FEEDBACK FORM

Name of undertaking: **SERVIRED**

Industry (network, current/potential acquirer, current/potential issuer, processor, other third party provider (e.g. merchant service provider), merchant (industry needs to be specified), other): **PAYMENT SYSTEM SCHEME**

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Participated in the questionnaire:
      ☒ Yes
      ☐ No

Specific questions from Executive Summary:

A. Financial analysis of the industry

1. Are high merchant fees a competitiveness issue for the EU economy?

A general statement concluding that merchant fees (MSC) are high is not correct from our point of view, for several reasons. First, as the Interim Report highlights, there are large differences in merchant fees across sectors and countries. Second, in the case of Spain, interchange fees have been following a diminishing trend. This trend is becoming more pronounced and, in accordance, merchant fees are decreasing sharply. This is thanks to the Framework Agreement, signed between card payment systems and merchants in December 2005. This agreement is an efficient solution to the situation faced by the industry after the decisions issued by the Spanish Competition Court, as they meant a radical change in the interchange fees setting mechanisms in Spain. According to this agreement, after a transitional period all systems will converge to costs-oriented interchange fees. This agreement also implies a sharp decrease in interchange fees during the next three years. It is already having a significant impact as interchange fees are experiencing significant reductions. As a consequence, MSC seems to be falling also significantly and merchants have manifested their satisfaction with the new situation. Whether this decrease in MSC is being passed on to prices by merchants or not is something that we ignore.

2. Are there compelling justifications for the comparatively high level of merchant fees observed in some parts of the EU25?

There are a great variety of factors that can explain differences in interchange fees, MSC and cardholder fees across EU. Huge differences are observed among countries concerning the structure and functioning of card payment systems, the penetration and use of cards, the level of concentration in issuing and in acquiring, the business costs, the structure of retail banking, the use of other means of payments, the levels of fraud, the use of credit instruments such as revolving… All these factors have great influence on interchange fees, cardholder fees and MSC.

3. In view of the apparent profitability of card issuing, is there a generally applicable justification for substantial revenue transfers through interchange fees in card payment systems?

As a card payment scheme, we have no information on the profitability of our member banks.

With respect to the exercise that the Interim Report elaborates on profitability we find that it has a number of problems. First, the information provided on costs may not be homogenous, as banks have different interpretations of cost concepts and allocate costs among activities in a different manner. Second, the Interim Report does not follow accepted accounting and economic standards for measuring profits. Third, the Interim Report´s analysis of profitability fails to consider risks, while they are a relevant component of the card business. Fourth, the Interim Report does not provide a benchmark for evaluating what "substantial profits" means.

Besides, as the Interim Report correctly describes, the market for these services is two-sided. This means that card payment services are provided to two different users, cardholders and merchants, at the same time. As a consequence, costs and revenues have to be allocated somehow among these two sides. The interchange fee is a mechanism that allows this allocation. Zero interchange fees are only one possibility of many and, probably, not the most efficient one for many systems, as it means that costs and revenues are allocated without having into account the maturity of the system and the demand elasticity of each side. For most systems, having a centrally set interchange fee reduces transactions costs and facilitates entry (see our answer to General Comments in this form).

4. Are the high profits observed due to innovation or do they arise from some kind of market power in a two-sided industry?

Based on its statistical analysis, the Commission concludes that issuers are not passing these revenues on to consumers. However, the analysis performed by the Commission does not support the conclusion that there is an excessive price problem because of the exercise of market power.

On the one hand, this statistical analysis and its interpretation have several weaknesses. ServiRed has asked the economic consulting firm LECG for a technical opinion on this Interim Report statistical analysis. LECG´s technical opinion is attached to this answer. On the other hand, this hypothesis is not consistent with the intense competition that takes place in issuing. As the Commission mentions, concentration is not a problem in issuing (see Interim Report page 86), entry has proved to be easier at that side of the market and there is product innovation.

5. What pricing practices, rules and legal provisions distort price signals to consumers and the choice of the most efficient payment instrument?

In the absence of intervention, banks and card payment systems will price according to market conditions, trying to promote the use of the less costly alternative for them. Card payments are less costly than other instruments from a private and a social point of view, independently of how costs are allocated and who bears them. According to this, banks and merchants set prices trying to foster the use of cards and other electronic means of payment. The Commission itself has made references to the higher cost that non electronic payment instruments represent for the society as a whole. This means that, even considering those fees currently paid by cardholders and merchants, the opportunity costs of using cash is higher.

So there are no reasons to conclude that in the absence of intervention there is a market failure that leads to excess provision of cards. In fact, a potential intervention on prices should be carefully considered, as it could distort price signals and affect the allocation of resources among means of payment.

6. Would cost-based pricing promote the use of efficient payment instruments and how could such pricing be implemented?

Probably the answer is no, as long as this would imply a lower interchange fee than the one that would allocate cost and revenues in the most efficient way.

7. Do currently existing pricing practices have a substantial negative effect on cross-border card usage by consumers?

Cross border card usage do not find any obstacles from the Spanish perspective. Those cards that are issued in Spain can be used in any European country. At the same time, cardholders from European countries can use their cards at Spanish POS without suffering any kind of discrimination.

B. Market structures, governance and behaviour

8. What market structures work well in payment cards?

We do not have an answer for this question. As we mentioned in question 2, which market structure can be profitable and competitive depend on too many factors.

9. What market structures do not appear to work well / deliver efficient outcomes?

There are large fixed costs associated with establishing and operating a viable payment network. According to this, an efficient outcome requires the development of the network, bringing on board as many cardholders as possible and fostering the use of cards by them. Accordingly, those structures that do not favour card usage would not lead to efficient outcomes.

10. What governance arrangements can facilitate competition within and between card payment systems?

Competition is facilitated by those arrangements based on objective requirements. We believe that governance arrangements in the Spanish case have worked well as they have allowed intra-platform competition (also promoted by low concentration in issuing and acquiring), inter-platform competition (three different card schemes competing under excellent interoperability conditions) and free movement of banks across the different schemes. There are many examples of banks that have changed from one network to other in the last three years.

11. What governance arrangements can incentivise card payment schemes to respond to the needs and demands of users (consumers and merchants)?

See answer to question 10.

12. What governance arrangements can allow minority participants or minority members to receive appropriate information and participate appropriately in decision-making?

ServiRed has different categories of members with the aim, among others, of facilitating Membership. Having different categories of members subject to more or less stringent obligations is a more flexible system and allows candidates to choose the more suitable alternative for them. Voting rights correspond to those members that subscribe a certain proportion of the capital. But any member can enjoy the benefits of being part of an integrated, interoperable network with a wide presence in Spain.

Participation in decision–making must be closely correlated with the obligations that the member is ready to assume. Otherwise, the system would have an intrinsic free-riding problem. Like in any firm, those that have a minimum participation in the company may not control the decisions, although they have information rights in order to preserve their minority participation.

What is important is to set objective conditions for membership, so any candidate can freely choose what kind of membership it prefers.

13. What access conditions and fees are indispensable?

We can summarize the goals that access conditions must meet in two. First, access conditions must ensure the solvency of the institution. This explains why the condition of being a financial institution is usually required. As Central Banks impose solvency requirements in order to be a financial institution, being a financial institution is considered an adequate guarantee. Second, access conditions must avoid free-riding. This is the reason why joining fees are required. These compensate the benefits obtained by the newcomer as a result of accessing an already developed system, although they must be set to a level such that the cost of joining is lower than the long term benefit.

Moreover, the requirements needed to meet these two goals must be objective, in order to prevent any kind of discrimination.

14. To what extent is separation between scheme, infrastructures and financial activities desirable to facilitate competition and efficiency?

We do believe that separation is healthy for competition and efficiency. That is the reason why ServiRed (card scheme) is legally separated from SERMEPA (infrastructure and processing) and is not involved in issuing and acquiring.

C. Future market developments

15. Are significant structural changes to be anticipated in the payment cards industry?

The cards industry is currently facing many challenges. On the one hand, the industry is involved in the construction of SEPA, which implies deep changes. We can identify four main issues in the SEPA agenda: governance, vertical integration, non-discriminatory principles and technical standards. On the other hand, the industry has to live under a great degree of regulatory uncertainty due to the changing –and sometimes inconsistent- views of the competition authorities in this field. This uncertainty has far-reaching repercussions, as it affects investment decisions. The implications that this regulatory uncertainty may have in the future are unfortunately unknown for us.

In this sense, the New Legal Framework may change the level playing field, as it plans to promote new kinds of players in the payment service industry, subject to different, less demanding access conditions.

Moreover, international systems and, particularly, Mastercard are currently engaged in a process of reorganization, turning into a for-profit equity corporation in which banks do not have a controlling interest. Although the implications of this process are still unclear, it will have an impact on the way competition develops.

16. What are the anticipated impacts on the industry of innovation and technological change?

This industry undergoes a continuous process of innovation and technological change. These changes come from two main needs: product innovation in order to attract consumers and fight against fraud.

As for the Spanish industry, implementation of EMV technology and standards is one of the most important challenges in the short run. This change implies important investments for the banks and card platforms.

D. Potential solutions to market barriers

17. How can structural barriers to competition, which may arise for instance from the integration of different functions within a payment system or from acquiring joint ventures, be tackled?

There is no general answer to this question as it depends on the nature of the barrier. Concerning vertical integration, the SEPA cards framework contemplates certain

obligations of separation of functions. Under SEPA the separation of card schemes' brand governance and management from the operations that have to be performed by service providers and infrastructures will be mandatory. Although a card scheme may offer additional services (as for example processing services), their usage cannot be mandated.

By the way, we disagree with the description of vertical integration in Spain provided by the Interim Report. The European Commission classifies the degree of vertical integration of the card payment systems from 1 (minimum integration level) to 6 (maximum integration level). According to these criteria, the Interim Report classifies two Spanish card payment systems in level 4 and the other one in level 3. Furthermore, it states that *"While domestic systems such as those in Ireland, the Netherlands, Denmark, Finland, France and Germany have legally separated scheme ownership from the technical and financial aspects of the payment cards business, other systems such as those in Belgium, Spain and Portugal have not yet taken this step and remain vertically integrated to a higher degree"*.

The degree appointed for the Spanish systems seems to be excessive. Between ServiRed and SERMEPA exists legal separation and they do not acquire. This is also the case for the Netherlands and Denmark, so there is no reason why the Commission has assigned level 1 to these two countries and level (3 or 4) to ServiRed.

Furthermore, in Spain operate three payment cards networks. So, even assuming a relatively "high" level of vertical integration, inter-network competition guarantees the openness of the market.

As for acquiring joint ventures, we understand that European competition law (in particular, the regulation on merger control) already deals with this subject, as it controls the creation of cooperative or concentrative joint ventures. The same happens in other national regulations. There are no reasons to apply to this sector other provisions than those provided for the rest of the sectors.

We also want to clarify certain aspects concerning the description that the Interim Report makes of acquiring concentration in Spain. Although the Commission recognizes several times that concentration in Spain is really low, in page 83 comments that "in 2001 two acquirers jointly owned more than 80% of the totals acquiring market for international debit card transaction in the network". We want to highlight that we do not agree on this information. First, both the source and the indicator are unclear. Second, even if it refers to the concentration degree within a particular network, the figure is incorrect and inconsistent with the data before mentioned by the Commission.

18. Are there compelling justifications for the identified possible behavioural barriers to competition?

We understand that the Interim Report considers as behavioural barriers the following ones: double standards in interchange fees, lack of direct access to multilateral clearing platforms, governance arrangements, membership requirements, blending and prohibition of co-branding.

We have already deal with justification for access aspects and governance in questions 10-13.

As for double standards in interchange fees for domestic and foreign payment services, this kind of practice has been removed and, according to SEPA principles, there is no place for it in future.

As for blending and the prohibition of co-branding, we do not see them as entry barriers.

From an economic point of view, blending is a way of reducing transaction costs as it avoids managing very similar but different MSC at the same time. Acquirers can compete for merchants based on the lowest blended discount rate, besides other non-price factors.

Co-branding is not limited in Spain. In fact, it has played a crucial role in associating domestic and international systems and promoting a single European payment area and thus cross border trade.

19. How much need and scope is there for harmonising technical standards in the payment cards industry? How large are the potential benefits and costs of harmonisation?

There is still great scope for harmonising technical standards in the payment card industry. In fact, domestic systems can still do more progress in this respect. That is the reasons why in the context of the EPC a task force has been set in order to work on these subjects.

How much need there is for it is something that still has to be explored. Harmonization can be reached at different levels and for each of them the cost and benefits may differ. There is a trade off between depth of the harmonization and its costs. The deeper the harmonization of technical standards, the higher the costs this harmonization implies. Therefore, there may be a point where harmonization is not efficient from a total welfare perspective. Self regulation may be more efficient, as financial institutions are better positioned to assess this trade off between costs and benefits of standardization.

E. Lessons for SEPA

20. What lessons (best practice) for the design of SEPA schemes can be learnt from existing national and international payment systems?

As mentioned before, we should bear in mind the important role played by domestic and international payment card systems in making it possible for a European citizen to travel around Europe (and the world) paying with the same card. When promoting SEPA we must consider the costs and implications of balancing the incentives in favour of unitary systems at the expense of association-based systems.

We should always consider that the characteristics of payment card services supply and demand differ a lot from one country to another and we cannot expect similar price conditions.

Besides, we must always consider whether the benefits of (self) regulation outweigh the costs of each measure. This is something that the Interim Report does not seem to have sufficiently into account.

21. How could competition between schemes in SEPA be strengthened?

This question assumes that there is a lack of competition between schemes. The Commission should be more precise on this respect.

As for Spain, interplatform competition works well and entities can opt for a system or another. Cardholders benefit from a diverse supply of card payment services that can be used everywhere. They also enjoy value added services, promotions and rebates, that have become something usual in order to attract them. Merchants are taking advantage of lower MSC as a consequence of the Framework agreement, which has brought stability to the system. We can say that the situation for users in the Spanish context is now better than ever.

22. Which structural and behavioural barriers to effective competition between banks and payment service providers should be removed to achieve SEPA?

We understand we have dealt with these aspects in questions 17 and 18.

23. What governance requirements should SEPA schemes meet?

We understand we address these aspects in questions 10-13.

24. By what means can interoperable communication protocols, security and other technical standards be achieved and certification procedures be limited to the minimum necessary?

We understand we address with these aspects in question 19.

25. Do the removal of barriers to competition, the observance of pro-competitive governance and the creation of interoperable standards require (further) regulation?

The design of internal rules of governance is a matter that mainly concerns institutions themselves. Nevertheless, certain requirements can be pointed out in order to prevent the existence of certain discriminatory provisions in the internal norms. Whether these provisions have to be a consequence of self-regulation or imposed by the authorities is a different matter. However, we consider that the former is better, as the SEPA cards framework has proved to be a good forum to solve this kind of questions and self-regulation can be more flexible to deal with this than Directives.

Financial institutions are better placed to assess whether the costs of a technical measure outweigh the potential benefits. For this reason, we believe that technical standards must be set by the industry, as happens in many sectors where technical standards apply. This does not mean that supervision by the authorities is not convenient.

General comments:

SERVIRED fully endorse the comments on the Interim Report presented by D.Evans, JC Rochet and D. Schmalensee in the paper they are submitting to the Commission.

General questions:

1. Did you find the content of the report easily accessible and understandable?
   ☐ yes, fully;
   ☐ the report was too general;
   ☐ the report was too technical.

2. Did you find that the level of detail in the report was:

☐ about right;

☐ not sufficiently detailed;

☐ too detailed.

3. Did the information contained in the report was:

☐ generally new to you/the payment cards industry;

☐ mostly known to you/the payment cards industry.

4. Did the market analysis in the report:

☐ confirm your views on the operation of payment cards market;

☐ challenge your/industry's views on the operation of payment cards market;

☐ represent a mix of both aspects.

5. Did the report raised the right policy issues;

☐ yes, covered most of the key issues;

☐ no, there were some significant issues left out.

Thank you for your contribution!

Some Comments on the Interim Report's Econometric Analysis

A Report for SERVIRED

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Enrique Andreu

Vanesa Llorens[1]

15 June 2006

1. Introduction

The European Commission launched a sector inquiry into retail banking in June 2005, with the purpose of assessing whether the degree of competition in this market is high enough to deliver full benefits to consumers and SMEs in the context of the SEPA. The European Commission issued an Interim Report on the payment card industry in Europe summarizing the Commission's initial findings on 12 April 2006, and opened a public consultation whereby interested parties are invited to submit comments on the Report.[2]

This paper sets out our observations to the Interim Report, focusing on a review of the empirical work it contains. In particular, the Interim Report relies on the results of the econometric analysis of pass-through[3] contained in its Annex 5 (the Annex) to show that:

- Merchant fees appear to be determined to a significant extent by interchange fees, as the "interchange fee to a large extent is passed on to merchants through higher fees."[4]

- However, high interchange fees do not appear to lead to lower prices for consumers in the form of lower cardholder fees, as "there is no significant negative relationship between the fee per card and the credit card interchange fee."[5]

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[2] European Commission, Interim Report I on Payment Cards, April 12 2006.

[3] The econometric analysis was performed by the Commission's Joint Research Centre in Ispra, Italy and is described in the Annex 5 of the Interim report.

[4] EC Interim Report, p. 141.

[5] EC Interim Report, p. vi.

In addition, the Interim Report finds evidence of the existence of substantial dispersion in merchant and interchange fees, and that issuer and acquirer profitability is high and persistent for payment cards.

The Interim Report interprets these findings as evidence of market fragmentation, lack of competition and market power and concludes ruling out the possibility that the observed interchange fees are justified on the basis of economic efficiency arguments.[6]

In our view, the analysis contained in the Interim Report represents a good initial attempt to deepen our understanding of the European payment card system. However, the econometric analysis contained in the Interim Report cannot be relied on for the purposes of reaching policy conclusions regarding the extent to which interchange fees are passed through to consumers and merchants. The reasons are the following:

- The results obtained from the econometric analysis have not been interpreted properly. The Interim Report claims to have estimated the true *impact* of the interchange fee on the merchant service charge fee and the cardholder fee, although the interdependence between these fees has not been properly accounted for in the analysis and therefore the Interim Report's interpretation of the results is not warranted. In order to obtain reliable estimates of the impact that changes in the interchange fee would have on merchant and user fees, appropriate econometric techniques would have to be employed. The Interim Report fails to apply these methods and therefore the results cannot be relied on for the purposes of the identification of the pass through between interchange fees and merchant and cardholder fees.

- Furthermore, the results are not robust and vary substantially across countries and specifications. This means that the association between interchange fees, merchant discounts and cardholder fees is very heterogeneous. The Interim Report, however, disregards some of the results with no apparent reason, which calls its conclusions into question.

- Finally, we find that the sampling technique leads to several potential biases in the final dataset and that the distribution of the observations over time and across countries may not be representative of the EU-25 payment card industry.

The remainder of this paper is organised as follows: In Section 2, we present a brief description of the econometric analysis undertaken by the Commission. As indicated above, this analysis refers to merchant and cardholder fees. In Section 3, we provide an overall assessment of the analysis and argue that it suffers from a fundamental endogeneity problem that undermines the conclusions drawn from the results in the Interim Report. In Section 4, we discuss the reasons why the results are not robust and in Section 5, we discuss the representativeness of the sample. Finally, Section 6 concludes.

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[6] EC Interim Report, p. vi.

2. A description of the econometric analysis

As stated in the Annex, the econometric analysis aims to analyse the determinants of the three fees that intervene in an open card payment system (the merchant service charge, the interchange fee, and the cardholder fee) and to study the interrelation among them.[7] In this section, we briefly describe the analysis carried out in the Annex, including the database and the methodology.

Data

The analysis is based on an extensive market survey conducted by the Commission throughout the second half of 2005. Information on acquiring and issuing was collected through a questionnaire sent out in July 2005 to a representative sample of 203 acquirers and issuers. Data on payment card networks was obtained from questionnaires sent out to 26 domestic and international payment card systems. The geographical scope of both questionnaires was the EU-25 and information was requested for the 2000-2004 period.

The information was collected by DG Competition through the following process:

- Issuing and acquiring institutions for both debit and credit cards were selected separately on the basis of a list of banks submitted by the two biggest international payment networks at the EU level: MasterCard and Visa.

- This selection was performed on a per-country basis to ensure that smaller countries were represented in the final sample.

- Country size was taken into account so that the number of institutions sampled in each country was proportional to country size.

- The final database was submitted to a standard cleaning process and respondents were re-contacted when necessary.

The response rate was close to 95% for the questionnaire addressed to the acquirers and issuers and almost 100% for that addressed to the payment card systems. The final database includes 147 acquiring banks and 296 issuing banks operating in the EU 25 countries and covers the years 2000-2004.[8]

Methodology

As noted above, the Interim Report focuses on the analysis of the determinants of the merchant service charge (MSC) and the cardholder fee, and in particular on the extent to which changes in the interchange fee (IF) are passed through to merchants and cardholders. To do so, the Annex separately analyzes the determinants of the merchant service charge and of the cardholder fee.

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[7] It should be noted, however, that the Annex focuses exclusively on the separate analysis of the impact of the interchange fee on the determination of both the merchant and the cardholder fee, and, despite claiming otherwise, does not analyse the determinants of the interchange fee.

[8] Section III of the Interim Report describes the collection of the information and the characteristics of the final database, although a detailed description of the final database is not provided.

A. Determinants of the Merchant Service Charge (MSC) fee

The final database used in the analysis of the MSC contains information from 147 acquiring institutions operating in the EU 25 over the period 2000-2004, some of them providing services for more than one network. In the questionnaire, information was requested at two different levels:

  i. Aggregate level: weighted average MSC fees are reported for the total client base, and for the top and bottom 10% and 25% of the client base.

  ii. Merchant-specific level: data for the top-ten and bottom-ten merchants (based on total turnover). The reported information includes the merchant's sector, number of transactions, total turnover, risk profile, starting date of acquiring relationship, ratio of cross border transactions, predominant transaction type and the profitability of the acquiring relationship.

The authors rely on merchant-specific level data (i.e. up to 20 observations for each bank and network) to estimate the following regression models:

  i. *Basic model*: The merchant specific-MSC for each network/country/year is related to the average IF for each network/country/year.

  ii. *Extended model*: In a second step, additional control variables are included in the regression model. These include variables that may be relevant in determining the MSC, and in particular the number of transactions per merchant and the length of the relationship with the merchant, the type of network, country, "class" of merchant (according to turnover), and merchant sector.

  iii. *Extended model by country*: The 'extended model' is then estimated for those countries for which enough observations are available. Results are presented for Czech Republic, France, Germany, Ireland, Italy, Latvia, Luxembourg, Netherlands, Portugal, Spain, Sweden and UK.

  iv. *Model including costs*: Finally, the results of a regression of the MSC on the IF and the (log) acquiring cost per transaction for the entire dataset, as well as for a small number of countries (Italy, Latvia, Netherlands, Spain and UK) are shown.[9]

Different methods for panel data analysis are applied in the estimation of each of these models.[10] The authors also check the appropriateness of these models (i.e., the validity of the underlying assumptions of each model) by applying standard statistical tests. These tests suggest that the fixed-effect (FE) estimator is the most appropriate one. Finally, a dynamic specification is estimated, aiming to account for the persistency in the MSC.

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[9] Banks provided information on their total acquiring costs separately for credit and debit cards. The Commission calculates an estimate of the (average) acquiring cost per transaction as the total acquiring cost divided by the number of transactions.

[10] The between effect estimator, the fixed effects estimator, the standard least square estimator, and the random effects estimator. For the 'extended model by country' and the 'model including costs', only results using the fixed effect regression are shown. A detailed discussion on the analysis of panel data models can be found in Manuel Arellano (2003), *Panel Data Econometrics*, Oxford University Press, and in Cheng Hsiao (1986), *Analysis of panel data*, Econometric Society Monographs.

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B. Determinants of the cardholder fee

Regarding cardholder fees, the final database contains information from 296 issuing banks operating in the EU 25 over the period 2000-2004. Issuing banks provided information on the overall annual cardholder fee excluding the annual percentage rate (APR) and the weighted APR level.[11] Information was collected:

    i.   By type of customer: corporate, consumers and combined.

    ii.   By customer size: for the top and bottom 10% of the client base.[12]

Issuing banks also provided information on the following variables: cardholder fee, number of cards, turnover, number of transactions, and cost per transaction. It is not clear whether this information was only gathered for the total client base or it is also available for each type of customer and for the top and bottom 10% of client base.

The following models are estimated:

    i.   *Basic model*: The (log) cardholder fee by type of customer (business and consumer) for each network/country/year is related to the average IF for each network/country/year.

    ii.   *Extended model*: In a second step, the authors include a set of dummy variables that control for the network, country and type of customer.

As in the analysis of the determinants of the MSC, different methods for panel data analysis are used to estimate the model. The authors also test the validity of the random effects model versus the fixed effect model, to conclude that the random effects model cannot be discarded.

Conclusions from the analysis

The Interim Report concludes that:

> *"The interchange fee seems to be the most important influence factor for the merchant discount, regardless of the employed specification. […] The interchange fee also has a significant impact on the cardholder fee, albeit the elasticity is (in absolute terms) much smaller than -1 (sic) which indicates a non perfect "pass-on" by the issuing banks."[13]*

Hence, according to the Interim Report's interpretation of the results, the estimations confirm that the interchange fee is to a large extent passed on to merchants through higher fees but that there is "no compelling evidence" that reductions in the IF lead to higher levels of cardholder fees.[14,15]

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[11] According to Annex 5, the overall cardholder fee includes, among others, the following components: card issuance fee, fee per card, fee per transaction, fee per transaction over the credit limit and for late balance payment, replacement fee, cash withdrawal fee, currency conversion fee, account statement and billing information fee, copy of the account statement fee, penalty fee, emergency cash advance fee, foreign transaction fee as well as insurance fee.

[12] Note that the criterion followed to rank clients is not specified.

[13] EC Interim Report, p. 14 of Annex 5.

[14] EC Interim Report, p. 141.

[15] In some sections of the Interim Report we find claims that "the interchange fee accounts on average for a percentage of the merchant fees that vary from 40% to 70% on the econometric method used". In this statement, the coefficients of the interchange fee across the different specifications are being interpreted as reflecting the importance of the interchange fee as a determining factor of the merchant service fee. This interpretation of the coefficients, however, is

In our view, however, these conclusions cannot be supported by the analysis carried out in the Annex. In the next three sections we identify significant weaknesses in the analysis and more importantly, in the interpretation of the results.

3. The results have not been interpreted properly

In our view, the most fundamental problem with the econometric analysis of pass-on is that, despite the claims in the Interim Report, the analysis does not identify the impact interchange fees and MSC and cardholder fees. The reason is that (1) it disregards the interdependence between issuers and acquirers and the fact that all fees are simultaneously determined, and that (2) even if the IF was determined independently from the factors that determine the MSC and cardholder fees, the results appear to be biased due to the fact that some relevant determinants of fees have not been properly accounted for in the estimations. We discuss these two concerns in detail in what follows.

The analysis disregards the interrelationship between issuers, acquirers, cardholders and merchants

The estimation techniques applied in the Interim Report are based on the assumption that causality runs from the interchange fee to MSC and cardholder fees. This means that the estimation assumes that the interchange fee is determined independently from the other fees in the system (i.e., that it is an exogenous variable). This assumption, however, is at odds with the acknowledgement in the Interim Report that the payment card system is a two sided market, where the interactions between cardholders, merchants, acquirers and issuers and the common platforms are defined by the existence of network externalities and complementarities between the services.

If this is the case, the interdependence between the two sides of the market implies that interchange fees depend on the factors that determine merchant charges and cardholder fees and that it is incorrect to assume that it is determined independently from the other fees. For example, optimal interchange fees depend, among other factors, on the demand for payment cards by merchants. Moreover, merchant demand is also one of the determinants of merchant discounts. This means that when merchant demand changes, merchant discounts will adjust accordingly and so will interchange fees. In statistical

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misleading. It is important to emphasize that the estimated coefficient does not measure the importance of the interchange fee in explaining the merchant service charge. On the contrary, and assuming the model was correctly specified, the coefficient of the interchange fee should be interpreted as measuring the expected change in the merchant fee if the interchange fee changes one unit and all the other variables in the model remain unchanged. If one was interested in measuring the relative importance of the interchange fee in explaining the merchant fee, this could be approximately inferred using the R^2 of a regression of the merchant fee against the interchange fee. The R^2 indicates the proportion of (sample) variance of y that is explained by the model. In Table 1 in the Annex, we see that the R^2 of this very simple model is 0.1932 (using OLS estimator). This implies that approximately 20% of the variation in merchant services fees can be attributed to differences in the interchange fee. Apparently, many other observable and unobservable factors affect a person's fee besides the interchange fee, indicating the small relative importance of the interchange fee in explaining merchant service fee variation.

jargon, there is simultaneous causality.[16] When this occurs, the regression techniques that have been applied do not identify the *causal effect* of changes in the IF on cardholder (or merchant) fees. Instead, the regression picks up the effects of the interchange fee on the merchant discounts (or cardholder fees) and the effects that changes in merchant discounts (or cardholder fees) have on interchange fees. The estimator of the causal effect is biased and inconsistent.

In sum, in a card payment system, interchange fees, merchant fees and cardholder fees are interdependent. In the presence of simultaneous causality, the estimation of the model would require applying a standard econometric technique that takes into account the interdependence between the interchange fee and the merchant/cardholder fee to guarantee that the estimates of the impact of changes in interchange fees on merchant and cardholder fees are not biased. This technique is known as 'instrumental variables'. The Annex, however, fails to recognize the simultaneous determination of the variables included in the regressions and hence that a causal interpretation of the estimated coefficients is not warranted.[17]

The analysis of pass-through omits relevant determinants of MSC and cardholder fees

Furthermore, the results from the econometric analysis could be biased due to the omission of relevant variables. Omitted variable bias arises when a variable that determines the variable of interest and is correlated with one or more of the regressors included in the analysis (such as the interchange fee) is omitted from the regression.[18] In the analysis shown in the Interim Report, the number of explanatory variables included in some of the estimated specifications is quite limited. Hence, the analysis ignores some potentially important determinants of cardholder fees and merchant discounts and their influence is reflected on the error term of the regressions. For example, merchants with higher turnover are usually charged a lower merchant service charge. Also, the interchange fee that the merchant's bank pays for a transaction tends to be lower for merchant with higher turnover. If the analysis fails to take into account the merchant turnover, we could incorrectly conclude that a lower interchange fee leads to a lower merchant fee when, in fact, the bargaining power of the merchant (measured through its turnover, for example) is the factor driving the lower merchant fee.

In the Annex, several models including alternative sets of variables are estimated for the merchant fee and for the cardholder fee.[19] All these specifications omit certain explanatory factors, despite the fact that some of these variables are available in the dataset:

- With regards to the cardholder fee, the richest model shown in the Annex only includes as explanatory variables the interchange fee and a set of controls for

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[16] For an intuitive description of simultaneous causality, see James H. Stock and Mark W. Watson, *Introduction to Econometrics*, Boston, MA. Addison Wesley, 2003, page 251.

[17] The authors indicate the estimation of a simultaneous equation model in order to integrate the two sides of the market. This model can solve the simultaneity bias. However, according to the annex, the results are not statistically significant.

[18] Omitted variable bias is described in detail in James H. Stock and Mark W. Watson, *Introduction to Econometrics*, Boston, MA. Addison Wesley, 2003, page 143. Note that panel data techniques make it possible to control for unobserved omitted variables *as long as those omitted variables do not change over time*, which is not necessarily the case here.

[19] See section 2.

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characteristics such as the network, country, and type of customer.[20] However, none of the specifications include any variable to capture other relevant variables that may affect the cardholder fee such as the issuing costs, the size of the client, the number of transactions, etc.

- Regarding the merchant fee, the model includes a few additional variables: namely, the number of transactions and the length of the relationship with the merchant in one specification, and a measure of the acquiring costs in a separate specification. Despite the fact that these three variables seem to have a significant impact on the merchant fee, an extended model including all of them was not estimated. Other relevant variables, available in the database, were not included either. Examples of these omitted variables are the merchant ratio of cross-border relations, the merchant predominant transaction type and the profitability of the existing relationship with the merchant.

In sum, the empirical analysis ignores some potentially important determinants of merchant and cardholder fees and therefore the estimated coefficients may not reflect the true effects of the interchange fee on the fees charged to cardholders and merchants.

4. Lack of robustness

As explained in detail in the previous section, the conclusions of the Interim Report regarding pass on of IF changes to cardholders and merchants cannot be sustained on the basis of analysis carried out in the Annex, because it is based on incorrect assumptions. Furthermore, even if we accepted that the regressions identify the *impact* of IF on cardholder and MSC fees, we identify other issues that question the robustness of the analysis. As a general matter, the results are very sensitive to the sample and the set of variables included in the model, suggesting that (1) the relationship between the interchange fee and the merchant service fee has not been properly measured, and that (2) it presents an heterogeneity that has not been properly taken into consideration and which affects the conclusions drawn in the Interim Report. In the paragraphs below we further discuss the problematic issues found in the analysis described in the Annex and indicate some suggestions for further investigation.

A. Determinants of the Merchant Service Charge (MSC) fee

Sample selection biases.

The analysis of the determinants of merchant fees is based on merchant-level information. This may lead to sample selection biases.[21] The reason is that the analysis

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[20] A detailed description of the omitted bias issue can be found in Stock and Watson (2003), *Introduction to Econometrics*, chapter 7.
[21] Sample selection bias occurs when the availability of the data is influenced by a selection process that is related to the values of the variable of interest. In this case, it would arise if there is correlation between the merchants included in the analysis and the level of fees that is related to their transactions. See

has been performed using merchant-specific MSC for the top-ten and bottom-ten clients of each bank. Note that the analysis only considers a small percentage of the sample of merchants (up to twenty observations for each analyzed bank and network) and hence, the results may not be applicable to the overall population of merchants. Information at merchant-specific level is not available for all members, but a robustness check could be performed on the basis of the average merchant fee per bank.

Furthermore, the results of the analysis confirm that the composition of the sample may bias the results, as the number of observations for the top-ten merchants is substantially higher than the number of observations for the bottom-ten merchants (4,869 and 2,737 observations, respectively) and the results dramatically change when the samples are split up. The estimation of the "extended model" for each group of merchants (Table 11 of Annex 5) shows that the coefficient of the interchange fee is much higher for bottom-ten merchants (0.6404 versus 0.1566). Moreover, the coefficient of the number of transactions has an expected negative sign for bottom-ten merchants, but the estimated impact is positive for top-ten merchants – indicating that the higher the number of transactions, the higher the merchant fee charged. Such differences in the results indicate that the determinants of the merchant service charge fee are very different across two samples and suggest that the sample selection that limits the data to very small and very large merchants in terms of turnover does indeed have an effect on the results.

Heterogeneity across countries

The Interim Report concludes that the estimations in the Annex show that the interchange fee is passed on to a large extent to merchants through higher fees, on the basis of its conclusions on the "impact" of interchange fees on merchant service charge fees from the estimation of a model for the whole sample. Implicitly, the Report assumes that the interchange fee has a similar impact on the merchant fee across countries.

However, this "impact" might be different across countries. Indeed, there are strong reasons that support the estimation of a separate model for each country: payment card industries at a country level have important differences in the structure of the financial sector, in the organisation of the payment cards platforms, in the demand patterns, etc.

In fact, the results confirm that the estimated "effect" varies dramatically across specifications. Table 12 in the annex shows results of the fixed effects estimation of the 'extended model' that includes the interchange fee, the number of transactions of the merchant and the length of the relationship with the bank. These models are estimated only for a group of countries due to the limited number of available observations (Czech Republic, France, Germany, Ireland, Italy, Latvia, Luxembourg, Netherlands, Portugal, Spain, Sweden and UK). We observe that the estimates of the coefficients of interest change substantially across specifications, and are positive for some counties, and negative for others. Moreover, the sign of the coefficients of some of the MSC determinants changes across countries:

- The coefficient of the interchange fee is statistically non significant for all countries except Ireland, Netherlands, Portugal and Spain. The estimated impact is particularly high in the Netherlands, where a pass-through of 4.16 is estimated.

- The number of transactions has a statistically significant negative impact on the merchant fee in Czech Republic, Italy, Spain and Sweden; but a statistically significant positive impact in Latvia.

- Only the coefficient of the length of the relationship is statistically significant and negative for all these countries, but the coefficient has a wide range: from -0.0339 in Italy to -0.1727 in Spain.

The heterogeneity in the estimated effect of the interchange fee on the MSC is a reason for concern, as it is unclear that the general model from where the Interim Report draws its conclusions properly addresses country specific heterogeneity. The Annex offers no guidance on the reasons why a specification based on the full sample should be superior to the analysis on a country-per-country basis.

The relevance of cost controls

The robustness of the conclusions offered in the Interim Report is further undermined by the sensitivity of the results to the inclusion of the acquiring resource costs in the regressions. Table 13 in the Annex shows the results of the fixed effects estimation of the 'model including costs' for the entire sample and for Italy, Latvia, Netherlands, Spain and UK. Note that these models only include as explanatory variables the interchange fee and the acquiring costs per transaction.

When looking at the results from the 'model including costs' (Table 13), we find that the variability in the estimated coefficients across countries is also very large:

- The coefficient of the interchange fee is statistically significant and positive on the merchant fee in the entire sample (0.0951), in UK (0.2949) and in Latvia (0.9706). As we can see, the estimated range is notably broad.

- Furthermore, the estimated coefficients are very different from the estimates from the 'extended model' shown in Table 12 (0.3034 for the entire sample in that case, relative to 0.0951 in Table 13).

- Also, the estimated impact of the interchange fee is statistically significant and negative in the case of Spain (-0.2107) and statistically non-different from zero in Italy and the Netherlands.

- Regarding the estimated coefficient of acquiring costs, it is statistically significant and positive in most cases, although it has a wide range (from 0.0603 in Italy to 0.2294 in the Netherlands).

The results obtained for Spain are illustrative. As the Interim Report indicates, Spain is the country that is best represented in the sample. It accounts for 22% of total observations on merchant service charges both at an aggregate level and at a merchant-specific level. Despite the large amount of information available for Spain, the analysis of the determinants of merchant fees is not very robust. The results from the estimation of the 'model including costs' (Table 13) indicate that the interchange fee has a strongly negative and statistically significant "impact" on the merchant service fee in Spain (-0.2107); that is, higher interchange changes would lead to lower merchant service fee. In contrast, when costs are not taken into consideration, the "impact" (0.4154) is positive and statistically significant.

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In sum, the estimation of the 'model including costs' by country reveals even more heterogeneous results for the "impact" of the interchange fee on MSC fees: it is negative and statistically significant in some cases, and positive and statistically significant in others. The fact that the conclusions are very different when acquiring costs are taken into consideration indicates that this is one relevant determinant of MSC fees that has been omitted in the rest of the analysis.

Some comments and suggestions

In line with these concerns, we would like to suggest further refinements of the analysis:

- As discussed earlier, a robustness check could be based on the estimation of the models on the basis of the average MSC fee instead of the merchant-specific MSC fee.

- Similarly, the analysis should include additional variables that capture characteristics such as the merchant ratio of cross-border transactions, the predominant transaction type, or the profitability of the existing relationship with the merchant. Although all these variables were mentioned by the banks as potentially relevant factors for the determination of the merchant discount and are included in the database, they have not been considered in the analysis.

- Time dummies could be included in the different specifications to control for the influence of all macroeconomics variables that may affect countries and merchants and have an impact on the merchant fee.

- Separate regressions for top-ten and bottom-ten merchants are performed for the entire set of countries, but not for each country. Given the heterogeneity in the results obtained from these separate regressions in the full sample, it would be important to undertake also separate regressions for top-ten and bottom-ten merchants in each country. This would allow evaluating how heterogeneous the samples are within each country.

- The results from the 'model including costs' (Table 13) are not comparable with those obtained from the 'extended model' (Tables 10 and 12), as they include different control variables. In addition, the estimated coefficient of the interchange fee significantly changes across specifications (the estimated value of the coefficient on IF for the entire sample, using fixed-effects, is 0.4031 in the basic model, 0.3034 in the extended model, and 0.0950 in the model including costs). This variation indicates that acquiring costs are an important factor in explaining the MSC fee. Therefore, the omission of this variable in other specifications certainly biases the results and it should be taken into consideration.

B. Determinants of the Cardholder fee

In our view, the analysis of the determinants of the cardholder fee is not convincing for the following reasons:

a. Omitted variable bias concerns are stronger than in the analysis of MSC fees. The reason is that the analysis does not include any explanatory variables in addition to the interchange fee. According to Table 6 in the Annex, the questionnaire provides information on other variables such as the number of cards, the turnover, the number

of transactions and the cost per transaction. These variables may have a relevant impact on the cardholder fee, and hence, its omission might bias the estimates of the "impact" of the interchange fee.

b. In particular, it is unclear why issuing costs are not considered. The results of the analysis of the MSC determinants suggest that acquisition costs are a very relevant factor in determining MSC fees and it would be advisable to take issuing costs into consideration as well.

c. It is unclear that the dependent variable (cardholder fees) reflects all relevant fees. The Annex indicates for examples that the APR has been excluded, while it would seem to be one of the most relevant pieces of the fee scheme faced by cardholders.

d. In addition, and in view of the significant heterogeneity in the results of the determinants of MSCs, separate regressions should be performed for:

 – each type of client: business versus customer;

 – each country; and

 – by customer size, that is, for top and bottom 10% of the client base.

e. As a robustness check, the authors estimate the 'basic model' using the "fee per card" instead of the overall sum of cardholder fees. It would useful to show the results of this robustness check on the basis of the 'extended model'.

5. Is the sample representative?

With respect to the data sampling procedure, we find two main potentially problematic issues. First, the Interim Report acknowledges that the sampling technique may lead to several biases in the final dataset.[22] In particular, large institutions are over-represented and there is a strong bias towards MasterCard and VISA network members. Although these biases are mentioned explicitly in the Interim Report it is important to emphasise that they should be taken into account when interpreting the results.

Second, there are reasons to believe that the final sample is not representative. As we have already mentioned, the data was collected through a questionnaire sent to a sample of 203 acquirers and issuers and to 26 domestic and international payment card systems. The response rate was close to 95% for the questionnaire addressed to acquirers and issuers and almost 100% for that addressed to payment card systems. A priori, a high response rate on a representative sample should lead to a representative database. However, it must be noted that in most cases the information provided was not complete (respondents reported figures for a few years in most cases, and not for all questions), and hence we are left with a much lower percentage of responses achieved for some of the information requested. As a result, the final data is not distributed homogenously:

▪ The distribution of the observations over the period 2000–2004 varies significantly. On average, the number of observations in 2004 is more than double of that in 2000.

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[22] EC Interim Report, p. 16.

- The distribution of the observations across the EU-25 Member States also differs considerably. For example, for merchant service charges, Poland has 4 bank/network/year combination and 20 merchant/bank/network/year combination for the overall period, while Spain has 242 and 3731, respectively. Moreover, Spain, Latvia, Czech Republic, Italy and UK are the countries with the highest number of observations accounting for 52% of total bank/network/year observations and 57% of total merchant/bank/network/year. As the Report states, Poland and Spain are, respectively, the worst and the best represented countries in the sample.

- MasterCard and VISA account for significantly more observations compared both to other international payment networks (American Express and Diners Club) and to national payment networks.

The existence of significant differences between the final sample and the overall population could pose a threat to the validity of the results. The true causal effect might not be the same in the population studied and the population of interest due to differences in the characteristics of the populations, or to geographical differences, etc. If this is the case, the inferences and conclusions drawn from the econometric analysis (and also from the descriptive analysis shown in the rest of the Interim Report) cannot be generalized from the analyzed sample to the overall population; i.e., the payment card industry in the EU-25.

We identify important differences in the distribution of observations across years, countries and payment networks, and therefore suggest that the results are interpreted with caution, as the data may not be representative of the population of interest, the EU-25 payment card industry. In addition, it would be useful that the Commission analyzes more deeply the distribution of final data and the overall population and justify the representativeness of the sample.

6. Summary and conclusions

In order to obtain evidence on the evolution of the SEPA, DG Competition launched a sector inquiry into retail banking in June 2005. An extensive market survey was conducted by the Commission throughout the second half of 2005 focusing on payment cards. The final database obtained includes 147 acquiring banks and 296 issuing banks operating in the 25 EU-countries and covers the years 2000-2004.

The econometric analysis contained in the Interim Report's represents an initial attempt to apply statistical techniques to analyse certain aspects the European payment sector. We believe, however, that the analysis contained in the Annex of the Report is not convincing. In particular, while the Interim Report states that the purpose of this analysis is to examine the determinants of the three fees that intervene in an open card payment system (i.e., the merchant service charge, the interchange fee and the cardholder fee) and the interrelation among them, in our view this goal is far from being accomplished.

This paper makes a critical assessment of the econometric analysis conducted in the Interim Report. We find that this analysis shows important limitations and shortcomings that call its conclusions into question. First and foremost, the results of the econometric analysis are not correctly interpreted in the Interim Report. The Report claims to have

estimated the true impact of the interchange fee on the merchant service fee and the cardholder fee. In our view, however, the failure to recognize the interdependence between interchange fees and merchant and cardholder fees fatally undermines the analysis for the stated purpose.

Also, certain elements in the analysis point to the lack of robustness of the results. For example, the Interim Report conducts an analysis by country of the determinants of the merchant service charge that shows very heterogeneous results. This suggests that the impact of the interchange fee on the merchant service fee might be different across countries. Furthermore, the large variation in the results provides evidence that the results might be biased due since relevant factors in the determination of the merchant service fee have not been included. This misspecification problem is particularly severe in some cases.

Finally, the database may not to be representative of the total population: the distribution of observations differs significantly across countries and it does not represent the relative presence of each country in the EU-25 payment card industry.

In sum, in our opinion, a revision of the analysis is strongly recommended. Our goal with this document is to provide suggestions that could be useful to improve the analysis performed by the Commission. We also believe that a more detailed description of the data, the methodology and the results obtained would facilitate a deeper assessment of the analysis conducted by the Commission.