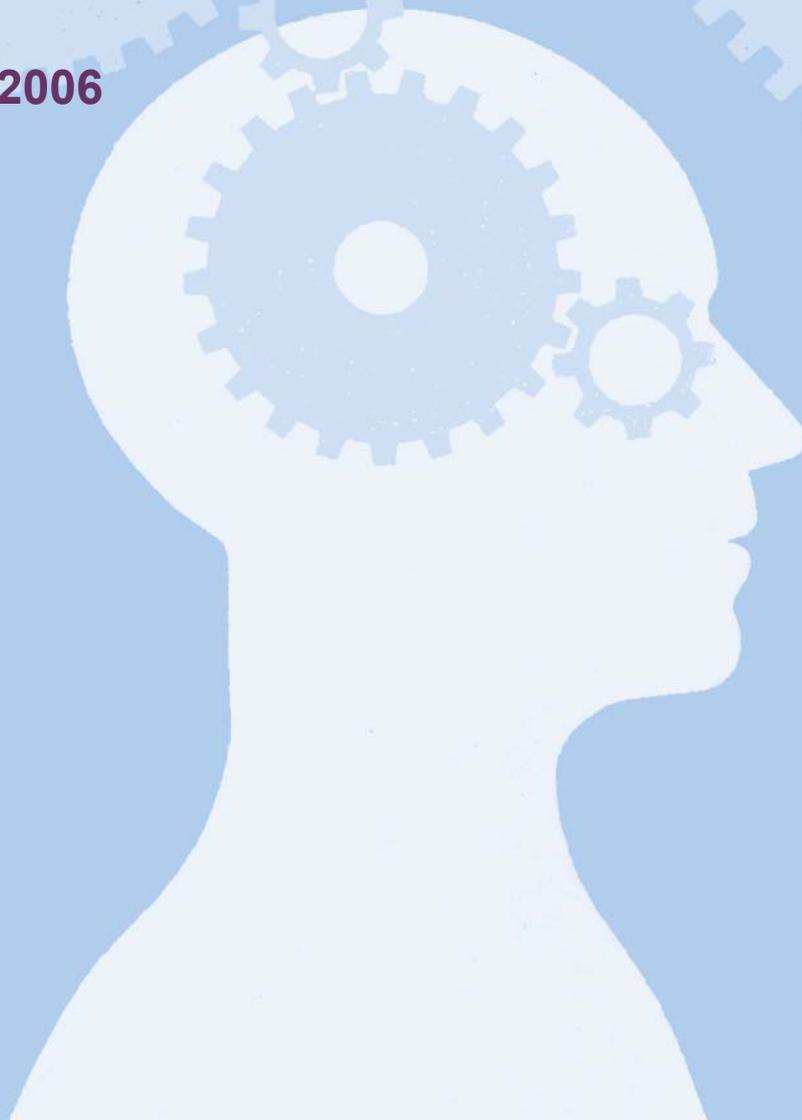


A comment on the European Commission's profitability analysis

Prepared for Royal Bank of Scotland

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Contents

1	Introduction and main conclusions	1
1.1	Objective of this report	1
1.2	Oxera's expertise	1
1.3	Main conclusions	2
2	There are significant problems with the data used by the Commission	3
2.1	Cost allocation	3
2.2	Incomplete information on costs	4
2.3	Removal of 'outliers'	4
2.4	Divergence in results	5
3	Cost mark-ups are an inappropriate measure of profitability	6
3.1	Assessment of the cost mark-up as a measure of profitability	6
3.2	Appropriate measures of profitability	7
4	The Commission's conclusions on competition are not supported by the profitability analysis	9
4.1	Time period	9
4.2	Inconsistency between assessment of market structure and profitability analysis	9
5	The Commission's conclusions on interchange are not supported by its data analysis	11
5.1	The difference in profitability of issuing and acquiring is misunderstood	11
5.2	The conclusion on interchange does not follow from the cost mark-ups of issuers	11
5.3	The Commission's statistical analysis of pass-through of the interchange fee is not robust	12

1 Introduction and main conclusions

1.1 Objective of this report

Oxera has been requested by the Royal Bank of Scotland (RBS) to provide an independent assessment of the European Commission's analysis of the profitability of payment card issuers and acquirers, as set out in its recent interim report on the sector inquiry into retail banking.¹

The interim report summarises the Commission's findings on competition in payment cards. These findings are based on a market survey conducted by the Commission in the second half of 2005. The report identifies five sets of issues for further analysis:²

- financial analysis of the industry;
- market structure, governance and behaviour;
- future market developments;
- potential solutions to market barriers;
- lessons for the Single Euro Payment Area (SEPA).

Oxera's comments relate only to the first of these issues. The Commission has reached the following conclusions on profitability:³

- profitability in card issuing is high and has been sustained over time;
- profitability is higher for credit cards than for debit cards;
- even without interchange fees, card issuing remains profitable;
- profitability in card acquiring varies, although it is quite satisfactory overall;
- profitability is far higher for card issuers than for acquirers.

1.2 Oxera's expertise

Oxera is an economics consultancy based in Oxford and Brussels, specialising in competition policy, finance and regulation. With substantial experience in undertaking profitability analyses in a competition policy context, Oxera has an in-depth knowledge of the economic and competition aspects of payment systems.

- We are at the forefront of developments in the area of finance and competition policy. Three of Oxera's directors are leading academic experts in corporate finance.⁴ Oxera's 2003 discussion paper for the Office of Fair Trading (OFT), 'Assessing Profitability in Competition Policy Analysis', is now a standard reference for any policy and methodological issues that arise when using profitability analysis in the context of competition law.⁵ Oxera has also advised numerous clients, including companies and competition authorities, on profitability in specific competition investigations.

¹ European Commission (2006), 'Interim Report I: Payment Cards', April 12th.

² Ibid, p. ix.

³ Ibid, p. iv.

⁴ Professor Colin Mayer, Saïd Business School, University of Oxford; Professor Tim Jenkinson, Saïd Business School, University of Oxford; and Professor Julian Franks, London Business School.

⁵ Oxera (2003), 'Assessing Profitability in Competition Policy Analysis', OFT Economic Discussion Paper, available at www.oxera.com.

- We have also been closely involved in most of the major competition inquiries into payment cards throughout Europe. This involvement includes providing advice during the OFT and European Commission inquiries into interchange fees, during the Netherlands Competition Authority's inquiry into excessive pricing of debit card services, and in relation to the work carried out by the Payment Systems Task Force in the UK.

1.3 Main conclusions

Oxera's conclusions can be summarised as follows:

- The Commission uses an inappropriate measure of profitability. Mark-ups over costs do not provide any insight into the economic profitability of an activity, since this also depends on the capital intensity and risk involved. There is no suitable 'competitive benchmark' for cost mark-ups, nor does the Commission seek to benchmark the results against some 'competitive outcome'—its implicit benchmark appears to be zero profit.
- The net present value (NPV) and internal rate of return (IRR) are the appropriate measures of economic profitability. At the very least the Commission could have considered 'proxy' measures such as return on capital employed (ROCE) or return on equity (ROE), which take into account the fact that economic activities such as acquiring and issuing of payment cards require capital.
- In addition, there are significant problems with the data collected by the Commission for the purpose of the profitability analysis—in particular, the inconsistency across institutions in the allocation and identification of common costs. While the Commission recognises these difficulties, it unduly downplays them and continues to draw strong conclusions from the analysis.
- The Commission's conclusions on competition in the market for issuing are not supported by the profitability analysis. No prima facie problem has been found with market structure as regards issuing. The Commission's conclusion that the high cost mark-ups 'suggest the existence and exercise of market power'⁶ is therefore not well founded.
- The Commission's conclusions on the need for interchange fees are not supported by the profitability analysis. First, a significant proportion (45%) of the issuers in the sample would have negative profits in the absence of interchange. Second, those with a positive mark-up would still have to cover their cost of capital, on which no information is available. Third, the Commission's statistical analysis, which suggests that if the interchange fee increases by €1.00, only €0.25 is passed on to cardholders through lower fees, has several fundamental flaws and can therefore not be relied upon.

⁶ European Commission (2006), op. cit., p. 77.

2 There are significant problems with the data used by the Commission

For the profitability analysis, the Commission collected accounting data through a questionnaire sent out to a sample of 203 acquirers and issuers in the 25 EU Member States. The data was collected on a yearly basis over the period 2000–04.

For the profitability analysis to be robust and reliable, it is crucial that the data is of good quality and truly reflects the financial characteristics of the credit and debit card institutions surveyed.

The interim report does not give sufficient reassurance that the data was indeed collected in an appropriate way. This is explained in more detail below.

2.1 Cost allocation

The Commission recognises that ‘the measurement of the profitability of a specific activity is typically subject to problems related to the allocation of costs that are common to other activities.’⁷

Retail banking activities are indeed characterised by significant common costs. Infrastructure (including branches and ‘manufacturing’ operations) is typically shared across a wide range of banking products, including cards. On the acquiring side, common costs also arise between credit and debit cards. On the issuing side, there is a particular problem with debit cards, which are difficult to isolate from the current accounts with which they are typically offered.⁸

However, while recognising the allocation difficulties, the Commission then appears to downplay them, based on the argument that the respondents made the allocations themselves. This, the Commission argues, ‘means that the measurement of profitability has to be considered reliable because it was made by those who best know their own business’.⁹

From an analytical perspective this reasoning is unsatisfactory:

- First, to the extent that respondent institutions do not allocate costs in the normal course of business, but did this only for the purpose of responding to the Commission questionnaire, the resulting data could still be insufficiently reliable.¹⁰
- Second, the fact that no guidance was provided by the Commission to the respondents, and that shared costs were allocated by the institutions themselves, makes it very likely that the data received by the Commission is inconsistent. Different institutions will have chosen different methods to allocate or identify specific cost (and revenue) items. This

⁷ European Commission (2006), op. cit., p. 63.

⁸ In footnote 75, the Commission observes that it consulted an industry expert who pointed out this difficulty in isolating debit cards from current accounts.

⁹ European Commission (2006), op. cit., p. 63.

¹⁰ For example, it is Oxera’s understanding that some financial institutions do not normally allocate common costs to specific products or business divisions, but rather assess financial performance on an incremental basis and seek to manage costs where they arise.

poses a significant methodological problem for the Commission in terms of the comparability of the results across institutions.

Indeed, as noted further below, the profitability results diverge significantly across institutions, even those within the same Member States. It seems likely that a significant part of that divergence is attributable to the lack of consistency in identifying costs across the institutions.

2.2 Incomplete information on costs

Similarly, there may be differences in the type of cost for which institutions have provided data. For example, the questionnaire asked institutions to provide data on the cost of the provision of the interest-free period, but did not explicitly ask for data on the funding cost of the extended credit facility of credit cards.¹¹ Some institutions may have included this under the category 'other costs'. Other institutions may not have included it, because they may treat the funding cost more like a cost of finance rather than a direct operating expenditure.

This is a significant shortcoming of the questionnaire, since funding costs will constitute an important part of the issuer costs, and may therefore have resulted in an overestimate of institutions' profitability.

2.3 Removal of 'outliers'

The Commission report states that the final set of data was submitted to statistical tests in order to identify possible outliers.¹² A significant number of outliers were detected and subsequently corrected. In cases where no evident explanation for an outlier was found, it was simply dropped from the dataset.

It is not clear how outliers were detected and what criteria were applied. Testing for outliers is standard practice in a data-gathering exercise, but care should be taken in removing outliers:

- Institutions' organisational structures and business models may differ. For example, while one bank may incur a high cost for input A and a low cost for input B, another bank may incur a low cost for input A and a high cost for input B. Considering the high cost for input A of the first bank as an outlier may be incorrect. Inputs A and B could be substitutes—in other words, if a company uses more of A, it reduces the amount of B that it requires.
- Rather than just testing for outliers, it is important to ensure that the data from an individual bank is consistent internally. The Commission's report does not explain whether data provided was validated and the interpretation of cost categories checked with the respondents directly. The consistency of data could, for example, be checked by looking at the development of individual cost and revenue items over time. The fact that, for some respondents, data was only available for a limited number of years may therefore have complicated such a check.
- The report does not explain whether outliers at just one side of the distribution (for example, estimates which were too high) were removed, or whether outliers at both sides of the distribution were removed (ie, estimates which were too high or too low). To avoid a bias in the benchmarking exercise, outliers at both sides of the distribution should normally be removed.

¹¹ This follows from sheet 2.6 (issuing P&L) in Annex 2 of the questionnaire.

¹² European Commission (2006), op. cit., p. 14.

- Finally, the report does not state whether the effect of removing the outliers on the result of the profitability analysis was tested. It cannot be seen from the report whether such a sensitivity analysis was undertaken.

2.4 Divergence in results

The above data issues cast doubt on the robustness of the results of the profitability analysis. The fact that the data used by the Commission may not be reliable and consistent is confirmed by some of the results of the profitability analysis itself. The report indicates that, while the profit ratios of acquirers and issuers in some markets are homogeneous, institutions in a number of countries reported strongly diverging profit ratios. The Commission accounts for this by arguing that:

it is possible to conclude that the differences in cost structures may explain to a large extent the discrepancies in profit ratios among top issuing institutions. Therefore, the differences observed in the profit ratios of some top issuing institutions in the same country seem mainly to reflect a different level of efficiency and not a fierce competition on prices.¹³

In other words, the Commission argues that significant differences in costs between institutions could be due to differences in efficiency. However, given the data problems highlighted above, it seems more likely that these differences are largely due to the way in which costs were estimated and allocated by each institution, rather than differences in efficiencies.

¹³ European Commission (2006), op. cit., p. 68.

3 Cost mark-ups are an inappropriate measure of profitability

3.1 Assessment of the cost mark-up as a measure of profitability

The Commission measures the profitability of credit and debit card issuing and acquiring activities with the use of a cost mark-up (income minus costs, divided by costs), as set out on p. 63 of its report. The Commission uses this profit ratio to measure the distribution of profitability in the acquiring and issuing business, as well as the differentials between countries and how the profit ratio evolves over time.

The Commission draws a number of conclusions based on analysis of comparative cost mark-ups, including the following:

- Issuing of credit cards is very profitable, with the weighted average cost mark-up remaining fairly stable over the period 2000–04.
- Interchange fees appear to magnify these profits, as 62% of all banks surveyed would still make a profit from issuing credit cards without an interchange fee.
- Issuing is several times more profitable than acquiring in the majority of countries because of the role of the interchange fee as a cost and revenue element in the payment card system.¹⁴

It is important to assess the validity of the cost mark-up as a measure of economic profitability. The cost mark-up—as with the return on sales (ROS), which can be derived from the cost mark-up¹⁵—is sometimes used where assets are difficult to measure, or where firms have a relatively small amount of capital employed. In such cases, capital-based measures of profitability might produce volatile results or large returns that are difficult to interpret.

However, cost mark-ups and ROS suffer from a number of significant methodological and conceptual problems that prevent them being an accurate measure of the economic profitability of an activity or business. In particular, the cost mark-up is sensitive to a company's depreciation and accruals policy; it is not consistent with a risk–return framework for measuring profitability; and, finally, it does not have a clearly defined benchmark.¹⁶

- As the cost mark-up uses accounting measures of profits, it is sensitive to the accounting practices of a business, which may differ between businesses and may themselves change over time (see the comments on the collected data in section 2 above). In particular, accounting profits are affected by a company's depreciation and accruals, or revenue recognition, policy. Two otherwise identical businesses, with the same underlying economic profitability, could, therefore, have different cost mark-ups simply on the basis that they adopted different depreciation and accruals policies.

¹⁴ European Commission (2006), *op. cit.*, pp. 76–77.

¹⁵ The ROS is calculated by dividing profits (income minus costs) by income. In accounting terminology, the ROS is earnings before interest and tax (EBIT) divided by turnover.

¹⁶ See, for example, Oxera (2003), 'Assessing Profitability in Competition Policy Analysis', pp. 56–57, for a discussion of the use of ROS as a measure of profitability.

- The Commission recognises that the existence of economic profits may be the reward for risk-taking.¹⁷ However, the cost mark-up measure is not consistent with the risk–return framework because returns (in this instance, accounting profits) are not compared or benchmarked against the risks that a business incurred in undertaking the activity. In particular, the cost mark-up does not compare returns with the capital or assets employed in undertaking that activity. Therefore, it is possible for two businesses to have the same cost mark-up even though the underlying risks of the businesses differ, as might the amount of capital invested. In other words, the cost mark-up is not necessarily correlated with risk.

In theory, a relationship exists between the cost mark-up ratio and the return on capital employed (ROCE).¹⁸ Therefore, when cost mark-ups are used as a profitability measure, the results can be cross-checked using imputed asset values. The first step is to impute an asset value for a business or activity. This imputed asset value depends on the characteristics of the business. Second, the competition authority can apply the business's or activity's cost of capital to this imputed asset value to derive an imputed measure of operating profits and, dividing this by cost, an imputed measure of the cost mark-up ratio can be calculated. The imputed cost mark-up ratio can then be compared with the actual cost mark-up. If a business or activity is making normal profits, the imputed and actual level of operating profits (and cost mark-ups) should be similar. The Commission has not sought to undertake such an analysis, nor does it recognise in its report the importance of risk and capital employed.

- The cost mark-up has no benchmark against which the estimated profitability can be compared, such as an activity's cost of capital. Where the ROS has been used as a measure of profitability, competition authorities often benchmark this against the ROS of other businesses in the same or similar industries, or businesses with similar characteristics such as capital intensity.¹⁹ Such comparisons are problematic, and can only be considered rough approximations.

In fact, the Commission has provided no benchmarking of its cost mark-up for issuing and acquiring businesses against returns achieved in other sectors or sectors with similar characteristics. It effectively appears to be using a benchmark of zero profit, since it only considers whether institutions are profitable (ie, whether revenues are higher than costs).

3.2 Appropriate measures of profitability

From an economics perspective, and on the basis of the principles of capital budgeting theory, economic measures of profitability—and not accounting measures—are the most appropriate for assessing the returns on a company's investments in the context of a competition analysis.²⁰

The profitability of an activity can be defined in terms of net increases in value resulting from that activity and realised over time. The IRR and NPV are two commonly accepted and well-

¹⁷ European Commission (2006), op. cit., p. 2.

¹⁸ This is the case since $ROCE = (EBIT/cost) * (cost/capital\ employed) = cost\ mark-up * (cost/capital\ employed)$.

¹⁹ See, for example, OFT (2001), 'Classified Directory Advertising Services: Review of the Undertakings Given by BT to the Secretary of State in July 1996'. In this case, the OFT benchmarked the ROS of BT's classified directory advertising services (CDAS) business against CDAS operators overseas, companies in the printing sector, and companies with similar capital intensity.

²⁰ See, for example, Morris, D. (2003), 'Dominant Firm Behaviour under UK Competition Law', paper presented to the Fordham Corporate Law Institute, Thirtieth Annual Conference on International Antitrust Law and Policy, October.

established methods for measuring the profitability of an activity.²¹ The NPV measures the economic profit of an investment and is calculated by discounting the stream of revenues generated by the investment less the (present value) cost of the investment. A similar concept of economic profit is that of the IRR, which is usually defined as the discount rate that equates the present value of the investment's expected cash-flow stream to its initial outlay.

Both the IRR and NPV take into account the inflows and outflows of an activity over time, and reflect the economic principle of time preference of money. It is this assessment of present value of cash inflows and outflows that underpins the value of an investment. In assessing the performance of an investment, the economic profit is therefore the key variable of interest. Essentially, the objective of any economic profitability assessment is to examine the IRR (or NPV) of an activity relative to what would be expected in a competitive environment.²²

To approximate economic profitability, the UK competition authorities sometimes use a measure of ROCE or, in the case of banks, return on equity (ROE). Examples are the Competition Commission inquiries into banking services to small and medium-sized enterprises and store cards.²³ ROCE and ROE are also known to have a number of methodological shortcomings compared with the IRR, and the Competition Commission seeks to limit these by considering ROCEs over a longer time period and by making some economic adjustments to valuing the capital base. Nonetheless, one significant advantage that ROE would have over the cost mark-up measure used by the European Commission is that it takes into account the capital intensity of payment card businesses.

²¹ See, for example, Kay, J.A. (1976), 'Accountants too could be Happy in a Golden Age: The Accountant's Rate of Profit and the Internal Rate of Return', *Oxford Economic Papers*, **28**, 447–60 and Edwards, J., Kay, J. and Mayer, C. (1987), *The Economic Analysis of Accounting Profitability*, Clarendon Press: Oxford.

²² Oxera (2003), 'Assessing Profitability in Competition Policy Analysis', OFT Economic Discussion Paper.

²³ Competition Commission (2002), 'The Supply of Banking Services by Clearing Banks to Small and Medium-sized Enterprises', March; and Competition Commission (2006), 'Store Cards Market Investigation', March.

4 The Commission's conclusions on competition are not supported by the profitability analysis

4.1 Time period

A key issue in the assessment of profitability for the purposes of competition policy is the appropriate period of time over which such an assessment should be conducted. In this case, the Commission examined profit ratios over the period 2000–04—ie, over a five-year time horizon. The Commission simply concludes that ‘the persistence of high profit ratios [in issuing] over a relatively long period of time suggests that this might be the result of having and exerting market power.’²⁴ It appears to consider five years a relatively long time period in the credit sector.

Yet five years does not necessarily constitute a full business cycle. The period 2000–04 may also have been particularly favourable to credit lending, such that the profits earned over this period may overestimate the likely steady-state level of profits. For example, bad debt charges may have been unusually low over this time, but may increase in subsequent years. This would not be captured in profit-to-cost ratios between 2000 and 2004. There is also regulatory precedent for making adjustments to the measure of profit for unusually low levels of bad debt charges.²⁵

Furthermore, if the initial investment in establishing a business issuing or acquiring cards for a bank was made before 2000 and involved start-up losses, the cost mark-up will not capture these initial investments or losses since it is based on accounting data only.

4.2 Inconsistency between assessment of market structure and profitability analysis

The profitability of a company or activity may provide an indication of the extent of competition in a market. There is precedent for competition authorities examining the profitability of companies, both in the UK and elsewhere. Profitability is one among various indicators of the extent of competition, such as market share and entry barriers, and the pattern of price changes over time and how they compare internationally. In a market inquiry, therefore, profitability should be considered in the context of the overall assessment and not in isolation.²⁶

It is also important to discuss what can and cannot be concluded from a profitability analysis in terms of a competition inquiry. In a competitive market, which is ultimately the benchmark against which profitability should be compared, profitability may vary significantly between firms and over time. Indeed, in economic theory it is the presence of ‘high’ profits that ‘signal’ to other firms to enter the market, a process that will continue until the marginal firm achieves ‘normal’ profits. High profitability could also be explained by a number of factors other than excessive pricing, including problems with measuring the actual profitability of a business or

²⁴ European Commission (2006), *op. cit.* p. 68.

²⁵ For example, the UK Competition Commission made adjustments to bad debt charges in its inquiry into banking services supplied to small and medium-sized enterprises. See, Competition Commission (2002), ‘The Supply of Banking Services by Clearing Banks to Small and Medium-sized Enterprises’, March.

²⁶ Competition Commission (2003), ‘Market Investigation References: Competition Commission Guidelines’, CC3, June.

activity, cyclical or transitory factors, and some firms being more efficient than others or benefiting from past innovation.

The Commission's report fails to link the profitability analysis (presented in Chapter 7) to the market structure analysis (presented in Chapter 8). For example, on the one hand, Chapter 7 concludes that issuing of credit cards is highly profitable in the majority of the 25 Member States, and that this suggests the existence and exercise of market power in these markets. On the other hand, the analysis of market concentration yielded no evidence of excessive concentration across the Member States. This inconsistency is not explained in the analysis.

As explained above, there are significant issues with the data, risk benchmarks have been neglected, and there has been no attention to potential explanations such as efficiency, innovation or cyclical effects. Furthermore, no prima facie problem has been found with market structure in issuing. Thus, the Commission's conclusion that the high cost mark-ups 'suggest the existence and exercise of market power'²⁷ is not well founded.

²⁷ European Commission (2006), op. cit., p. 77.

5 The Commission's conclusions on interchange are not supported by its data analysis

5.1 The difference in profitability of issuing and acquiring is misunderstood

The Commission concludes that the profitability of issuing appears to be several times greater than that of acquiring in the majority of countries. It argues that this is due to the role played by the interchange fee as a cost and revenue element in the payment card system. However, in its analysis, the Commission fails to take into account the possible different risk profiles of issuing and acquiring and the difference in capital intensity of these activities.

- Issuers require substantial amounts of capital for their lending activities. As explained above, a difference in capital intensity, by definition, affects the estimate of the cost mark-up, since the cost mark-up does not account for the use of capital. Businesses with high capital intensity will therefore have higher cost mark-ups than businesses with low capital intensity. This may explain why the cost mark-ups of issuers are higher than those of acquirers.
- In most credit and debit card schemes, the rules are set such that a significant amount of risk in the card system is borne by the issuers rather than by the acquirers. For example, issuers bear the risk of cardholder default. The fact that issuing is more profitable than acquiring may therefore reflect the fact that issuing is more risky. The Commission fails to take this into account.

In sum, there is no reason to believe that the differences in cost mark-ups between issuing and acquiring businesses are due to the existence of an interchange fee. It is possible that differences in the cost mark-ups could be due to differences in capital intensity and risk profile.

5.2 The conclusion on interchange does not follow from the cost mark-ups of issuers

The Commission attempts to assess the relevance of interchange fees in credit and debit card systems by analysing issuers' profitability in a scenario of an interchange fee of zero. The analysis suggests that, if interchange revenues were taken out, 62 of the 100 institutions analysed would remain profitable.²⁸ The Commission concludes that its analysis (partially) invalidates one of the main results of the theoretical models of interchange fees—ie, that interchange is needed to internalise the existing externalities inherent in payment systems.

This conclusion is not well founded. Even using its own measure of profitability (which, as explained, is inappropriate and based on data which has significant problems), the Commission states that a significant proportion of issuers—15% (18 out of 118)—in fact report negative profit margins (costs exceeding revenues) even before subtracting the interchange revenue. After the interchange adjustment, the fact that 62 out of 100 issuers remain profitable means that a total of 45% of issuers (38 plus 18, divided by 118) would not be profitable in the absence of interchange.²⁹

²⁸ European Commission (2006), op. cit., p. 70.

²⁹ Furthermore, in five Member States, issuing would become unprofitable on average for all issuers.

Furthermore, those with a positive mark-up would still have to cover their cost of capital. The Commission ignores the fact that companies need to cover their cost of capital in order to remain commercially viable. The fact that an institution continues to make a margin on its costs in the absence of an interchange fee is irrelevant. What matters is whether this institution would continue to make a profit that covers its cost of capital. This means that, in addition to the 45% of issuers that have negative profit ratios (in the absence of an interchange fee), there will also be issuers with positive profits that are not sufficient to cover the cost of capital. In other words, the Commission cannot conclude that the results of its analysis invalidate the case for interchange. The opposite conclusion appears more plausible—the fact that so many issuers would not be profitable in the absence of interchange seems to confirm the need for interchange.

5.3 The Commission’s statistical analysis of pass-through of the interchange fee is not robust

On the basis of a statistical analysis, the Commission concludes that there is no strong negative relationship between the fee per card (paid by cardholders) and the credit card interchange fee at country and network level: if the interchange fee increases by €1.00, only €0.25 is passed on to consumers in lower fees.³⁰ The Commission argues that this result confirms its finding of high profitability for issuers.

The report contains insufficient information to allow a detailed examination of the Commission’s statistical analysis. However, from the information presented in the report, it is clear that the analysis has several fundamental flaws, which means that the Commission’s conclusion is not robust.

- First, the Commission’s analysis suffers from the statistical problem of ‘endogeneity’—the analysis treats the interchange fee as an ‘exogenous’ variable that influences the cardholder fee but which is not itself influenced by the cardholder fee. However, in reality there is an interdependence between the interchange fee and the cardholder (and merchant) fee. The cardholder fee also influences the level of the interchange fee, given that interchange is a balancing mechanism between issuers and acquirers. The Commission recognises this ‘two-sided market’ aspect of card payment systems in its report (Section IV), but then fails to take this into account in the econometric analysis. The presence of endogeneity means that the interchange fee cannot be treated as an exogenous variable, and therefore that the statistical analysis cannot be relied upon. Techniques addressing endogeneity problems have been well documented in the econometrics literature, and the Commission could have sought to address this problem.
- Second, the Commission’s analysis presumably seeks to show a relationship between interchange and cardholder fees *within* a country—the Commission’s (implicit) hypothesis is that, if at some point in time the interchange fee changes in a country, this would be expected to be fully passed through to cardholder charges *within* that same country (if indeed issuing is competitive). From its finding of a pass-through rate of -0.25 (25% of an increase in interchange is competed away through lower cardholder fees), the Commission then concludes that issuing is not competitive (it presumably expected a pass-through rate of -1 , or 100% in a fully competitive market). However, the statistic results are driven more by variation in the data *across* countries, and not by variation over time *within* the same country—the data presented in the report shows wide variation in fees across countries, but only a limited number of observations are available over time within each country (five years only). The variation across countries can be driven by a range of other supply and demand conditions (for example, in some

³⁰ European Commission (2006), op. cit., p. vi.

countries, credit markets may be less well developed, cardholders may be more used to paying for card usage, or costs may differ), and the Commission has not sufficiently controlled for such differences. The rate of -0.25 is therefore largely attributable to cross-country variation, and cannot be interpreted as a proper pass-through rate that reflects the relationship between interchange and cardholder fees *within* any country. Again, therefore, the results do not support the Commission's conclusions on interchange.

- Third, the Commission's analysis focuses only on pass-through via the cardholder fee (which by itself may have some data problems, given the incomplete way in which the data was collected from the various banks, as noted above). Yet, there are other possible ways in which issuers can 'pass through' interchange revenue to consumers—for example, through changes in the product offering. In other words, issuers do not compete on cardholder fees alone. A pass-through rate of -0.25 is also counterintuitive, since economic theory shows that even a monopolist would pass on at least 50% of any cost savings to consumers.³¹ The realistic range of outcomes for the pass-through rate would therefore lie between -0.50 and -1 , and the Commission could have sense-checked its result against economic theory.

³¹ This is the case under most plausible assumptions regarding the shape of the demand curve. See Ten Kate, A. and Niels, G. (2005), 'To What Extent are Cost Savings Passed on to Consumers? An Oligopoly Approach', *European Journal of Law and Economics*, **20**, pp. 323–37.

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