to implement the alias in their systems before they can enter. This would also limit the increase in competition in the Dutch market as a result of the introduction of a robust alias.

Methodology in perspective

Decisio (2016) previously investigated the scope for efficiency gains in the payment account market. The scope for efficiency gains is approximated as a fraction of the entire market turnover of private and business payment accounts, including all transaction costs.²⁰ We have largely adhered to this methodology: we approximate the scope as a percentage of the part of the market in which there is scope for efficiency gains.

There are two reasons why we do not use the entire market turnover as a basis for calculating these indirect benefits. The payment system in the Netherlands is already relatively efficient (Panteia, 2018). Our market definition therefore only includes the part in which banking efficiency gains can still be made. First, we draw a distinction between private and business payment accounts. Second, we draw a further distinction between the market turnover of banks and non-banks in the

¹⁹ In the first place the introduction of the aliases leads in particular to higher one-off costs (see next section). These costs are likely to be passed on to the end-user in the first few years, leading to higher prices. This section, however, concerns the indirect structural benefits as a result of more switchers and price competition in the longer term, after the introduction of the alias.

²⁰ Decisio (2016) therefore also disregarded other banking submarkets (e.g. the mortgage market) in the calculation of the indirect benefits. It seems unlikely that an increase in competition in the payment account submarket will lead to significantly more competition in other banking submarkets.

transaction market, disregarding the turnover of non-banks, unlike Decisio (2016), because subsequent research (Panteia, 2018) shows that this part of the market is already particularly efficient. We thus limit the scope for reducing inefficiencies to the turnover in the banking segment.

Third, on the basis of Panteia (2018), we assume that in the business payment account market the only scope for efficiency gains lies in the market for online bank payment services and we disregard over-the-counter bank services.²¹ In the third section we therefore calculate the percentage scope for efficiency gains as a fraction of the total turnover in this market share, in order to calculate the total scope for efficiency gains. The basis for calculating potential benefits due to lower inefficiencies is therefore smaller than in Decisio (2016). We use differences between the costs of non-bank providers (PSPs) and bank payment service costs to estimate the efficiency gain.

Scope

Private versus business payment accounts

On the basis of two findings, we note that the scope for efficiency gains lies primarily in the market for business bank accounts. First, Boot (2007) argues on the basis of empirical research that Dutch banks largely compensate for their low charges for payment services for private individuals with higher fees and substantial profit margins for business customers (charges for business users are still considerably higher than for private users). Greater competitive pressure in both markets thus translates primarily into pressure on profit margins in the business market. There is also incidental evidence of large power positions in the business market (Van der Heijden, 2019).

Second, there is a key difference in the product structure between the two markets. The extent of product linking in bank services is far greater in the business account market, leading to switching barriers and reduced incentives for efficiency and innovation for payment account providers (NMa, 2010). Given the very limited scope for efficiency gains in the market for private payment accounts (National Forum on the Payment System, 2018), we disregard the total bank costs for private account holders in the analysis of potential efficiency gains.²²

Bank versus non-bank payment services

We also draw a distinction between *bank* and *non-bank* payment services for business account holders. The product linkage between business bank accounts and additional bank payment services in particular promotes competition *between* banks due to lower switching barriers. We disregard any price effects on the relatively efficient non-bank payment services.

Payment services for SMEs versus payment services for retail chains and corporations

We also classify the effects on the market in bank payment services for retail chains and corporations²³ as side-effects, because we do not expect alias use to lead to any changes in switching behaviour among retail chains and corporations. On the other hand, in the indirect effects we take

²¹ Various studies examining the costs of Dutch over-the-counter payments in an international context show that these are low compared to other countries (Jonker, 2013; National Forum on the Payment System, 2018). This indicates a high level of efficiency in the processing of over-the-counter bank payments, so these are excluded from the basis on which the percentage efficiency gain is calculated.

²² A somewhat dated international comparison of the prices of payment accounts (Bureau van Dijk & CEPS, 2009) shows that at that time the price of a payment account in the Netherlands was among the lowest in Europe for a range of user profiles.

²³ We define the boundary between small and medium-sized enterprises (SME) and retail chains as a workforce of 250 employees.

into account any side-effects, or increased efficiency in the bank services market for SMEs promoting efficiency in payment services for retail chains and corporations.

In Table 3.7 we present a view of total domestic market turnover in bank payment services for business SME bank account holders. This definition includes all the costs that banks charge for providing payment services for SMEs, and which relate directly to the business payment account.²⁴ For over 1.2 million business account holders²⁵ we estimate the total turnover in bank payment services to be more than €350 million per year, or an average of €280 per business payment account holder per year.

On the basis of Table 3.7 we ascertain that 40% of these costs are fixed costs of owning a business account and therefore apply to every business payment account holder. By contrast, the other 60% are transaction- and turnover-related, and the level per payment account holder depends greatly on direct participation in over-the-counter and/or e-commerce payments.²⁶ For the bulk of the business payment account holders the average annual transaction costs are less than €15 per year.²⁷ As a result, the median annual costs amount to €130 per payment account holder, or less than half of the average of €280.

²⁴ We classify current account overdrafts as financing costs, so these fall outside the scope of the market analysis for payment services.

²⁵ We approximate the fraction of SMEs without a business payment account by multiplying the total number of SMEs less the fraction of sole traders without a business payment account (ZZP Barometer, 2018) by the fraction of sole traders in the total SME population (CBS StatLine).

²⁶ The bank transaction costs are lower than the total transaction costs per transaction, because this definition only includes payment services that are provided and charged for directly by the bank.

²⁷ Based on an average of 160 transactions for self-employed persons (Zzpdaily (2019)).

Table 3.7 Total bank turnover in business payment services per year

Total bank costs for SMEs with business payment accounts per year		Bank costs per transaction/payment account	Number of payment accounts/ Number of transactions ²⁸ / Turnover by means of payment (thousands)		Total (in EUR thousands)
Fixed costs	Bank account	€115	1,235		142,031
	Online store subscription	€120	40		4,800
	Cash	€0.05	1,103,444		52,671
	Debit card	€0.06	1,878,837		108,623
Transaction costs (per transaction)	iDEAL	€0.30	47,122		13,194
	Credit card	€0.15	3,040		456
	PayPal	€0.50	2,280		1,140
	AfterPay	€1.70	1,520		2,630
	Credit transfer	€0.09	197,641		18,214
Transaction costs (as % of turnover generated by payment method)	Credit card	2.4%	€162,967		3,944
	PayPal	3.4%	€97,780		3,325
	AfterPay	3.6%	€65,187		2,347
	iDEAL	€0.25	2,277		569
Refund costs ²⁹	Master-card/Visa	€0.24	162		39
	Credit transfer	€0.08	647		52
Total					351,269

Direct vs. indirect efficiency gains in the payment account market

The pressure on the costs of bank payment services has already increased in recent years, as the ECB's sustained negative interest rate policy has prompted banks to refocus their business model away from interest income to *fee income* from payment services (Vozková & Kuc, 2016). We therefore expect the scope for bank efficiency gains to lie particularly in the market for online payment services. Table 3.8 gives an overview of the total turnover generated by banks in this part of the market. A comparison with the total in Table 3.7 indicates that this is roughly one-seventh of the total bank costs for SMEs with a business payment account.

Finally, the bottom part of Table 3.8 shows how bank costs in online payments to SMEs relate to the total online turnover generated by SMEs. We approximate the online turnover by multiplying

²⁸ We do not include payments from and to business payment accounts processed through payment systems of Collecting Payment Service Providers (CPSPs) in the analysis of bank turnover in business payments, as CPSPs are non-bank payment service providers that provide online retailers with payment facilities such as iDEAL, bank credit transfers and credit card payments, including those made by smartphone. The customers of an online store actually pay the CPSP, which then forwards the turnover to the online business after deducting payment charges. As a result they do not contribute to the bank turnover in payment services.

²⁹ Costs per refund method, with the purchase amount being refunded to the consumer.

the fraction of online turnover generated by SMEs with bank online payment systems (Panteia, 2016) by the total e-commerce turnover in retail (GfK, 2019).

We then divide the bank costs (€50.8 million) by the turnover in the respective segment in online payments (€3,259.3 million). Bank costs consequently amount to 1.6% of the respective online turnover. This percentage is exactly the same as the percentage calculated by Panteia (2018, p. 8) for SMEs with bank payment systems.

Table 3.8 Total bank turnover in online payment services for SMEs

Total bank turnover in online payment services for SMEs per year	Bank charges per transaction/ payment account	Number of payment accounts/ Number of transactions/ Turnover by payment method in thousands	Total (in EUR thousands)	
Fixed cost of online payment systems	Online store subscription	€120.00	40	4,800
	iDEAL	€0.30	47,122	13,194
	Credit card	€0.15	3,040	456
Transaction costs (per transaction)	PayPal	€0.50	2,280	1,140
	AfterPay	€1.70	1,520	2,630
	Credit transfer	€0.09	197,641	18,214
	Credit card	2.4%	€162,967	3,944
Transaction costs (as % of turnover)	PayPal	3.4%	€97,780	3,325
	AfterPay	3.6%	€65,187	2,347
	iDEAL	€0.25	2,277	569
Refund costs	Master-card/Visa	€0.24	162	39
	Credit transfer	€0.08	647	52
Total				50,709
Total online turnover for SMEs with bank payment systems in thousands of euros				€3,259,330
% costs of online payment services as a fraction of online turnover of SMEs with bank payment systems				1.6%

Efficiency gain

Efficiency in the market for online payment services

Banks can link business bank accounts to online payment services, for example a business payment account combined with a bank online store subscription to accept online payments.

Up until now, banks have used such product links with the payment account market to create a niche in the online payment services market. This link (which their non-bank competitors cannot create) means that banks can charge higher fees for less extensive service than the more competitive non-bank payment service providers. According to Panteia (2016) this niche applies particularly to smaller business start-ups with a limited number of online transactions. The link gives bank providers a degree of market power, so they do not have to operate as efficiently in online payments as their non-bank competitors.

If the introduction of an alias lowers the switching barriers in the payment account market and increases competition, the scope for exploiting these financial and other advantages in the online payment services market will diminish. Banks will then be forced increasingly to operate more efficiently in that market by reducing inefficiencies where possible.

As described above, the niche created by links with bank products applies particularly to smaller, start-up businesses. On the other hand, customers often switch to non-bank payment services when they expand their business activities, because the non-bank payment account providers generally offer more comprehensive services than banks when it comes to accepting online payments. As a result, the internal transaction costs are generally lower (Panteia, 2016), and this is reflected in lower total transaction fees compared to bank online payment services (Panteia, 2018).

Banks need to start matching the efficiency levels of these large-scale providers in order to compete with non-bank providers in the high transaction frequency segment.³⁰ We approximate the maximum level of the efficiency gain as the change in the fraction of *online transaction costs divided by online turnover*. As described above, this percentage is higher for over-the-counter institutions that purchase bank online payment services compared to those that purchase non-bank online payment services for this purpose (Panteia, 2018).³¹

For non-bank providers we use in Table 3.9 the cost-turnover fraction of institutions that purchase non-bank online payment services of 1.3%. The difference as compared to the 1.6% for bank systems is then the maximum achievable reduction of inefficiencies. We arrive at an estimate of a maximum of €8 million of efficiency gains.

Table 3.9 Banks' economies of scale in the online payment services market³² (*thousand).

	Online turnover of SMEs through bank online payment services	Total bank transaction costs	Percentage of bank online transaction costs as a fraction of online turnover
Current costs	€3,259,330	€50,709	1.6%
Costs with alias	€3,259,330	€42,463	1.3%
Efficiency gain		€8,246	0.3%

³⁰ This can be done, for example, by increasing scale with the establishment of in-house payment acquiring services and widening the range of payment methods offered. If this leads to a growing market share, the bank has greater economies of scale. Up until now these advantages have applied particularly to non-bank providers. Economies of scale translate into efficiency gains for banks.

³¹ We apply a further correction to the percentage of 1.1% (Panteia, 2018) to take account of selection effects, as the average transaction amount is higher for SMEs purchasing non-bank payment services. They consequently have economies of scale that do not apply to the population of SMEs that purchase bank payment services. We can correct this by multiplying the 1.1% for non-bank providers by the ratio of the average transaction amount of SMEs with non-bank online payment services and the average transaction amount of SMEs with bank online payment services (a factor of 1.2). The *corrected* turnover of SMEs that purchase online payment services from non-bank payment account providers then rises from 1.1% to 1.3%.

³² The effects were calculated on the basis of the fees and online turnover of SMEs and therefore exclude bank online transaction costs of businesses with more than 250 employees. On the other hand, such efficiency gains will also include the segment of retail chains and corporations with bank online payment services. The extent to which these spillover effects lead to a rise in the total efficiency gain depends on the current fraction of retail chains and corporations accepting online payments through their bank. Given the negative relationship between bank market penetration and the transaction frequency per company (Panteia, 2018), the effect of these companies on the total efficiency gain is expected to be limited.

It is not clear at the outset to what extent this efficiency gain is actually achievable for banks due to legacy costs³³ that non-bank providers do not have and translates into lower prices for business payment accounts. If the competitive pressure is high enough, it can be assumed that the lower inefficiencies will lead to lower fees for business end-users. It is also conceivable that the lower inefficiency will be reflected fully or partly in pressure on the profit margin due to the increased competition in the payment account market. In both cases there are net social benefits (in one case for business end-users and in the other for bank service providers). The competitive pressure is also likely to increase organically, as noted earlier, due to the entry of new providers and technological innovations.

Other synergy benefits

According to Vozková & Kuc (2016) an increase in bank competition can lead to diversification in non-traditional bank services, and this effect applies particularly to banks. Depending on the extent to which diversification leads to innovative combinations of bank payment services, this leads to additional synergy benefits.

An example of business payment accounts concerns efficiency gains in overdrafts. For example, it could lead to lower overdraft interest rates for SMEs.³⁴ Increased efficiency in the financing market as a result of lower switching barriers could also lead to lower interest for private households, for example in the mortgage market. Such side-effects lead to higher profit margins for banks, lower mortgage interest for households or both.

3.4 One-off costs

Introduction

In the above analysis we note that the payment account holders, payment service users and payment account providers (banks) benefit in different ways from the introduction of a robust IBAN alias. As well as benefits there are also costs, which we quantify in this part of the analysis. The costs break down into *one-off* costs and *structural* (annually recurring) costs. We also draw a distinction between costs for the various actors: public administrative bodies, direct debit issuers and large payers (such as the Tax Administration (allowances) and the UWV social security agency), payment account providers and payment account holders. We use the costs incurred at that time for the transition to IBAN as an indication (as calculated in Europe Economics, 2016), because various stakeholders have told us that this is a good indication of the costs of introducing a new robust alias. The higher (one-off) costs as a result of introducing the alias will in any case be partly reflected in prices in the transition phase. In the long term only the structural costs will lead to higher prices.

Costs for public administrative bodies

Development and implementation of migration plans

The large-scale migration to an alias requires action on the part of almost all actors in the payment system. Consequently there is an important role for DNB. The activities include:

- Helping to ensure that the relevant laws and regulations are enforced;

³³ Legacy costs are those incurred for IT systems which, although outdated, are still in use.

³⁴ The NMa (2009) noted that for no good reason banks added an extra interest margin of 0.75% on top of the basic overdraft interest rate for SMEs.

- Drawing up implementation plans jointly with market operators;
- Legal compliance with regulations governing financial and personal data;
- Drawing up implementation guides for market operators;
- Communication with market operators, including payment account holders, individually and as a group;
- Monitoring the progress of the migration process.

The additional cost involved will depend on the extent to which these activities are reflected in a necessary increase in legal, technical and operational capacity. Such additional costs amounted to €4.3 million for support and supervision of the SEPA migration³⁵. On the one hand this is likely to overstate the additional costs of alias migration, because the migration in terms of the type of payment data (IBAN) was only part of the transition to SEPA. On the other hand additional modifications are required that are at variance with European legislation³⁶. We assume that these differences broadly cancel each other out, so the total development and implementation costs of an alias are expected to be around €4.3 million.

Information for payment account holders

Communication with all payment account holders is a time-consuming and expensive process, primarily because of the size of the group, which comprises 13 million private individuals and 1.2 million business payment account holders. Costs are high particularly because the communication must also reach vulnerable, less accessible groups in the payment system, such as the elderly, people without internet access and people of low literacy. Given the social risks, the government must do all it can to prevent exclusion.

Both the size of the target group and the high demands in terms of information are very similar to the recent information campaign prior to the reform of the donor registration system. Minister Bruins for Medical Care & Sport estimates one-off information costs at €20 million, considerably more than the usual level of government campaigns. In his letter to Parliament³⁷ he demands high standards in terms of information, which must include migrants and people of low literacy. Such requirements will also apply to the information on alias use. We therefore expect similar costs and estimate the information costs at €20 million. The present value over 10 years then amounts to €19 million, because not all costs are incurred in the first year.

Development and provision of alias register

Finally an IBAN alias link system must be made available for payment account providers and payment account holders. There are three technical requirements for the file. First, all payment account providers must have access to the Register by means of an interface, with which data from in-house applications and systems is linked to data from the alias register. Second, payment account holders must be able to log in securely to verify their IBAN/alias link. Third, the Register must have the capacity to process large bulk files of large-scale participants in the payment system.

³⁵ Tabel 3.10 gives an insight into the calculation based on the number of FTEs responsible for support and supervision of the SEPA migration in the period December 2011 to December 2014. The costs per FTE are based on the data in the independent public body (ZBO) report 2018 (DNB, 2019).

³⁶ It should be noted that legislative changes are implemented by other public administrative bodies (including the Ministry of Finance), so these costs are not borne by DNB.

³⁷ Parliamentary Papers of the Lower House of Dutch Parliament, 33 506, no. 28

The technical requirements, i.e. the large number of interfaces with external operators for file consultations (1), the possibility of one-off file enrichment by the population (2) and high processing capacity (3) correspond to the technical requirements of the Donor Register. As a result we assume a proportionate €2.5 million of external construction costs and €1.9 million of internal costs. This latter category includes the reconstruction of the Switch to IBAN Renumbering Tool as an alias register (in which payment account holders can consult the IBAN alias associated with a particular IBAN), the information provision for users and the test running of the system.³⁸

³⁸ See: <https://omnummertool.overopiban.nl/>

Table 3.10 One-off costs for public administrative bodies (amounts in thousands of euros).

Required expansion of capacity		
Development & implementation of migration plans	Number of FTEs	Costs (in EUR thousands)
Policy and regulations	16	2,460
Legal activities	4	833
External communication	5	1,053
Total	24	4,346
Information		
Information campaign		20,000
Development & provision of alias register		
Internal costs (rebuilding of register, provision of information for users, testing of system)		1,900
External costs (external construction firm)		2,500
Total		4,400
Total		28,746

Costs for payment account providers, direct debit issuers and submitters of SCT bulk files

Letters to payment account holders

Prior to the alias migration, the payment account holder must carry out a one-off verification of his or her IBAN/alias link. The structure of the associated letter writing costs is again similar to the costs of reforming the donor registration system. First, letters are only sent to payment account holders who have not yet verified their link. Second, the verification can be carried out both in writing and electronically. The processing cost of the response is higher for written verification. A means of written verification must also be offered in the case of alias use, so as to prevent ‘digital coercion’ of payment account holders.

As a result we estimate the costs of letter writing and processing the digital and written responses at a proportionate €30 million, on the basis of the cost estimated by the Minister of Health, Welfare and Sport of €25 million to €35 million.³⁹ This is based on an assumption of decentralised distribution; the payment account provider forwards the alias to the payment account holder and the letter writing costs are borne by the payment account provider.

System modifications

The transition to alias use requires modifications to the IT systems and registration of payment data in bulk electronic payments. The Dutch Payments Association (2017) states that the transition is an “expensive and time-consuming project”. “In addition, the use of aliases does not currently provide an alternative to the IBAN for business payments by consumers (such as direct debits) and receipts (such as salary). This would require an entirely new accounting system to be adopted by business market operators, leading to an expensive and time-consuming project, similar to the introduction of the IBAN some years ago.” As a result, the ex-post estimates of the costs of the SEPA migration serve as input for the continuation of the cost analysis.

In addition to the transition to IBAN registration, the SEPA migration was accompanied by the entry into force of the ISO 20022/XML standard for bulk instructions (for direct debits or credit transfers) in electronic payments. This technical standard applies to both domestic and international payments. Migration thus also required system modifications by participants in the domestic electronic payment system. Of all the relevant systems, internal linking systems were the hardest to modify (38%), followed by bank accounting systems, cash management systems, external communication systems (interfaces) and payment processing systems (65%).

The underlying cost drivers break down into system analyses, system modifications, internal change costs and external costs. System analyses involve an inventory of the existing systems to determine the required modifications. In the case of migration to alias use, such modifications include:

- Links to the central alias register⁴⁰;
- Changes in the system environment resulting from a new data type for payment data;

³⁹ Parliamentary Papers of the Lower House of Dutch Parliament, 33 506, no. 28.

⁴⁰ As an illustration: connection costs based on interfaces to the central domain in the service providers’ application landscape using the new eID system are estimated at €5,000 to €15,000 per link (Ecorys, 2018). For 423 web services in digital services this leads to a cost item of between €2.1 million and €6.4 million.

- Creation of dual payment data fields for Dutch IBAN aliases and foreign IBANs ;
- Change in payment account details displayed on the website⁴¹;
- Changes in interfaces;
- Updates to systems to facilitate the above changes.

Both the analysis and modifications can involve both internal and external costs, depending on whether the work is outsourced to IT consultancies and/or conversion services. In the ISO 20022/XML migration, conversion services were used in particular by SME direct debit issuers, because they often lacked the required IT expertise to complete the migration internally. The other costs for internal changes include internal reorganisations, project management, training and other administrative costs, while the other costs for external operators include the alignment of technical interfaces and trial running of applications.

On the basis of the cost analysis by Europe Economics (2016) we draw a distinction between the costs for payment account providers and the costs for business submitters of electronic SCT and SDD bulk files per transaction. For the price component, or the costs per direct debit and credit transfer, we apply a correction compared to the Europe Economics figures to allow for inflation and exchange rates. With regard to the volume component, or the total number of SDD and SCT transactions in the Netherlands, we use the same criteria in the transaction numbers as Europe Economics. Consequently, intra-bank transactions and some other items are disregarded. As a result we can attribute the full rise in the volume component in the total costs compared to Europe Economics (2018) to a rise in the actual transaction volume in the Netherlands since the SEPA migration in 2014.⁴²

On the other hand, in contrast to the previous analysis, we do not draw any distinction in payment service providers' costs for electronic bulk payments by means of direct debits on the one hand and credit transfers on the other.⁴³ In addition to the analysis in Europe Economics (2016), we also draw a distinction between the different size categories of direct debit issuers in the costs per direct debit. Europe Economics states that in composing the sample it focused on large-scale direct debit issuers, because they would have been impacted most by the SEPA migration. Direct debit issuers point out that the SEPA migration allowed economies of scale for the large-scale direct debit issuers, so the average costs per direct debit are higher for the smaller direct debit issuers. We therefore apply a correction to the costs for this latter group, using higher costs per direct debit for small and medium-sized direct debit issuers (see the table in Annex B.3). For the large-scale direct debit issuers we assume that the costs are the same as those calculated in Europe Economics (2016).

⁴¹ Such changes must also be made on headed notepaper and business invoices. We assume that as with the revision of legislation relating to BIG registration (Parliamentary Papers of the Lower House of Dutch Parliament, 34 629, no. 6), allowance will be made for 'phasing out' so that residual stocks can be fully used up. In this way the transition will not lead to additional costs to modify and reprint headed notepaper and business invoices.

⁴² Since the costs per SCT and SDD transaction in Europe Economics (2016) are calculated on the basis of the total costs divided by the transaction numbers used by Europe Economics, the criteria applied in the number of transactions have no impact on the reliability of the total cost estimate, as long as the same criteria are applied in both calculations.

⁴³ Europe Economics attributes the higher cost per direct debit (SDD) compared to credit transfers (SCT) to the more complex modifications required to comply with the SDD regulations. These adjustments are specifically for IBAN. Assuming that this is not necessary for a transition to alias use, these costs will not apply in the migration to alias use. The costs per SCT payment have therefore been used for both types of bulk payments.

The calculated one-off costs for payment account providers are almost twice as high per direct debit as the costs per transfer. Adjustments for inflation and changes in the volume of electronic payments lead to total one-off costs of over €644 million for system modifications for payment account providers, direct debit issuers and submitters of SCT bulk files.

Look-up costs

The above system modifications precede the migration to alias use. The next and final step prior to the migration involves the collection of the aliases in the customer files of the direct debit issuers and submitters of SCT bulk files. We assume a central renumbering facility which in terms of its design and size largely corresponds to the renumbering channels offered as part of the IBAN BIC service.⁴⁴ As in the case of the IBAN BIC service in the SEPA migration, different channels are also offered in the alias migration for the uploading of large customer files, so there are economies of scale for large-scale direct debit issuers and submitters of SCT bulk files.

By contrast, in the case of direct debit issuers and submitters of SCT bulk files, often only a few IBANs were known, and it was necessary to collect the associated BICs. Renumbering to aliases is also likely to involve combining various data. If direct debit issuers do not have access to all the required data, they will have to incur look-up costs again. We assume that these costs will be in the same range as the BIC look-up and collection costs. As in the cost analysis for the system modifications, we approximate the total costs as the costs per SDD and SCT transaction times the current transaction numbers. We estimate the total look-up costs at €33.1 million for payment account providers and €22.0 million for direct debit issuers.

Conversion costs

Finally, migration takes place in the systems in which IBAN registration is supplemented with alias registration. In the migration to IBAN registration, conversion services were set up and provided at various levels, both by payment service providers and, on a smaller scale, by software providers. In the latter case the software packages used to handle payment systems were mainly used by small-scale direct debit issuers. Incidental evidence based on the IBAN migration shows that conversion packages are seen as maintenance costs, and not as additional costs passed on to the direct debit issuers.⁴⁵ The costs for the payment account providers amount to €82.5 million and €43.6 million for direct debit issuers and submitters of SCT bulk files.

⁴⁴ The banking sector provided the IBAN BIC service for a period of four years to support the payment market during the IBAN migration. It provided various channels, enabling users to retrieve IBAN and BIC payment data by means of a BBAN. These channels included renumbering websites, Apple and Android apps, 'free users' delivery channels via Excel (<100,000 BBANs), 'premium users' delivery channels via a secure connection (>100,000 BBANs), a voice respond system (IVR), live agent channels and an SMS response system. The total cost of the service, including processing and operating costs, amounted to around €9 million.

⁴⁵ In this case these costs may well turn out higher, because developers of these (often international) software packages will probably be less inclined to carry out this work rapidly and at little additional cost if there is no SEPA-wide implementation and migration takes place only in the Netherlands. This assumption is therefore expected to be a lower limit for the one-off costs for direct debit issuers.

Table 3.11 One-off costs for payment account providers, direct debit issuers and submitters of SCT bulk files (amounts in thousands of euros).

	Payment account providers	Direct debit issuers, submitters of SCT bulk files	Total	
Letters to payment account holders	30,000		30,000	
System modifications				
	System analysis	€42,002	€7,660	€49,663
	System modifications	€59,593	€71,197	€130,790
Direct debits (SDD)	Internal changes	€85,440	€21,179	€106,619
	External costs	€53,669	€3,154	€56,824
	Total	€240,705	€103,191	€343,895
	System analysis	€49,492	€4,653	€54,145
	System modifications	€70,220	€10,364	€80,583
Credit transfers (SCT)	Internal changes	€100,676	€635	€101,311
	External costs	€63,240	€635	€63,874
	Total	€283,628	€16,286	€299,914
Look-up costs				
Direct debits (SDD)		€15,078	€18,025	€33,102
Credit transfers (SCT)		€17,766	€4,230	€21,996
Total		€32,844	€22,255	€55,099
Conversion costs				
Direct debits (SDD)		€37,874	€38,302	€76,176
Credit transfers (SCT)		€44,627	€5,288	€49,915
Total		€82,501	€43,590	€126,091
Total		€669,677	€185,321	€854,999

Costs for payment account holders

One-off IBAN alias verification costs

The one-off verification of the link between the existing IBAN and the distributed alias in section 3.4 for the composition of the alias register is carried out by the payment account holder himself. The time required for this is a one-off cost item for the payment account holder. In line with SEO, Ecorys & Van Zutphen Economisch Advies (2018) we estimate the time required for a one-off electronic link (“form submitted electronically”) and a one-off written link (“form submitted by post”) to be five and 15 minutes respectively.⁴⁶

We calculate the total verification costs as the time required per *payment account holder* times the number of payment account holders. This is based on a situation in which a payment account holder who has multiple IBANs verifies them all at once. In other words, our calculation is based on the average time pressure per payment account holder, having regard to the average number of IBANs per payment account holder.

We then approximate the fraction of payment account holders who complete the verification electronically as the fraction of payment account holders who bank online (CBS, 2018), times the fraction of payment account holders connected to payment account providers with online IBAN functionalities (Banken.nl, 2018), and assume that the remainder of the payment account holders will complete the verification in writing. On the basis of these calculations the one-off costs amount to a total of €35.9 million, with just over €28.8 million of one-off costs for private payment account holders and over €7 million of one-off costs for business payment account holders.

Look-up costs

The second cost item for payment account holders concerns the one-off look-up costs for aliases in bank relationships in which the payment account holder both *originates* and *executes* the payment. In line with this definition, ‘payment requests’ and some other items are disregarded, because the request already includes the payment details of the beneficiary account holder and no exchange of payment account data is required to execute the payment.

We approximate the percentage of indirect credit transfer relationships for private and business payment account holders. For private bank account holders we multiply the percentage of payments between consumers (P2P payments) in the total payments (10%⁴⁷) by the average number of credit transfer relationships per payment account holder (14), which amounts to an average of 1.4 indirect credit transfer relationships. For business payment account holders we apply a correction factor of 0.50 to the average number of credit transfer relationships per payment account holder. In other words the assumption is that for half of the credit transfer relationships of business payment account holders an average of five minutes is required per credit transfer relationship for the one-off look-up and recording of the payment data. For an average of 14 credit transfer relationships this amounts to over half an hour of administrative burden per business payment account holder. The hourly rates are also higher in the business market. As a result, the total costs for the smaller number of business payment account holders are greater than the total costs for private payment account holders: €27.4 million versus €22.2 million.

⁴⁶ The time estimate comes from the Ministry of Internal Affairs and Climate Policy and is based on the results of a *citizens’ panel*. In contrast to the cost estimates used, we no longer include the 83 cents of out-of-pocket costs for the submissions in writing. Instead, these costs are included in the letter-writing costs in respect of ‘postage paid’ link forms. As in the case of the letter-writing for the donor register, the form is then sent by mail as an enclosure with the written letter.

⁴⁷ National Forum on the Payment System (2017)

Table 3.12 One-off costs for payment account holders (number of payments in thousands of euros).

Verification of link between alias and IBAN			Number of payment account holders	Hourly rate	Time required per verification in whole minutes	Administrative costs per verification in whole euros	Total
Private	Electronic	62%	8,026	€15	5	€1	€10,032
	Paper	38%	5,003	€15	15	€4	€18,762
Business	Electronic	62%	761	€39	5	€3	€2,479
	Paper	38%	474	€39	15	€10	€4,637
Total							€35,910
Look-up costs			Number of payment account holders	Hourly rate	Required time per payment account holder	Costs per payment account holder	Total
Private			13,029	€15	7	€2	€22,179
Business			1,235	€39	34	€22	€27,405
Total							€49,585
Total one-off costs for payment account holders							€85,495

3.5 Structural costs

Introduction

In addition to one-off costs, public administrative bodies, payment account providers and payment service users face a rise in annually recurring costs as a result of alias use. Below we calculate these *structural costs* on an annual basis, broken down into structural costs for the different actors.

Costs for public administrative bodies

Alias register maintenance costs

With the introduction of alias use and the alias register, the maintenance costs for domestic payments in the current Switch to IBAN Renumbering Tool no longer apply. If the maintenance costs of the alias register turn out higher than those of the current IBAN Renumbering Tool, there is a rise in the structural costs for public administrative bodies. Possible causes of such additional costs include, for example, more frequent file consultation, an increase in the file size and higher demands on the possible channels for large business users.

In section 3.4 we emphasise the similarities between the technical requirements of an alias register and those of the current Donor Register. The additional structural costs are estimated at €1 million to €2 million per year. Whereas the length of the donor file increases as a result of the transition to registration *by default*, the number of account holders remains the same as in the current situation.

It is possible, however, that there will be a structural increase in the number of consultations due to the increase in payment account holders' switching frequency. In section 3.2 our calculation is based on the frequency increasing more than two-fold. The extent to which this rise translates into additional structural costs depends on the marginal costs of facilitating the additional consultations in the register. We apply the lower limit of the budgeted additional structural costs for the Donor Register as an estimate of the additional costs for the alias register, i.e. €1 million.

Differences as compared to SEPA legislation

SEPA led to the standardisation of electronic payments in euros (European credit transfers and direct debits) in Europe. The standards include mandatory use of the IBAN by payment account providers and users.⁴⁸ A deviation from European standards due to a deviation in the type of payment data would entail not only one-off costs (see section 3.4) but also structural costs. We do not know how high these costs would be, but it is possible (if developments in SEPA increasingly diverged from the Dutch alias solution), that these costs could be or become substantial.

Costs for payment account providers, direct debit issuers and submitters of SCT bulk files

Modifications to payment and payment data systems and credit transfer forms

In section 3.4 we describe the required modifications to the systems of large-scale business participants (submitters of bulk payment files with credit transfers or direct debit instructions) in the payment system as a result of the transition to alias use. These adjustments lead to additional structural costs in various ways.

⁴⁸ See Regulation (EU) No 260/2012 of the European Parliament and of the Council.

First, the systems become increasingly large and complex, because a distinction has to be drawn in the registration of payment data between Dutch IBAN aliases and non-Dutch IBANs. The first consequence is that a number of payment data fields are replaced by double payment data fields, so payment data files increase in terms of breadth and complexity.

Second, payment processes also increase in scale because additional activities have to be conducted during the processing and reporting of payments. For example, with each payment an additional check has to be made against the alias register to ascertain which payment account provider is linked to the alias at that time (DNB, 2016).⁴⁹ Additional filtering also has to be carried out between non-Dutch IBANs and IBAN aliases, in both the processing of payments and in the way in which payments are reported to the payment account holder concerned.

Third, duality in the type of payment data leads to duality in SCT credit transfer forms, with one variant being suitable for IBAN aliases and the other being suitable for non-Dutch IBANs. As a result, the structural costs of SCT credit transfers increase for submitters of SCT bulk files.

Table 3.13 gives an overview of the total sums for payment account providers and direct debit issuers. We approximate the amount of costs on the basis of the different additional structural costs as a result of the SEPA migration. On the basis of Europe Economics (2016) we use two cost categories which most resemble the above cost drivers in terms of their structure and impact.

We use the structural costs resulting from *the conversion to IBAN* (Europe Economics, 2016) as the additional costs of dual payment data fields, additional checks and duality in SCT credit transfer forms and use the *BIC look-up and update costs* resulting from the SEPA migration (Europe Economics, 2016) as the additional structural costs resulting from the additional filtering in payment processing and reporting.

Even more than in the case of the one-off costs, the bulk of the structural costs are borne by the payment account providers and amount to over €15.2 million per year. The total structural cost increase for direct debit issuers and submitters of SCT bulk files is limited to around €283,000 per year.

Table 3.13 Structural costs for payment account providers, direct debit issuers and submitters of SCT bulk files (EUR thousands per year)

	Total costs	
	Payment account providers	Direct debit issuers and submitters of SCT bulk files
Modifications to payment and payment data systems and credit transfer forms	€11,339	€212
Filtering Dutch/non-Dutch	€3,949	€72
Total	€15,288	€283

⁴⁹ In a technical exploration of number portability, DNB (2016) states that both banks and payment processors benefit from IBAN registration as a result of being able to recognise the payment account provider directly from the payment data. This eases the processing of technical, functional and compliance checks which they carry out on incoming and outgoing payments. On the other hand the use of aliases breaks the link between the payment account details and the payment account provider.

3.6 Sensitivity analyses

We have made certain assumptions in the cost-benefit analysis of alias use. We have adjusted the level of the various input parameters and the effect on the overall cost-benefit balance to understand the extent to which these assumptions determine the results of the analysis. The sensitivity analysis in this section describes the results of the sensitivity analysis on the basis of the most relevant input parameters. Input parameters are relevant if the results are sensitive to the adjustment (1) and we are uncertain about the actual level of the parameter and there is therefore an assumption with regard to the level of the parameter (2). We apply variations in terms of parameters for direct and indirect benefits and for one-off and structural costs (Table 3.14).

Number of private payment account holders and switchers

In the case of direct benefits the first uncertain factor is the number of primary private accounts we should include. In the baseline we assume that each adult has a primary payment account (13 million). It is also possible that payments are made per household and that consequently there is only one primary payment account per household. If we calculate on the basis of 7.9 million households that have a sole or joint primary payment account, the direct benefits over 10 years decrease by more than €50 million. The effect of a lower number of switchers on the total benefits is partly offset by the fact that the number of crediting and debiting relationships per switcher increases (that number is approximated by dividing the number of transactions by the (smaller) number of payment account holders). In the baseline (without aliases) the switching costs per switcher then increase, because the switcher has to inform more crediting and debiting contacts of the new account number. The benefits of introducing an alias per switcher consequently increase.

If the percentage of switchers in the initial situation is not 1.6% but 1%, the direct benefits of alias use decrease by around €175 million in the first 10 years, as the number of switchers taking advantage of lower switching costs is then considerably smaller.

Percentage of private switchers using the Switching Service

The percentage of private switchers using the Switching Service in the baseline (34%) is the result of the total number of switchers in the last 12 months (based on the DNB survey) and the number of private switchers using the Switching Service in 2018 (figures from the Dutch Payments Association). Payment account providers state, however, that they estimate the percentage of switchers using the Switching Service to be higher. If we calculate on the basis of 80% (see also Decisio, 2016), the direct benefits over 10 years decrease by almost €150 million, as the switching costs in the baseline scenario without alias use are then considerably lower due to the more frequent use of the Switching Service.

Another way of interpreting this figure is as follows. Suppose that (for example due to policy intervention) the percentage of users of the Switching Service increases by 80% compared to the current situation. The switching costs for private payment account holders will then fall by almost €150 million over a 10-year period. A doubling of the percentage of switchers has been assumed in this calculation. If the percentage of switchers remains unchanged compared to the initial situation, the switching costs will decline by around €100 million over this period. If that increases the switching threat, indirect benefits may also arise due to greater competition.

Percentage of business switchers using the Switching Service

The percentage of switchers using the Switching Service is over twice as high for business switchers (78%), in line with the greater cost reduction due to the use of the Switching Service for business switchers compared to private switchers. On the other hand the percentage of business switchers using the Switching Service is lower if we calculate this over the entire 2015-2019 period (53% compared to 78%), and in the case of private switchers this only makes a difference of one percentage point (33% compared to 34%). Since we combine these data with the most up-to-date switching percentages based on the DHS survey, and it is possible that business use of the Switching Service has increased over time, we maintain the figure of 78% use of the Switching Service for business payment account holders in the initial situation. If we base our calculation on the average over the 2015-2019 period, the cost-benefit balance increases by €4 million in one year, and €29 million discounted over a 10-year period.

Workload of the switch without alias use

If the time that account holders spend changing provider without using the Switching Service (DIY) in the initial situation without alias use increases by 20%, the benefits of alias use increase by over €50 million over 10 years. If that same assumption is made for switchers who do use the Switching Service, the increase is smaller (€17 million), because switchers spend less time switching when they use the Switching Service.

Efficiency gain

For the indirect benefits the baseline has been calculated with a decrease in inefficiencies as a result of which the costs decrease from 1.6% to 1.3% of online payments. A correction has been applied for selection by disregarding SMEs with larger transaction numbers. If we do not apply this correction and assume that the decrease in inefficiencies due to competition causes costs to decrease to 1.1% (in line with the costs of non-bank providers as found by Panteia, 2018), the indirect benefits increase by more than €50 million over 10 years. If we assume (in line with Decisio, 2016) that a 5% efficiency gain is possible on total bank turnover in the payment system (instead of online payment services), the indirect benefits over a 10-year period turn out to be around €266 million higher.

Table 3.14 Sensitivity of total costs and benefits to different input parameters (present) value in EUR millions

	10 years (present value)
Overall balance of costs and benefits in the baseline	-580
Direct benefits	
7.9 million primary private payment accounts (instead of 13 million)	-51
80% of private switchers use SS (instead of 34%)	-147
53% of private switchers use SS (instead of 78%)	29
1% private switching percentage without alias use (instead of 1.6%)	-175
Time spent on DIY switching is 20% higher (instead of 10.8 and 15.3 hours)	51
Time spent on SS switching is 20% higher (instead of 2.3 and 5.5 hours)	17
Indirect benefits	
Reduction in inefficiencies of 0.5 percentage points (instead of 0.3 percentage points)	54
Reduction in inefficiencies on total bank turnover for payment service	266
One-off costs	
Costs of information campaign €5 million compared to IBAN migration (instead of €20 million)	15
System costs 20% higher	- 125
System costs 40% lower	250
Structural costs	
Alias register maintenance costs compared to maintenance costs of IBAN Renumbering Tool	8
No additional structural costs for duality in payment data	46

One-off and structural costs

For the one-off costs we base our calculation on the costs of the information campaign for the donor registration in the baseline, because this requires communication to every adult in the Netherlands. If we base our calculation on the lower costs of the IBAN migration (where that was not necessary), the one-off costs over the 10-year period decrease by €15 million.

According to the payment account providers the system costs are roughly comparable to those of the IBAN migration. If we were to base our calculation on system costs that were 20% higher, the costs over the ten-year period would rise by €125 million. On the other hand the operators involved have commented that since SEPA a large number of empty fields have been available in the payment processing systems of payment account providers and large users of payment services. As a result, these operators argue that it is possible simply to have an alias running in parallel in a payment.

In this way the structure of the payment system could remain largely unchanged, and the costs resulting from the required system modifications could be limited. On the basis of these assumptions, we base our calculation on one-off (discounted) system modification costs being 40% lower in the most favourable scenario (see section 3.1).

If the current payment processing systems do indeed already have space available for double fields, the higher structural costs resulting from dual payment data systems will be lower. On the basis of these assumptions the structural costs decrease by €46.3 million over 10 years.

Sensitivity of the cost-benefit balance

The cost-benefit balance is therefore particularly sensitive to other assumptions with regard to the percentage of switchers using the Switching Service, the switching inclination in the initial situation, the assumptions relating to indirect benefits and the one-off system costs. A number of these parameters have therefore been varied in section 3.1 in order to present a range around the cost-benefit balance.

4 Alias-dependent costs and benefits

4.1 Introduction

DNB concludes that there is no existing alias that is sufficiently suitable for large-scale alias use in the payment system (see DNB, 2020). This means an alternative, newly developed, robust alias will be required if it is decided to introduce the use of aliases in the Netherlands. In this chapter we compare (on a qualitative basis) the cost and benefits of the robust alias with those of seven existing potential aliases. The existing aliases all have a less favourable cost-benefit balance than the newly developed alias.

4.2 Costs and benefits of existing aliases

Table 4.1 shows the costs and benefits of existing aliases compared to those of the robust alias. All benefits are ultimately dependent on the share of account holders using the alias. If a large number do not use it, the savings in switching costs are smaller. The same applies to the reduction in administrative costs for direct debit issuers and economies of scale in the online payment services market. Five of the seven existing aliases can be used for either the consumer market or the business market, but not for both. This considerably limits the potential use of aliases, and hence also the benefits.

The mobile phone number and e-mail address can be used for both businesses and private individuals. However, there are also consumers and possibly also businesses without a mobile phone number or e-mail address. And it is possible that some consumers would not want their telephone number and/or e-mail address to be known to some or all of their financial contacts. This limits the potential adoption of alias use.⁵⁰ Another disadvantage of telephone numbers or e-mail addresses is that they are not ‘stable’. People may switch telephone or e-mail provider and their telephone number or e-mail address may then change. The link to the payment account could therefore constrain switching behaviour in the telephony or e-mail market.

The biggest cost item concerns the system modifications for payment account providers, direct debit issuers and submitters of SCT bulk files. These would likely be higher, or considerably higher, if a non-self-checking alias were adopted (telephone number, e-mail or establishment number). Moreover, the length of e-mail addresses may vary. The use of a non-self-checking alias increases the propensity for errors, as well as the costs involved in limiting and rectifying errors. The fact that system costs (including one-off system costs) are the largest cost item of a transition to an alias is a key reason why the cost-benefit balance of alternative aliases turns out worse than that of a newly developed, robust alias.

Existing aliases also have some advantages. For example, users will probably require less information, because payment account holders are to a large extent already familiar with this alias. The look-up costs are lower because payment account holders would usually already have each other's alias if (for example) the mobile phone number were used. However, the look-up costs are only a small part of the total one-off costs of a transition to an alias (see the first column in the table).

⁵⁰ Unless costs are incurred elsewhere to help this group to have a telephone number or e-mail address.

The bottom line is that all existing aliases have a considerably less favourable cost-benefit balance than the newly developed, robust alias:

- Mobile telephone number and e-mail address have the biggest potential reach. Since these are not necessarily self-checking numbers, however, additional costs would have to be incurred in order to guarantee the necessary reliability. This is particularly true in the case of e-mail addresses, which do not even have a fixed length.
- The BSN has potential as it is a self-checking number. A disadvantage is that the BSN is currently a privacy-sensitive number and its use by third operators is subject to tight legal restrictions.⁵¹ Using the BSN as an IBAN alias would compromise its privacy and probably lead to a need for a ‘new BSN’ with associated costs.
- Of the four business aliases, the VAT ID scores best in relative terms. The LEI is an identifier that by no means all businesses possess. The establishment number and the Chamber of Commerce number dating from before 2010 are not self-checking. These aliases are not available to households, so they cannot provide a comprehensive solution for the reduction of switching barriers.

⁵¹ For that reason the Tax Administration has issued new VAT identification numbers to all sole proprietorships with effect from 1 January 2020. The previous **number** included the full Citizen Service Number (**BSN**), a privacy-sensitive item of personal data.

Table 4.1 Existing aliases have fewer benefits and the main cost items are higher.

Present value over 10 years	Robust alias	Telephone number	Email address	BSN number	CoC number	Establishment number	VAT ID	LEI number	Explanatory note
Benefits (direct and indirect)									
Payment account holders, direct debit issuers, submitters of SCT bulk files and payment account providers									
Reduction in switching costs, reduced administrative costs and economies of scale	€487	-	-	--	--	--	--	--	Private account holders have no CoC number, establishment number, VAT ID or LEI number, so they do not benefit from these aliases. Coverage of telephone numbers and email addresses is not 100%. Furthermore, these aliases are not 'stable'. Business operators do not have a BSN.
One-off costs									
Public administrative bodies									
Implementation and information	€(28)	-	-	++	-	-	-	-	The BSN is a privacy-sensitive number, so additional costs have to be incurred for legislation and implementation. Generally, an existing alias probably requires less information than a new, robust alias.
Payment account providers, direct debit issuers and submitters of SCT bulk files									
System modification, look-up and conversion costs	€(796)	+	++	=	+	+	=	=	System modifications, look-up costs and conversion costs are higher in the case of non-self-checking numbers, because additional effort is required to limit the propensity for errors. Email addresses have no fixed length so are relatively more error-prone.
Letters to payment account holders	€(29)	+	+	+	+	+	+	+	Use of an existing alias results in higher costs for sending letters to account holders; see also linking costs below.
Payment account holders									
One-off link to IBAN	€(34)	+	+	+	+	+	+	+	Linking an existing alias is more complex. A new, robust alias can be linked centrally and securely to the existing IBANs. In the case of existing aliases, payment account holders will have to demonstrate that the alias is actually theirs before it can be linked to the IBAN.
Look-up costs	€(47)	--	--	=	-	=	-	=	Look-up costs for existing aliases are lower because in many cases the contacts already know them. It is necessary to check, however, that the alias concerned is linked to the right IBAN.
Structural costs	€(125)	=	=	=	=	=	=	=	These costs do not depend on the type of alias.
Maintenance costs for alias register and parallel processes required to process both IBAN and alias									

Note: a + in this table refers to the expected level of the item. In the case of benefits, a – indicates that the benefits are expected to be lower. In the case of costs, a – indicates that the costs are expected to be lower. If the amount of the item is expected to be considerably higher or lower than in the case of a robust alias, – and ++ have been used. = means that the amount of the item is the same as for a robust alias.

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Appendix A Structure of the analysis

General Guidance for Cost-Benefit Analysis

A social CBA is a comprehensive analysis of the effects of a project or investment on prosperity. The basis of a social CBA is that all the effects on all groups in society are taken into account. Where possible the effects are monetarised – expressed in euros – to make them comparable. A discount rate of 3% is also applied to take account of future effects. The social CBA analyses:

- Direct and indirect costs and effects;
- Distribution of costs and benefits among cost centres;
- Long- and short-term effects;

It is desirable to follow the General Guidance for Cost-Benefit Analysis for this kind of research. The use of this Guidance is mandatory in the case of social CBAs conducted on behalf of central government. The Guidance has been drawn up by CPB (Netherlands Bureau for Economic Policy Analysis) and PBL (Netherlands Environmental Assessment Agency). The Guidance is followed by manuals, drawn up partly by SEO, showing how social CBAs can be used in various policy areas and for different purposes. The Guidance and the manuals have been adopted by the Dutch Government. They provide a solid basis for high-quality social CBAs.

The General Guidance asks researchers to choose a suitable form of social CBA⁵²: It states:

“Different phases of the decision-making make different demands on a social CBA. ... In the initial phase of the decision-making [it is] important that a large number of often still schematic alternatives are analysed on an overall basis. After it becomes clear which avenues the research is focusing on, the various alternatives are further developed and a more in-depth analysis is both necessary and possible....

In a comprehensive social CBA all research steps are carefully implemented and all effects are defined and evaluated as precisely as possible. This type of social CBA contains the best available information and offers decision-makers the most detailed insights into the advantages and disadvantages of a measure. The main disadvantage of such a social CBA is the size of the research load, which can make the research lengthy and expensive. ...

A key figure CBA (KCBA) determines the effects and assessments based on rules of thumb and key figures. The advantage of a KCBA is that it can be conducted faster and more cheaply than a comprehensive social CBA. This means it is also possible to conduct CBAs for smaller measures: the costs of the research then remain proportionate to the costs of the measure. A KCBA can also work well if there are still many project alternatives in contention. The KCBA then reduces the research load.”

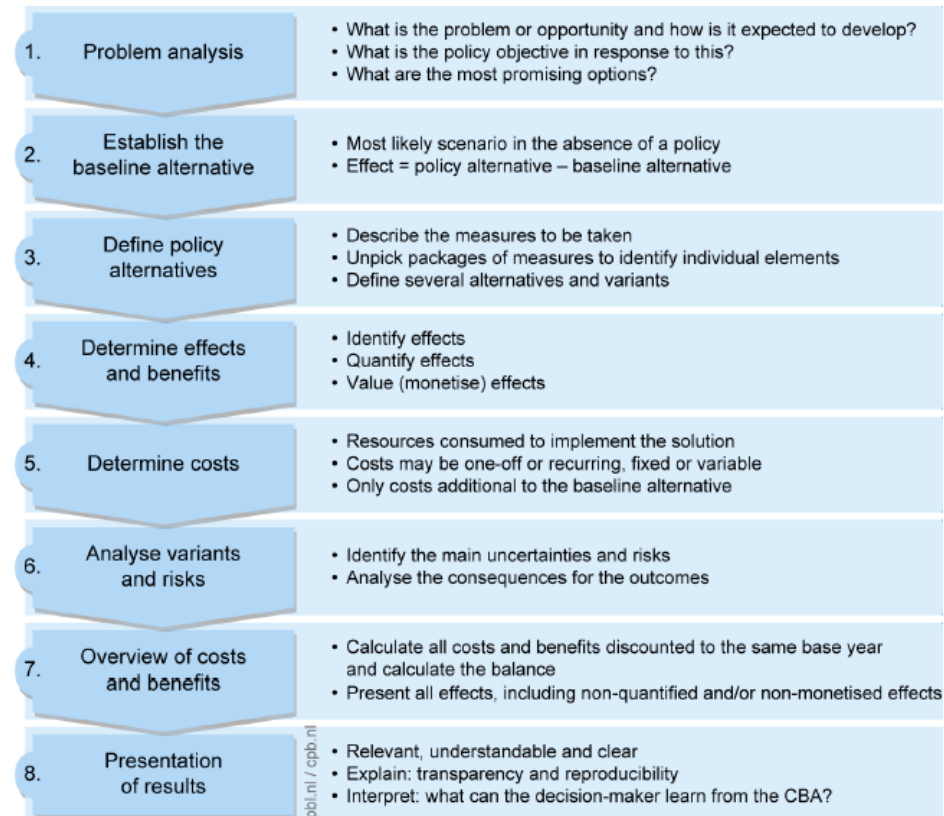
In our opinion the key figure CBA is most appropriate given that alias use is currently in the knowledge development and decision-making phase, and given the available information. There are a number of different potential aliases that could be used. Information is available on the effects of these alternatives, but it is not yet complete. Further research has yet to be conducted into the costs. A key figure CBA can be used for an ‘initial sift’ to find out whether there are promising alternatives, and, if so, what they are. In addition to the General Guidance, we use data and methods from comparable studies and social CBAs. These are, for example:

⁵² G. Romein and G. Renes (2013) *General Guidance for Cost-Benefit Analysis*, The Hague: CPB, PBL.

- the study into the advantages of number portability by Decision conducted on behalf of ACM in 2016;⁵³
- ACM's contribution to the cost-benefit analysis of EU-wide number portability;⁵⁴
- The EC's social CBA from 2013;⁵⁵
- Research by the United Kingdom's FCA into switching barriers.⁵⁶

The approach is based on the step-by-step plan in the General Guidance, as outlined in Figure A. 1.

Figure A. 1 Step-by-step plan for social CBA



Source: G. Romein and G. Renes (2013), General Guidance for Cost-Benefit Analysis.

⁵³ Decisio (2016) Determining the benefits of account number portability. June 2016.

⁵⁴ ACM (2016) Portability of payment account numbers. June 2016.

⁵⁵ European Commission. (2013). Impact Assessment on the comparability of fees related to payment accounts, payment account switching and access to payment accounts with basic features.

⁵⁶ Financial Conduct Authority. (2015). Making current account switching easier.

Appendix B Figures and tables

Annex B.1 Comparison of benefits with previous study

Tabel B. 1 compares the benefits calculated in this report with those in Decisio (2016). The direct benefits for private account holders are higher, mainly because in this report we have a larger population of private payment account holders (including primary payment account holders).

The benefits for switching SMEs are lower in this report because:

- Switching is less time-consuming for SMEs, partly because we estimate on the basis of recent DNB data that the number of bank relationships per SME is smaller.
- For the SMEs that switch using the Switching Service we assume one month of duplicated costs for continuing to hold the old payment account rather than 13 months.

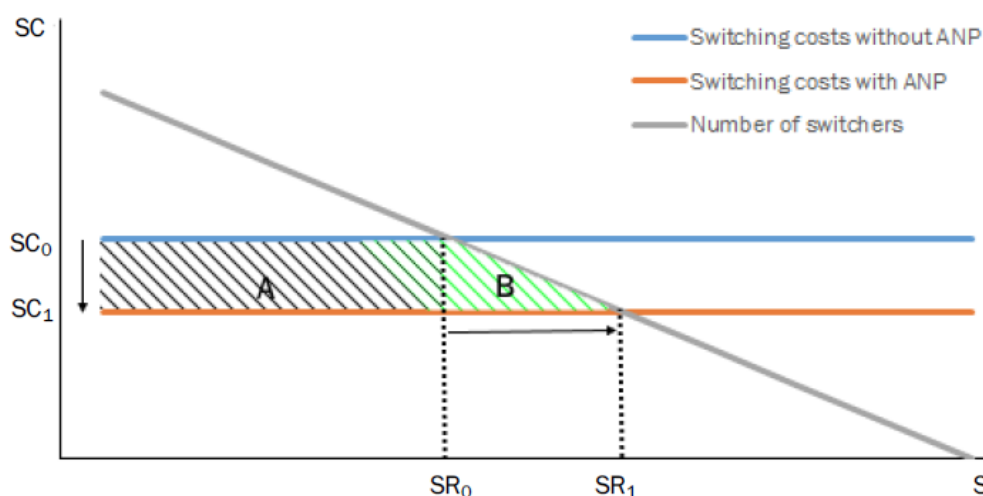
The indirect benefits are lower because we limit the basis for calculating the reduction in the X-inefficiency based on the report of Panteia (2018) to online bank payment services. On the basis of the same study we also calculate the scope (adjusted as necessary) for efficiency gains at 0.3 percentage points: the difference between 1.6% for bank providers and 1.3% for non-bank providers (adjusted as necessary). Decisio (2016) calculates a rate of 5% for the potential efficiency gain and arrives at an estimate of between €500 and €550 million over 10 years. In the table below we have updated this figure, and discounted it at a rate of 3% over 10 years. We thus arrive at a figure of €331 million over 10 years, which is used in the most favourable scenario.

Table B. 1 Comparison of direct and indirect benefits over a ten-year period with Decisio (2016)

	Decisio (in EUR million)	Social CBA on alias use (in EUR million)	% compared to Decisio
Direct benefits			
Reduction in switching costs for private account holders	174	234	135%
Reduction in switching costs for SMEs	159	56	35%
Reduced administrative costs for direct debit issuers and submitters of SCT bulk files	133	130	98%
Indirect benefits			
Efficiency gain	525	66	13%
Total benefits	991	487	49%

Annex B.2 Rule of half

Figure B.1 'Rule of half' principle in the benefits for new switchers



Source: Decisio (2016), Benefits related to switching costs.

As the figure illustrates, as a result of a decrease in switching costs (SC) from SC_0 to SC_1 the percentage of switchers increases from SR_0 to SR_1 . For payment account holders who switch even in the situation without number portability (alias use), the cost-benefit balance of the switch was already positive for switching costs of SC_0 . As a result, the rise in the total benefits for this group is equivalent to the number of switchers in the group (SR_0) times the decrease in the switching costs ($SC_1 - SC_0$). There are no changes in this group with regard to their decision to switch, only in the total benefits that result from the switch.

On the other hand there is a group of 'new switchers' for whom the cost-benefit balance of the switch is *negative* for switching costs at the SC_0 level and *positive* at the SC_1 level. Because the benefits of switching are now higher than the costs resulting from the cost reduction, they also switch. As a result, the switching percentage increases from SR_0 to SR_1 .

The *amount* of the change in the cost-benefit balance of each 'new switcher' varies depending on the switcher. On the left-hand side of area B the total benefits are almost equal to the total cost reduction ($SC_1 - SC_0$), and on the right-hand side the balance of the switch is almost 0, so people are indifferent about switching. As a result, in the case of a linear demand curve (benefits), the *average* of the group equals the average of the two extremes:

$$\frac{(SC_1 - SC_0) + 0}{2} = 1/2(SC_1 - SC_0)$$

We therefore apply the 'rule of half' to calculate the benefits for the new switchers.

$$\sum_{SR_0+1}^{SR_1} \Delta(SR - SC) = (SR_1 - SR_0) * 1/2(SC_1 - SC_0)$$

Annex B.4 Tables

Table B. 2 Summary table of costs and benefits divided by market operator in the payment system, present value over 10 years in millions of euros.

	Payment account holders	Public administrative bodies	Direct debit issuers and submitters of SCT bulk files	Payment account providers
Benefits				
Reduction in switching costs	290			
Reduced administrative costs			130	
Efficiency gain	66			
Costs				
One-off				
Development and implementation of migration plans		-4		
Information for payment account holders		-19		
Development and provision of alias register		-4		
Letters to payment account holders				-29
System modifications			-116	-509
Look-up costs	-47		-21	-31
Conversion costs			-41	-78
One-off IBAN alias verification costs	-35			
Structural				
Alias register maintenance costs		-8		
Structural costs of payment account providers, direct debit issuers and submitters of SCT bulk files			-2	-123
Balance	275	-35	-50	-770

The above table underestimates the benefits for account holders and the costs for payment account providers. If more competition leads to lower prices for payment account providers (see also Decisio, 2016), the producer surplus falls and the consumer surplus rises by the same amount. This shift may be substantial. Since that would have no net effect on the total cost-benefit balance, it has not been included in the table.

Table B.3 Costs and benefits over various viewing periods (baseline scenario, in EUR millions)*

	Value	Present value over 10 years	Present value over 30 years
Direct benefits			
Payment account holders			
Reduction in switching costs for private payment account holders	29	234	544
Reduction in switching costs for SMEs	7	56	130
Direct debit issuers			
Reduced administrative costs of direct bank relationships	16	130	302
Indirect benefits			
Payment account providers			
Efficiency gain	8	66	154
Total benefits	61	487	1,130
One-off costs			
Public administrative bodies			
Development and implementation of migration plans	-4	-4	-4
Information for payment account holders	-20	-19	-19
Development and provision of alias register	-4	-4	-4
Payment account providers, direct debit issuers and submitters of SCT bulk files			
Letters to payment account holders	-30	-29	-29
System modifications	-644	-625	-625
Look-up costs	-55	-52	-52
Conversion costs	-126	-119	-119
Payment account holders			
One-off IBAN alias verification costs	-36	-34	-34
Look-up costs	-50	-47	-47
Structural costs			
Public administrative bodies			
Alias register maintenance costs	-1	-8	-19
Payment account providers, direct debit issuers and submitters of SCT bulk files			
Structural costs	-15	-125	-288
Total costs	-985	-1,067	-1,240
Balance	-924	-580	-110

* As a result of the discount rate the one-off costs that are not (or not only) incurred in the first year appear lower in the tables and we express them in present values.

Table B.4 Calculation of costs of direct debit issuers per size category

Number of direct debit issuers	Range of authorisations per direct debit issuer	Transactions per size category (numbers in millions)	Type of costs	Costs per transaction (in EUR)	Total (in thousands of euros)
24	10,000,000 - 1,000,000	373	System analysis	0.002	793
			System modifications	0.020	7,374
			Internal changes	0.006	2,193
			External costs	0.001	327
			Conversion costs	0.011	3,967
			Look-up costs	0.005	1,867
			Total	0.044	16,521
1,060	1,000,000 - 10,000	574	System analysis	0.004	2,441
			System modifications	0.040	22,688
			Internal changes	0.012	6,749
			External costs	0.002	1,005
			Conversion costs	0.021	12,206
			Look-up costs	0.010	5,744
			Total	0.089	50,833
95,300	10,000 - 100	488	System analysis	0.009	4,439
			System modifications	0.085	41,261
			Internal changes	0.025	12,274
			External costs	0.004	1,828
			Conversion costs	0.046	22,197
			Look-up costs	0.021	10,446
			Total	0.190	92,446
Total					159,800

The costs per transaction for the large direct debit issuers in the first size category (10,000,000-1,000,000) are based on Europe Economics (2016). The estimates in this study are based on the large direct debit issuers. For the other categories we then assume that there are disadvantages of scale, as a result of which the costs per transaction are higher by a factor of 2 (mid-category) or 4.3 (smallest direct debit issuers).