

THE EUROPEAN COMMISSION'S INTERIM REPORT ON PAYMENT CARDS: SOME COMMENTS AND SUGGESTIONS

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I. INTRODUCTION AND SUMMARY

The European Commission issued an interim report on the payment card industry (Interim Report) on 12 April 2006.¹ The Interim Report invited industry participants to engage in a dialogue concerning the report and on several issues related to its on-going study of this industry. The authors of this paper welcome the opportunity to do so. We are economists who have studied and written about the payment card industry.² Our work on the payment card industry and, more generally, on the economics of two-sided markets, has been cited frequently in the Interim Report.³ We focus on the analysis put forward by the Interim Report on pricing in the payment card industry and in particular on the role of interchange fees. However, in so doing we also comment on some of the empirical work which the Interim Report draws on in its analysis of topics other than interchange fees.

Modern economies rely on numerous payment systems to facilitate exchange between buyers and sellers. These systems trace their origin, at least in the Western

¹ European Commission, "Interim Report I Payment Cards," Apr. 12, 2006.

² On the theory of interchange fees, see Jean-Charles Rochet and Jean Tirole (Winter 2002) "Cooperation Among Competitors: Some Economics of Payment Card Associations," *RAND Journal of Economics*, 33(4): 549-570 and Richard Schmalensee (2002) "Payment Systems and Interchange Fees," *Journal of Industrial Economics*, 50: 103-122. On competition and regulatory aspects of interchange fees, see David S. Evans and Richard Schmalensee (2005) "The Economics of Interchange Fees and Their Regulation: An Overview," in proceedings of a conference on Interchange Fees in Credit and Debit Card Industries: What Role for Public Authorities? Federal Reserve Bank of Kansas City, Santa Fe, New Mexico, May 4-6 and Jean-Charles Rochet and Jean Tirole (Mar. 2006) "Externalities and Regulation in Card Payment Systems," *Review of Network Economics*, 5(1): 1-14. On two-sided markets, see Jean-Charles Rochet and Jean Tirole (2003) "Platform Competition in Two-Sided Markets," *Journal of the European Economic Association*, 1(4): 990-1029. David S. Evans (2003) "The Antitrust Economics of Multi-Side Platform Markets," *Yale Journal on Regulation*, 20(2): 325-382 and David S. Evans and Richard Schmalensee (Sept. 2005) *The Industrial Organization of Markets with Two-Sided Platforms* (NBER Working Paper). On the payment card industry, generally see David S. Evans and Richard Schmalensee, *Paying with Plastic*, Cambridge, MA: MIT Press, 2005.

³ Our articles cited in the Interim Report are: Jean-Charles Rochet and Jean Tirole (Winter 2002) "Cooperation Among Competitors: Some Economics of Payment Card Associations," *RAND Journal of Economics*, 33(4): 549-570; Richard Schmalensee (2002) "Payment Systems and Interchange Fees," *Journal of Industrial Economics*, 50: 103-122; David S. Evans (2002) "The Antitrust Economics of Two-sided Markets", AEI-Brookings Joint Center for Regulatory Studies; Jean-Charles Rochet and Jean Tirole (2003) "Platform Competition in Two-Sided Markets," *Journal of the European Economic Association*, 1(4): 990-1029; Jean-Charles Rochet and Jean Tirole (2003) "An Economic Analysis of the Determination of Interchange Fees in Payment Card Systems," *Review of Network Economics*, 2(2), 69-79; Jean-Charles Rochet (2003) "The Theory of Interchange Fees: A synthesis of recent contributions", *Review of Network Economics*, 2(2): 97-124; David S. Evans and Richard Schmalensee (Sept. 2005) *The Industrial Organization of Markets with Two-Sided Platforms* (NBER Working Paper); Jean-Charles Rochet and Jean Tirole (2005) "Two-Sided Markets: an Overview" (IDEI Working Paper).

world, to the minting of coins by the state of Lydia, in today's Western Turkey, in the 7th century BC. This invention reduced the cost of exchange and helped foster trade from over a wide geographic area. Over the millennia, other payment systems have developed including currency, checks, cards, and electronic transfer systems. These payment systems have each made exchange easier and cheaper and have improved social welfare by reducing transactions costs and increasing the amount of trade. Virtually every transaction that takes place in the world today is accomplished using one or more of these payment systems.

The payment card now accounts for a significant portion of these transactions, especially for those transactions in which consumers buy goods and services from merchants. In 2005, there were roughly 477 million cards⁴ in Europe, accounting for more than €1,561 billion in transaction volume.⁵ Understanding how this industry can help further integrate the European economies, facilitate trade in the community, and further the Lisbon agenda is therefore an important undertaking. We commend the Commission for taking this task on.

The Interim Report has made substantial progress towards this understanding in two major ways. First, it has gathered data from many of the relevant businesses in the payment card industry throughout Europe. After careful analysis, these data may help to distinguish between competing explanations of how the payment card industry operates and help to identify problems and evaluate proposed solutions. Second, it has recognized that the payment card industry is a two-sided industry, in which distinct groups of economic actors who need each other use a common platform to facilitate their interaction. The economics of two-sided industries helps understand the interactions and interdependencies between cardholders, merchants, issuers, acquirers, and systems. Coming to agreement on the right framework for

⁴ Nilson Report, Issue #857, May 2006. Card total includes Visa, MasterCard, American Express, and Diners Club. Visa includes Electron, but excludes Plus. MasterCard excludes Maestro and Cirrus. This does not include domestic debit systems.

⁵ Nilson Report, Issue #857, May 2006. Volume includes Visa, MasterCard, American Express, and Diners Club. Visa includes Electron, but excludes Plus. MasterCard excludes Maestro and Cirrus. This does not include domestic debit systems. The Interim Report gives a similar but slightly smaller figure of €1,350 billion in transaction volume. European Commission, "Interim Report I Payment Cards," Apr. 12, 2006, p. ii.

evaluating the payment card industry will help the continuing dialogue between the Commission and other interested parties.

Since the Interim Report is a progress report on the Commission's ongoing investigation, it is not surprising that it has significant weaknesses. At least six of these weaknesses should, in our view, be corrected before the Commission makes any recommendations or adopts any remedies based on the Report's analysis.

1. The Interim Report does not adopt a coherent framework for examining whether there are problems in the payment card industry or for assessing government remedies.
 - a. The Interim Report ignores many of the insights of the economics literature on two-sided markets despite having recognized that the payment cards industry is two-sided and having referenced much of the relevant literature.
 - b. The Interim Report has not systematically analysed the payment card industry under a competition policy framework (Article 81 or Article 82 EC Treaty) or under the market failure framework used by economists for assessing the desirability of government intervention.
 - c. The Interim Report frequently elevates mere differences across businesses in the 25 member states into suggestions that something is amiss, even though these may simply reflect a multitude of factors not measured in the data collected or considered in their analysis.
2. The Interim Report reaches strong conclusions concerning the degree of competition in the issuing and acquiring businesses and on the predictions of some of the two-sided markets literature based on unreliable—in fact, essentially worthless—statistical analyses.
 - a. The Interim Report's data analysis is based largely on cross-country comparisons that fail to control, except in the most rudimentary way, for differences in consumers, merchants, card systems, tastes, institutions, histories, or other differences across member states that could affect the conclusions.
 - b. The Interim Report's statistical analysis of the extent to which interchange fees are passed through to merchants and to consumers is unreliable and must be disregarded. The statistical analysis is based on regressions among market-determined, endogenous variables and therefore cannot support the structural and causal inferences made throughout the Report.
3. The Interim Report's analysis of profitability rates is not grounded in the well-developed and widely accepted economic and accounting literature on measuring business profitability.

- a. The Interim Report relies on a “profit ratio” that can differ substantially across products, firms, and industries even under perfect competition.
 - b. The Interim Report’s analysis of profitability fails to consider risks. Since credit-card lending is an unusually risky business the Interim Report’s conclusions on the profitability of credit-card issuers is particularly suspect.
4. The Interim Report’s preliminary conclusion that credit-card issuers have market power in some countries and that interchange fees are a method for transferring rents from a competitive acquiring business to an uncompetitive issuing business has no reliable foundation.
 - a. The Interim Report has no reliable evidence that credit-card issuers earn supra-competitive profits (see point 3) and has conducted no serious investigation into that topic.
 - b. The Interim Report has no reliable evidence on the extent to which either acquirers or issuers pass through interchange fees (see point 2).
5. The Interim Report does not consider whether it is possible to fashion a government remedy that could further the goals of European integration, the pursuit of the Lisbon agenda, and consumer welfare.
 - a. The Interim Report does not consider the role of domestic and international payment card systems in promoting a single European payments area and otherwise promoting trade in the common market.
 - b. The Interim Report does not consider the effects of reducing interchange fees on the incentives for the card systems or the issuers to engage in innovation or to make payment cards available to more consumers.
 - c. The Interim Report has no credible theoretical or empirical analysis of how reducing interchange fees will affect consumer welfare. If one believed the (unreliable) pass-through estimates in the Interim Report, it would follow that reducing interchange fees would transfer profits from large issuing banks to large merchants.
6. The Interim Report does not consider whether the benefits of regulation could possibly outweigh the costs.
 - a. The Interim Report does not consider the well-known problem of unintended consequences. Of particular concern is whether and to what extent imposing interchange fee regulation would make open, association-based systems less viable in the marketplace than closed unitary systems and thereby raise entry barriers into the card business.
 - b. The Interim Report does not consider evidence from actual government interventions in the payment card business, particularly in Australia. In that case, massive regulatory intervention into the payment card business has not achieved its announced goals; it seems to have resulted in higher fees for cardholders with no evidence of a reduction in prices charged by merchants.

The remainder of this paper explains in more detail why we believe that the Interim Report, as it currently stands, should not be used as a guide for evaluating existing or proposed Commission policies toward the payment card industry. The paper explains some of the issues that we believe the Commission should explore to assess whether there are market failures in the payment card industry and what remedies might be usefully deployed to correct those failures. We welcome the opportunity to continue a dialogue with the Commission's staff as it moves from this current progress report to a finished document.

II. PAYMENT SYSTEMS AND EUROPEAN INTEGRATION

The economic role of payment systems is connected intimately to the economic role of money. Money is a unit of account, a store of value, and a medium of exchange. Cash, checks, electronic transfers, debit, credit and charge cards, as well as payment methods relying on mobile phones and on the internet are based on different *systems* for exchanging value between economic entities and on different *form factors* for engaging in this exchange. Cash such as the British Pound is a government-sponsored system in which the form-factor is paper currency and coins. Charge cards such as American Express are for-profit business-sponsored systems in which the form factor is an account number that, as of today, is embodied physically in a plastic card. Different payment systems and form factors are substitutes for each other. And today, most individuals and businesses find that one system or form factor is superior to another for a particular transactions. Most Europeans, for example, carry cash and a debit card on their person; many also carry credit and charge cards; and some carry checks. Many European businesses accept these many different forms of payment.

Payment systems provide two major sources of value to the economy. First, they reduce the cost of exchange to the buyer and seller. Innovations over the millennia have increased the speed and reliability of exchange. For example, the 7th century BC Lydian coin made it easier to conduct trade because people could rely on

a standard coin rather than the irregular pieces of metal that had been in use and because the Lydian state at least initially certified the value of the coin. Second, and related, more efficient payment systems enable trade that would not have occurred in their absence. Transactions costs can prevent some trade from occurring and as a result the “benefits of the bargain” that could have been struck between willing buyers and sellers are lost. Just as the Lydian coin helped vastly expand the scope for trade in the ancient world, the Euro has helped expand trade within Europe.

Payment cards have helped promote trade in the common market since their introduction in the 1950s.⁶ At that time, of course, each member state had its own currency. Although businesses could rely on wire transfers and cheques to make payments for goods and services, travellers between states encountered significant inconvenience. Most exchanged their domestic currencies for the foreign currencies they needed and paid significant commissions for doing so. (The Eurocheque card, introduced in 1968, permitted cheque cashing throughout much of Europe by providing a check guarantee. This though was an imperfect substitute for a cross-border payment instrument.)

The development of internationally branded payment cards changed that. Diners Club and American Express issued cards that consumers could use for cross-border transactions involving mainly travel and entertainment. These cards were mainly used by the wealthy and company executives during the 1950s and 1960s. Starting in the late 1960s, the creation of international associations of banks made payment cards available to an increasingly wider spectrum of the European population. Visa formed alliances with European banks in different countries, starting in the late 1960s. MasterCard formed a joint venture in 1968 with EuroCard, an existing European bankcard association.⁷ Most importantly, consumers received debit cards for use with their current accounts. As these consumer cards became co-branded with EuroCard (later known as Europay), MasterCard, and Visa, they could

⁶ The first Diners Club card introduced in Europe was in the U.K in 1953, perhaps the first general purpose payment card in Europe. See Diners Club Poland, <http://www.dinersclub.pl/index.html?id=136> (last visited June 11, 2006).

⁷ David S. Evans and Richard Schmalensee, *Paying with Plastic*, Cambridge, MA: MIT Press, 2005. 62.

be used at the increasing number of merchants across Europe who accepted these cards for payment.

Privately-sponsored internationally-branded payment cards became the major cross-border payment system available to consumers and merchants between 1970 and 2000. That, of course, changed with the introduction of the Euro in 2000. However, even today the Euro is not legal tender in 12 of the 25 member states, of which the United Kingdom is the most economically significant.⁸ (In addition, payment cards provided a convenient alternative to cheques for intra-country payments.)

It is perhaps possible that Commission regulation could improve existing payment systems and thereby further lower transactions costs and the scope for trade. However, we believe an understanding of the role of payment systems in the economy provides two critical insights that should be considered in evaluating the performance of these systems and proposals aimed at enhancing their performance.

- First, payment cards are one of several competing systems for conducting transactions. They should not be considered in isolation. Nor should any government action towards payment cards (or, especially, a subset thereof) be undertaken without due consideration of the social costs and benefits of payment cards relative to other systems.
- Second, payment cards have thus far played a significant role in furthering integration of the common market by facilitating cross-border transactions in addition to intra-state transactions. These private-sector payment systems have been far ahead of government institutions in doing so. That commends modesty to government authorities who are thinking of “improving” an industry that has introduced most of the key innovations in payment methods in the last 30 years and has, through competition on the merits, persuaded millions of consumers and merchants to shift transactions away from cash and cheques.

III. THE ECONOMICS OF THE PAYMENT CARD INDUSTRY

Many products and services are provided by two-sided platforms that help facilitate the interactions between distinct customer groups that value each other. It

⁸ Euro Treasury, <http://www.euro.gov.uk/home.asp> (last visited June 8, 2006).

is now well-recognised in economics that advertising-supported media, exchange systems, transaction systems, communication systems, products and services based on software platforms, and transaction systems are two (or more) sided.⁹ Products and services as diverse as shopping malls, video game consoles, real-estate brokerage, advertising-supported search engines, and academic-journal publishing are based on two-sided platforms. As Rochet and Tirole have noted, these product and services are characterized by usage and network externalities that are intermediated by the platform in part through a pricing structure that adjusts the extent to which each side contributes to overall costs and profits.¹⁰

Money is intrinsically a two-sided product. Buyers and sellers must both agree to use a particular system and form factor. There is therefore a “usage” externality—for example, if I do not take cash I impose a cost on you if you carry only cash. There is also a “network externality”—for example, if more merchants accept cheques this form factor is more valuable to those who carry cheques; and if more people carry cheques this form factor is more valuable to those who take cheques. Ever since the Lydians minted the first coin, payment systems have succeeded only by getting buyers and sellers to adopt this form factor (get on board the platform) and to use this form factor for exchange (interact with each other on the platform).

Like all payment systems, cards are two-sided. This characteristic is seen tangibly in the introduction of the modern payment card in Manhattan in 1950. Diners Club started its pioneering card system by signing up restaurants, each of which agreed to pay seven percent of the meal bill charged to Diners Club, and by signing up cardholders, who paid virtually nothing after accounting for the float they obtained as a result of only having to pay their bills every 30 days.¹¹

⁹ David S. Evans and Richard Schmalensee (Sept. 2005) *The Industrial Organization of Markets with Two-Sided Platforms* (NBER Working Paper), Jean-Charles Rochet and Jean Tirole (2003) “Platform Competition in Two-Sided Markets,” *Journal of the European Economic Association*, 1(4): 990-1029.

¹⁰ Jean-Charles Rochet and Jean Tirole (2003) “Platform Competition in Two-Sided Markets,” *Journal of the European Economic Association*, 1(4): 990-1029.

¹¹ David S. Evans and Richard Schmalensee, *Paying with Plastic*, Cambridge, MA: MIT Press, 2005, pp. 115, 143.

Chapter 2 of the Interim Report recognizes that payment cards are two-sided and surveys some of the relevant literature.¹² However, we believe there are aspects of the literature to which the Commission has not given adequate attention in this phase of its inquiry.

A. Robust Findings from Two-Sided Literature

Many results in the two-sided literature concerning payment cards depends upon particular simplifying assumptions the authors have made in developing tractable economic models. Likewise particular results—for example on whether open systems set interchange fees too high, too low, or just right in the absence of government intervention—depend upon the particular factual circumstances. However, certain critical results are robust in that they depend only on the assumption that the industry is two-sided in nature and not on any other simplifying assumption or parameter value.

- First, although privately profitable and socially optimal prices may differ, in both cases the prices charged to *each* set of consumers depend on (1) the elasticities of demand on *both* sides; (2) the marginal costs of production on *both* sides; and (3) indirect network effects *between* the two sides. As in any market, prices also depend on many other things, including the structure of the market, the behaviour of the participants, regulations, and product differentiation. But the interdependence between the prices on both sides of the market—which results from the role of the platform as an intermediary between the two groups of customers—is a fundamental result and one that distinguishes two-sided from one-sided businesses.
- Second, and as a corollary to the first point, there is no necessary theoretical relationship between the prices charged on one side and the costs on that side. Privately and socially optimal prices may be higher or lower than marginal cost and may be zero. Extensive surveys of privately-set prices in two-sided markets find that prices that are zero to one side or below the marginal cost are the norm rather than the exception.¹³ (There is not enough information to conclude whether the common occurrence of privately set prices of zero is or is not socially optimal.)

¹² We note that while the Interim Report sometimes disagrees with the predictions or conclusions of particular papers concerning the payment card industry, it agrees that the industry is fundamentally two-sided. Indeed, it relies on some recent papers concerning the two-sided aspect of the payment card industry to suggest that the interchange fee may be set too high. See Section II.4 of European Commission, "Interim Report I Payment Cards," Apr. 12, 2006.

¹³ David S. Evans (Sept. 2003) "Some Empirical Aspects of Multisided Platform Industries," *Review of Network Economics*, 2(3): 191-209.

- Third, the interdependence of the two sides has ramifications for non-price decisions. Product design is based on appealing jointly to both sets of customers and getting them both on the same platform and interacting with one another. Optimal product design decisions may result in a direct cost to one set of customers but increase the value to another set of customers and increase the overall value of the platform. In the United States, for example, shopping malls are often designed to increase the amount of time it takes consumers to walk from store to store; this increases the foot traffic for individual stores and raises the value of the mall to them. Platforms also adopt rules and regulations to promote positive externalities and discourage negative ones. Most exchanges or auction houses have such rules to prevent and penalize opportunistic behaviour by buyers and sellers.

The first two results have important implications for the analysis put forward in the Interim Report. We will discuss this further below. Here we just note that the wide variety of interchange fees, card fees, and merchant fees across the member states is not at all inconsistent with the two-sided literature, nor does it imply that anything is necessarily amiss in any particular member state or set thereof.¹⁴ One would be quite surprised if there was not such diversity given the diversity within the EU of the underlying factors that determine pricing levels and structures in two-sided businesses. The Interim Report has no basis for inferring that mere differences in fees across countries suggest that anything is amiss in the payment card industry.

B. The Role of Cooperation in the Payment Card Industry

All payment card systems are two-sided regardless of whether they are closed-loop systems such as American Express or open-loop systems such as Visa and regardless of the degree of vertical integration in the industry. Any issues pertaining to the relative pricing to the cardholder versus the merchant side, product design, and rules and regulations that pertain to consumers and merchants arise in all of these systems. Broadly speaking, all the major international systems to our knowledge have similar pricing structures as regards the relative fees paid by the merchant versus the cardholder side of the business. All major international systems

¹⁴ Conversely, serious empirical work would be needed to determine whether the difference across member states, systems, and time result from underlying differences in demand, cost, and network effects, market structure, historical factors, or other factors. Our point is only that the diversity of prices is hardly surprising given what we know about two-sided businesses.

to our knowledge have had rules in place for decades that require merchants to “honour-all-cards” and to “not surcharge” cardholders, though some of these rules have been eliminated in some countries in response to competition policy concerns.

Beginning in the 1970s the major growth in payment card systems has come from “cooperative” systems that involve national and international associations of banks.¹⁵ This cooperative aspect leads to a variety of issues. Analytically, it is important to be clear on which, and perhaps to what extent, particular practices arise from the two-sided nature of the industry versus its cooperative nature.

A number of banks in the United States tried individually to establish payment card systems.¹⁶ With the exception of the Bank of America—which could issue cards throughout the large state of California—all of these efforts failed. Small regional associations formed through which banks agreed to accept each others’ cards at each others’ accepting merchant locations. Eventually national associations emerged, and these became MasterCard and Visa in the early 1970s. Likewise, in Europe national associations emerged. Groupement Cartes Bancaires was founded in 1984 in France and has since formed agreements with MasterCard and Visa that allow Cartes Bancaires cardholders to use their cards internationally.¹⁷ Eventually, international cooperatives emerged in which banks (or the national associations on their behalf) agreed to accept cards on their merchant networks. Generally, this was accomplished by branding or co-branding cards—e.g. Carte Bleue cards in France generally carry a Visa logo that enables them to be used at Visa-accepting merchants around the world.

The banks that formed these international cooperatives—and we believe the same is true for many if not all of the national cooperatives—agreed to cooperate mainly in the following dimensions:

¹⁵ While comprehensive data are not available, there has been substantial growth of the cooperative systems over time. For example, in the UK, the number of MasterCards and Visa cards grew from 7 million in 1977, to 37.7 million in 1990, to 103.5 million in 2004. And in France, the number of MasterCards and Visa cards grew from 762,000 in 1977, to 11.4 million in 1990, to 37.8 million in 2004. See Nilson Report, Issue #185, Apr. 1978, Nilson Report, Issue #498, Apr. 1991, Nilson Report, Issue #836, June 2005.

¹⁶ David S. Evans and Richard Schmalensee, *Paying with Plastic*, Cambridge, MA: MIT Press, 2005.

¹⁷ Cartes Bancaires, <http://www.cartes-bancaires.com/> (last visited June 8, 2006).

- The creation and maintenance of a common platform that could get merchants and cardholders on board and facilitate transactions between them. The platform consists of a common acceptance mark, which signals to consumers and merchants that a transaction over that system is feasible; an authorization and settlement system that enables cards issued by bank A to be used by a merchant acquired by bank B (for all issuers and acquirers that belong to the platform); and a set of common rules that govern the behaviour of issuers, acquirers, merchants, and cardholders.
- The establishment of a standard contract between issuing and acquiring banks that determines the financial obligations and risk borne by each. This almost always includes an “interchange fee” that determines the net portion of the transaction amount that is received by the issuer and by the acquirer. At least for the international systems, the interchange fee is paid by the acquirer to the issuer; this has been the case since at least the early 1970s.

MasterCard and Visa—and most of the national systems with which we have experience—have operated as break-even, bank-owned cooperatives. (This has changed recently at MasterCard, which has transformed itself into a publicly-owned for-profit entity.) They do not capture profit nor do they earn anything from the interchange fee revenues; rather they cover the costs of the centralized features of the platform through a variety of switch fees along with membership fees. MasterCard and Visa—and most of the national systems with which we have experience—do not set any prices to merchants or to cardholders centrally.

In the Interim Report, and commonly in discussions over the interchange fee, two issues get confused.

- First, whether and to what extent the two-sided nature of the payment card industry leads to a price structure that is socially suboptimal in the sense that one side ends up being charged “too much” and the other side ends up being charged “too little”. This issue pertains to all payment card systems and indeed to all payment systems.
- Second, whether and to what extent the interchange fee can be used to alter the pricing structure and level of the industry and thereby assist some members to earn supra-competitive profits. This second issue pertains only to card systems that are organized as associations. As we will see below, the distinction is quite material. As a practical matter it leads to the question of whether if there is a problem related to price structure, it is with the level of the interchange fee or with the final prices charged to cardholders and merchants.

IV. THE PAYMENT CARD INDUSTRY AND THE POSSIBILITY OF MARKET FAILURE: FRAMEWORKS FOR ANALYSIS

For the Commission properly to assess the scope for governmental intervention in the payment card industry generally, and with regard to interchange fees particularly, it is important that it begin with a framework for assessing the costs and benefits of governmental intervention and then proceed to gather evidence on those costs and benefits. The Interim Report has not done this. Here we consider two alternative ways of structuring investigations into the payment card industry—a competition policy analysis based on Article 81 EC Treaty or a regulatory analysis based on remedying a market failure.

A. Competition Analysis

The role of interchange fees in the payment card industry has been the subject of many investigations by the Commission's Directorate General for Competition Policy, by the national competition authorities of several member states, and by non-European authorities, most notably the Reserve Bank of Australia.¹⁸ Most of these investigations have been conducted based on Article 81 or one of its national variants. These investigations, including the Commission's Decision with regard to Visa's multilateral interchange fee, have reached broadly the following conclusions:

- First, the card systems entered into an interchange fee agreement that restricts competition.¹⁹
- Second, the interchange fee agreements weren't indispensable for accomplishing any pro-competitive purpose nor did they meet any other conditions under which they might be exempt.²⁰

¹⁸ In addition, the payment card industry has been the subject of a number of private lawsuits in the United States that focus on interchange fees and their determination.

¹⁹ European Commission, "Interim Report I Payment Cards," Apr. 12, 2006, p. 32. Reserve Bank of Australia, "Reform of credit card schemes in Australia: IV Final reforms and regulation impact statement," Aug. 2002, p. 5. Office of Fair Trading, "Investigation of the multilateral interchange fees provided for in the UK domestic rules of MasterCard UK Members Forum Limited (formerly known as MasterCard/EuroPay UK Limited)," No. CA98/05/05, Sept. 6, 2005, p. 6. European Commission, Decision of Case No COMP/29.373, July 24, 2002, para. 66-67.

²⁰ European Commission, "Interim Report I Payment Cards," Apr. 12, 2006, p. 32. Reserve Bank of Australia, "Reform of credit card schemes in Australia: IV Final reforms and regulation impact statement," Aug. 2002, p. 31-33. Office of Fair Trading, "Investigation of the multilateral interchange fees provided for in the UK domestic rules of MasterCard UK Members Forum Limited (formerly known as MasterCard/EuroPay UK Limited)," No.

- Third, centrally set interchange fees may be pro-competitive because they may achieve efficiencies compared to bilaterally set interchange fees and bilaterally set interchange fees may result in a barrier to entry to new competitors.²¹
- Fourth, an interchange fee agreement would be pro-competitive if it were based on costs incurred by issuing banks on behalf of the acquiring banks.²²

In the language of EC competition law, the interchange fee agreements have been found to violate Article 81(1) and would be exempt under Article 81(3) only if the interchange fee were based on certain costs. Thus, the investigations have found that centrally and collectively set interchange fees are pro-competitive so long as they are designed only to recover certain specified costs. No authority or court to our knowledge has found that the right level is a zero interchange fee or what is sometimes call on-par exchange.

As economists, we do not believe that this Article-81-based analysis is helpful for assessing whether intervention by competition authorities can improve consumer welfare, which is now acknowledged to be the overriding purpose of European competition law. As noted by Commission Kroes: “In our view, the objective of Article 82 is the protection of competition on the market as a means of enhancing consumer welfare and ensuring an efficient allocation of resources.”²³

First, by following the Article 81 framework, competition authorities do not inquire into whether the interchange fee does any of the things that the competition laws ordinarily focus on in protecting consumers. In the case of cartels that set prices, one can typically assume that this will result in prices being raised to consumers and output being restricted. The economic literature provides no support for any such presumption regarding interchange fees, which transfers revenues

CA98/05/05, Sept. 6, 2005, p. 34. European Commission, Decision of Case No COMP/29.373, July 24, 2002, para. 98-103.

²¹ European Commission, Decision of Case No COMP/29.373, July 24, 2002, para. 101. European Commission, "Interim Report I Payment Cards," Apr. 12, 2006, p. 93. Other authorities have suggested that bilateral arrangements may be workable. Office of Fair Trading, "Investigation of the multilateral interchange fees provided for in the UK domestic rules of MasterCard UK Members Forum Limited (formerly known as MasterCard/Europay UK Limited)," No. CA98/05/05, Sept. 6, 2005, p. 125-126.

²² Reserve Bank of Australia, "Reform of credit card schemes in Australia: IV Final reforms and regulation impact statement," Aug. 2002, p. 35-38. Office of Fair Trading, "Investigation of the multilateral interchange fees provided for in the UK domestic rules of MasterCard UK Members Forum Limited (formerly known as MasterCard/Europay UK Limited)," No. CA98/05/05, Sept. 6, 2005, p. 161. European Commission, Decision of Case No COMP/29.373, July 24, 2002, para. 84, 91-92.

²³ Neelie Kroes, Preliminary Thoughts on Policy Review of Article 82, Speech to Fordham Corporate Law Institute (Sept. 2005).

between acquirers and issuers who represent merchants and cardholders respectively. Unless it is established that merchant discount fees respond more to changes in interchange fees than cardholder fees, an increase in interchange fees does not raise the overall price paid by merchants and cardholders together, and it may alter for better or worse the magnitude of the externality between them and the overall private and social value of the system. Our point is that, unlike typical cartels, one cannot assume that an agreement among members of the card associations concerning interchange fees will tend to raise prices in any economically meaningful sense. Moreover, by following Article 81 the competition authorities have not investigated other competition issues, such as whether interchange fees exclude competitors or have other detrimental effects on the marketplace.²⁴

Second, by following the Article 81 framework the competition authorities have no economic basis for adopting an appropriate remedy. Normally, under Article 81, competition authorities are dealing with a cartel, and the appropriate remedy is simple: stop fixing prices. With interchange fees, the competition authorities realize that that is not possible, since for most open systems having a centrally set interchange fee reduces transactions costs and facilitates entry. Most competition authorities have settled on the view that interchange fees reimburse issuers for certain costs on behalf of acquirers—although different competition authorities seem to reach different views on exactly what costs should be covered.²⁵ However, economists have known since at least 2001 that there is no efficiency basis for setting interchange fees equal to any particular measure of cost.²⁶ Unfortunately, adopting

²⁴ As we will discuss next, under at least one theory the proper investigation should be conducted under Article 82(a) to determine whether interchange fees result in “excessive prices.”

²⁵ Compare European Commission and UK’s Office of Fair Trade. The OFT disagreed with the Commission that the costs of providing the payment guarantee against cardholder default and interest-free period to cardholders should be properly included. See Office of Fair Trading, “Investigation of the multilateral interchange fees provided for in the UK domestic rules of MasterCard UK Members Forum Limited (formerly known as MasterCard/Europay UK Limited),” No. CA98/05/05, para. 640, Sept. 6, 2005. European Commission, “Interim Report I Payment Cards,” Apr. 12 2006.

²⁶ Published peer-reviewed articles include: Jean-Charles Rochet and Jean Tirole (June 2003) “An Economic Analysis of the Determination of Interchange Fees in Payment Card Systems,” *Review of Network Economics*, 2(2): 69-79. Jean-Charles Rochet and Jean Tirole (Winter 2002) “Cooperation Among Competitors: Some Economics of Payment Card Associations,” *RAND Journal of Economics*, 33(4): 549-570. While some economists advocate zero interchange fees or cost-based interchange fees, they have provided no theoretical or empirical support for that proposition. Dennis W. Carlton and Alan S. Frankel (Winter 1995) “The Antitrust Economics of Credit Card Networks,” *Antitrust Law Journal* 63(2): 643-648. Farrell does not suggest that cost-

an Article 81 framework provides no guidance for assessing how to set interchange fees. Authorities appear to have adopted cost-based regulation, despite the near unanimous conclusion of economists who have written on this subject that cost-based regulation is wrong, simply because costs are something that can be readily calculated.²⁷

One could imagine a broader analysis under the approach advocated by the Commission's Economic Advisory Group on Competition Policy and reflected, to a degree, in the philosophy behind the Commission's Draft Discussion Paper on Article 82 EC Treaty. That analysis would focus on whether there is a business practice that excludes or distorts competition in a way that reduces consumer welfare. In a two-sided market, that analysis would have to carefully weigh the effect of interchange fees on prices charged to both sides of the market (cardholders and merchants) and on usage and network externalities that affect the value of the transaction system to each side of the market. And by focusing on the analysis of economic effects rather than the form of conduct, such an analysis could provide an economic basis for setting an interchange fee, if it were determined that such regulation were warranted.

B. Market Failure Based on Overuse of Cards

Several commentators²⁸ and authorities²⁹ have argued that the interchange fee, along with other features of the payment card industry, results in a market failure.³⁰

based interchange fees would be optimal, but does offer a merchant indifference principle that he argues could be used to consider whether cost-based interchange fees might be preferable to privately determined interchange fees. Joseph Farrell (Mar. 2006) "Efficiency and Competition between Payment Instruments," *Review of Network Economics*, 5(1): 26-44.

²⁷ In a March 2006 speech on the regulation of the payment system in Australia, the assistant governor of the RBA, Philip Lowe, pointed out that the Bank's use of a cost-based standard in that country was driven by two practical reasons. First, it is "a transparent way of moving to a lower level of interchange fees." And second, cost-based interchange meets the legal definition of a standard. See P. Lowe, "The Evolution and Regulation of the Payments System," Address to Payments System Conference at Melbourne Business School, Mar. 2006, available at http://www.rba.gov.au/Speeches/2006/sp_ag_140306.html (last visited June 8, 2006).

²⁸ John Vickers, "Public Policy and the Invisible Price: Competition Law, Regulation, and the Interchange Fee," Presented at the International Payments Policy Conference, "Interchange Fees in Credit and Debit Card Industries: What Role for Public Authorities" (2005).

The Reserve Bank of Australia based its decision largely on this view. The argument begins by noting that the interchange fee subsidizes cardholders. (Even a monopoly issuer would generally pass along some of the cost savings that interchange represents to its cardholders.) It thus gives people an incentive to use credit cards over other means of payments. The argument leaps to the conclusion that people therefore use credit cards too much and cash too little, which is inefficient from society's standpoint. This market failure stems from two features of the card business. The first is that cardholders make the decision concerning what payment instrument to use. And the second is that merchants can't really alter that decision because, on the one hand, they can't surcharge and because, on the other hand, they can't afford to decline cards (at least major, established cards) given that their competitors take them.³¹ (We note that this theory is not based on the interchange fee arrangement per se and would apply to the merchant discount set by any card system, open or closed. We also note that there are some theoretical shortcomings in this argument.³²)

Unlike the Article 81 approach, the "too many card transactions market failure theory" provides a basis for testing whether there is a problem and for thinking about a solution. There is a problem if the sum of the marginal net social benefits (i.e., net of the corresponding incremental social costs) that the various parties to the transaction derive from the use of a payment card rather than an

²⁹ Reserve Bank of Australia, "Reform of credit card schemes in Australia: IV Final reforms and regulation impact statement," Aug. 2002, p. 2-9. Office of Fair Trading, "Investigation of the multilateral interchange fees provided for in the UK domestic rules of MasterCard UK Members Forum Limited (formerly known as MasterCard/Europay UK Limited)," No. CA98/05/05, Sept. 6, 2005.

³⁰ A separate issue that we do not discuss here is whether the appropriate institution for addressing the market failure is a competition authority or a central bank.

³¹ This market failure, if it is present, also leads to some equity issues. Merchants pass through the interchange fee to all of their customers because they are either prohibited from surcharging card customers or because it is too costly to charge different prices to different customers. As a result non-card customers end up subsidizing card customers.

³² In a recent paper, Rochet and Tirole discuss the "tourist test" that is sometimes advanced: an interchange fee fails the tourist test if merchant does not want card use by a tourist (who is not a repeat customer and who could pay with other means) because that would raise the merchant's net cost. Jean-Charles Rochet and Jean Tirole, "Must-Take Cards and the Tourist Test (May 23, 2006) (IDEI, GREMAQ Working Paper). Rochet and Tirole note that this test is flawed for two reasons. First, the merchant discount that maximizes long term user surplus would also fail the tourist test (which is only adequate for short term user surplus)—in the long run, bank profits become reinvested in providing a socially valuable higher level of service. Second, with heterogeneous retailers, the tourist test taken on its own terms should only be applied to the average retailer, so there would be many retailers for whom the tourist test would fail. An assessment would have to be made that the tourist test fails on average, not that it fails for some, or many, retailers.

alternative instrument is negative.³³ To determine if there is a problem one must collect information on the marginal social benefits and costs of using payment cards, cash, cheques, and so forth for various transactions. If the net marginal social benefits of credit cards relative to cash was negative for transactions in which credit cards were used often, one would conclude, all else equal, that credit cards are used too much and cash is used too little. This would then be consistent with the “too many card transactions market failure theory.” On the other hand, if the net marginal social benefits test indicated that the socially optimal payment system was used most of the time, we would conclude there is no problem.

A complete analysis of this sort would need to consider marginal social benefits and costs for all of the relevant parties to payment systems including cardholders, merchants, banks, and governments. One way to think about these social costs and benefits is as follows. A number of parties (the government, banks, merchants, and consumers) have to spend a non-trivial amount of resources to make, say, a cash transaction possible. Governments, for example, have to supply currency that is in good shape and acceptable as a means of payment. Banks have to make the currency available to consumers by, say, replenishing their ATMs. Consumers have to procure cash for the transaction and spend a certain amount of time at the counter to complete it. Merchants have to hire and train clerks who will process the transaction at the counter and then count and deposit the currency. These are all social costs of a cash transaction in the sense that they are resources that society uses to carry it out. The cash transaction may bring certain benefits to the parties involved—for example, as opposed to other payment instruments that are linked to a consumer’s identity, cash will grant consumers privacy. Furthermore, if the transaction is small and involves little or no change, it will be convenient (i.e., fast) for both consumers and merchants. If a debit transaction were to replace the cash transaction, the debit transaction would generate its own social costs and benefits. Among the social costs we would count the resources that banks, consumers, and merchants spend in making it possible. Among the social benefits, we would

³³ See, e.g., J. C. Rochet (June 2003) “The Theory of Interchange Fees: A Synthesis of Recent Contributions,” *Review of Network Economics*, 2(2): 98-99.

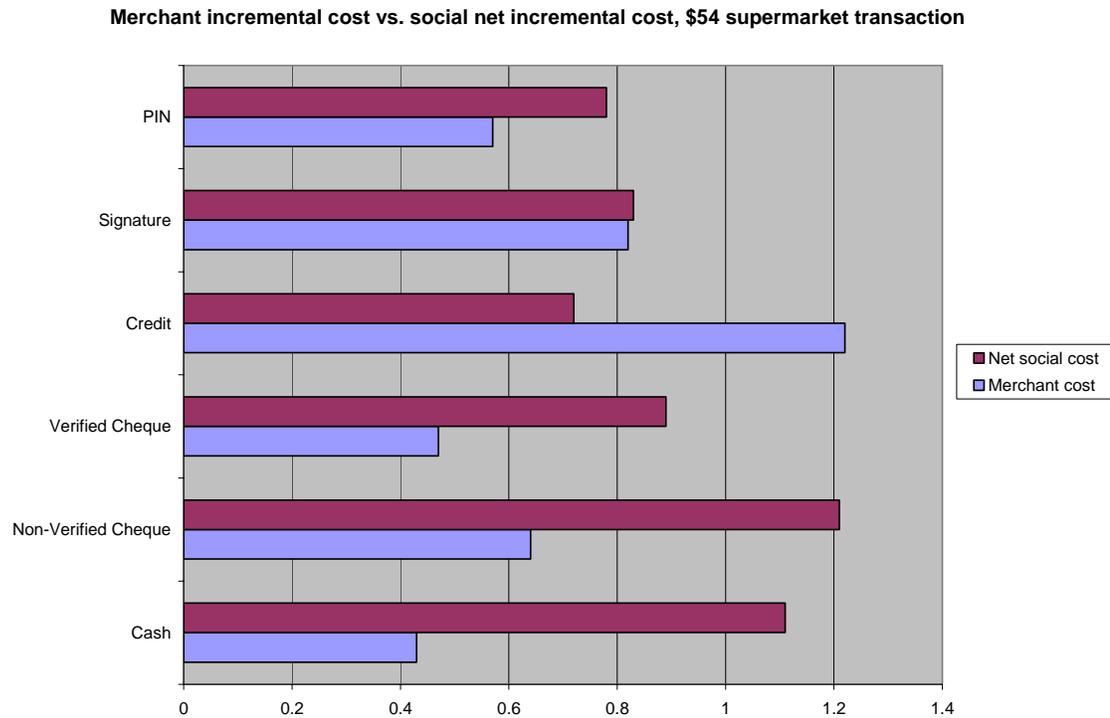
consider, for example, the record keeping possibilities that debit affords consumers and the efficiencies that debit creates for merchants through the elimination of currency processing.

Garcia-Swartz, Hahn, and Layne-Farrar (2006) present this framework along with a preliminary analysis based on existing data; their analysis is intended mainly to illustrate the approach rather than to provide definitive conclusions. They find that a) payment instruments that are relatively expensive for some parties to a transaction are not necessarily so for society as a whole, b) when all parties to a transaction are considered and benefits are added, cash and cheques are more costly (relative to other payment instruments) than earlier studies suggest, and c) the shift toward a cashless society appears to be generally a beneficial one.³⁴

The following chart reveals the contrast these authors find between the costs that grocery store merchants incur when a US\$54 transaction (the typical size of a cheque transaction) is conducted at their stores using various payment instruments and the overall net social costs of that transaction. There are two fundamental differences between the merchant incremental cost and the social net incremental cost. First, the merchant incremental cost captures the cost of the transaction to the merchant only, whereas the net social incremental cost reflects the cost to all the parties involved in the transaction (merchants, consumers, the government, and commercial banks). So, for example, the net social incremental cost takes into account the time it takes a consumer to secure the cash with which she will make a purchase at the supermarket, if she has decided to use cash for the transaction in question. Second, the merchant incremental cost captures costs only (and costs only to merchants), whereas the net social incremental cost reflects the difference between costs and benefits for all parties to the transaction. So, for example, the net social incremental cost takes into account the value of the privacy that cash affords consumers who pay with cash and the value of the option to borrow that credit cards afford cardholders who use them.

³⁴ See Daniel D. Garcia-Swartz, Robert Hahn, and Anne Layne-Farrar (June 2006) "The Move Toward a Cashless Society: A Closer Look at Payment Instrument Economics," *Review of Network Economics*, 5(2): 175-198 and Daniel D. Garcia-Swartz, Robert Hahn, and Anne Layne-Farrar (June 2006) "The Move Toward a Cashless Society: Calculating the Costs and Benefits," *Review of Network Economics*, 5(2): 199-228.

Figure 1. Merchant incremental cost and social net incremental cost for a supermarket US\$54 transaction³⁵



The main implication of these calculations is obvious. Even though payment cards are particularly costly to merchants, they may not be especially expensive for society as a whole. In fact, once all parties to the transaction are taken into account and benefits are counted, use of payment cards may be beneficial to society. As the authors acknowledge, these calculations are only illustrative and it would be necessary to collect more complete and accurate data before reaching firm conclusions.

The Interim Report mentions several papers that consider the costs of different payment systems in particular member states. Although interesting, unfortunately, these papers focus on the social costs of certain payment systems (or on some portion of them) but do not consider the corresponding benefits. The Guibourg-Segendorf (2004) paper is not truly a cost-benefit study in the sense of

³⁵ *Ibid.*

Garcia-Swartz, Hahn, and Layne-Farrar (2006). It is essentially a study of how much it costs the Swedish banking sector to produce payments on different instruments. It is also a study of the extent to which the price structure faced by users reflects the cost structure faced by banks. The authors find that banks tend to use two-part tariffs, the price structure faced by users reflects poorly the cost structure faced by banks, and there are large cross-subsidies among payment instruments. They acknowledge, however, that their study does not allow them to draw conclusions on the changes in social welfare that would arise from changes in payment patterns, since they have not considered the resource costs that private and corporate consumers incur from the consumption of payment services.³⁶

The Brits-Winder (2005) study provides empirical evidence on the costs of POS payment instruments in the Netherlands. The paper presents calculations of the costs that the various parties to the transaction face. The authors clearly distinguish between resource costs and transfer payments, and among various measures of cost. Although they make a number of references to the benefits of payment instruments, they point out that these benefits are difficult to quantify. Therefore, Brits-Winder (2005) is more an attempt at quantifying social costs than social costs and benefits.³⁷

Unlike the Article 81 approach, the social cost/benefit framework provides somewhat of a roadmap for identifying the existence of a problem and for devising a solution. Suppose it has been established that society is consuming too many card transactions and too few cash transactions. Once the size of the wedge between the net social benefits of different payment systems has been established one can consider how to alter the level of interchange fee (or how to structure some alternative regulatory intervention) to move closer to social optimality. While a number of interactions would need to be considered for an accurate answer, one could ask whether zero interchange fees (on par), cost-based interchange fees, or some other approach would move the system towards the social-welfare optimum.

³⁶ Gabriela Guibourg and Björn Segendorf, *Do Prices Reflect Costs? A study of the price- and cost structure of retail payment services in the Swedish banking sector 2002*, Sveriges Riksbank (Oct. 2004) (Working Paper Series No. 172).

³⁷ H. Brits and C. Winder, "Payments Are No Free Lunch," De Nederlandsche Bank, Payments Policy Division, Aug. 2005.

However, the Commission has not collected much of the information it would need for such a cost-benefit analysis of the use of alternative payment systems for various types of transactions.

V. REVIEW OF THE INTERIM REPORT'S ANALYSIS OF PASS-THROUGH AND PROFITABILITY

The Interim Report ultimately relies on the “market power” theory of why interchange fees may be too high. Sir John Vickers presented a version of this theory in a speech he gave while he was head of OFT but before the OFT’s decision against MasterCard’s interchange fee arrangements was final.³⁸ The argument goes along the following lines. Issuing banks have market power because they are product differentiated or perhaps because of structural reasons. Acquiring banks do not have market power. Moreover, as in the market failure theory, it is not possible for merchants either to decline cards or to pass on charges to cardholders. As a result the interchange fee is passed on fully by acquirers to merchants (full pass through because acquiring is highly competitive). Merchants in turn fully pass through the interchange fee to all customers (because they are perfectly competitive and because they cannot impose surcharges). The interchange fee is realized by issuers as profits because, having market power, they pass only a portion of the fee back to cardholders in the form of lower prices. (As with the “too many cards theory” the market power theory also applies to the merchant discount set by vertically integrated unitary card systems.)

The Interim Report claims to find support for this theory from its statistical analysis of pass-through rates and its analysis of issuer and acquirer profitability. We consider these analyses in detail next.

³⁸ John Vickers, “Public Policy and the Invisible Price: Competition Law, Regulation, and the Interchange Fee,” Presented at the International Payments Policy Conference, “Interchange Fees in Credit and Debit Card Industries: What Role for Public Authorities” (2005). Joseph Farrell (Mar. 2006) Efficiency and Competition between Payment Instruments, *Review of Network Economics*, 5(1): 26-44.

A. Statistical Analyses Concerning Effect of Interchange Fees

The Interim Report concludes that:

The results of the inquiry show that there is no significant negative relationship between the fee per card and the credit card interchange fee at country and network level. The empirical evidence shows that if the interchange fee increases by 1 Euro only 25 cents are passed on to consumers in lower fees. This result challenges the hypothesis advanced by some industry participants and the economic literature that an increase in interchange fees exactly equals a decrease in cardholder fees.³⁹

This conclusion cannot be supported by the Interim Report's statistical analysis, which is afflicted with the well-known and fatal "endogeneity" problem.

The Interim Report presents the standard summary of the operation of modern payment card systems in Graphs 1 to 3. These figures and the surrounding text recognize the interrelationships among the issuer, cardholder, acquirer, merchant and network operator.⁴⁰ In particular, the interchange fee affects the prices charged by acquirers to merchants because the interchange fee is a cost of doing business. It also affects the prices charged by issuers to cardholders because the interchange fee provides revenue every time the cardholder uses her card. The Interim Report also recognizes that the payment card industry is a two-sided industry in which the network operator must deal with usage and network externalities between cardholders and merchants.⁴¹

All of the theoretical models of interchange fee referenced by the Interim Report show that the network operator in country i at time t sets the interchange fee (IF_{it}) that is optimal for its purposes by considering even in the simplest setting:

- (a) the demand by cardholders for using payment cards for transactions (DC_{it});
- (b) the demand by merchants for using payment cards for transactions (DM_{it});
- (c) the degree of externalities between merchants and cardholders (EMC_{it});

³⁹ European Commission, "Interim Report I Payment Cards," Apr. 12, 2006, p. vi.

⁴⁰ *Ibid*, p. 1-5.

⁴¹ *Ibid*, p. 6-10.

- (d) the variable resource costs of servicing cardholders (CC_{it}); and,
- (e) the variable resource costs of servicing merchants (CM_{it}).⁴²

That means the optimal interchange fee is a function of all of these underlying economic variables:

$$IF_{it} = f(DC_{it}, DM_{it}, EMC_{it}, CC_{it}, CM_{it})$$

The profit-maximizing merchant discount (MSC_{it}) charged by acquirers depends on the acquiring resource cost, merchant demand (which in turn depends on cardholder demand), and the interchange fee:

$$MSC_{it} = f(CM_{it}, DM_{it}(DC_{it}), IF_{it}(DC_{it}, DM_{it}, EMC_{it}, CC_{it}, CM_{it}))^{43}$$

The profit-maximizing cardholder fees depend on the resource cost of servicing cardholders, consumer demand (which in turn depends on merchant demand), and the interchange fee (since more card transactions lead to more interchange fee revenue:

$$CF_{it} = f(CC_{it}, DC_{it}(DM_{it}), IF_{it}(DC_{it}, DM_{it}, EMC_{it}, CC_{it}, CM_{it}))^{44}$$

These relationships are shown in the form of equations in Figure 2 and diagrammed in Figure 3.

⁴² See W. F. Baxter (1983) "Bank Interchange of Transactional Paper: Legal and Economic Perspectives," *Journal of Law and Economics*, 26: 541-588. Richard. Schmalensee (2002) "Payment Systems and Interchange Fees," *Journal of Industrial Economics*, 50: 103-122. Jean-Charles Rochet and Jean Tirole (Winter 2002) "Cooperation Among Competitors: Some Economics of Payment Card Associations," *RAND Journal of Economics*, 33(4): 549-570; Julian Wright (2004) "The Determinants of Optimal Interchange Fees in Payment Systems," *Journal of Industrial Economics*, 52(1): 1-26. Joshua Gans and Stephen King (2003) "The Neutrality of Interchange Fees in Payment Systems," *Topics in Economic Analysis and Policy*, 3(1): 1069. Jean-Charles Rochet (2003) "The Theory of Interchange Fees: A Synthesis of Recent Contributions," *Review of Network Economics*, 2(2): 197-124. Jean-Charles Rochet and Jean Tirole (2006) "Externalities and Regulation in Card Payment Systems," *Review of Network Economics*, 5(1): 1-14. Joseph Farrell (2006) "Efficiency and Competition between Payment Instruments," *Review of Network Economics*, 5(1): 26-44.

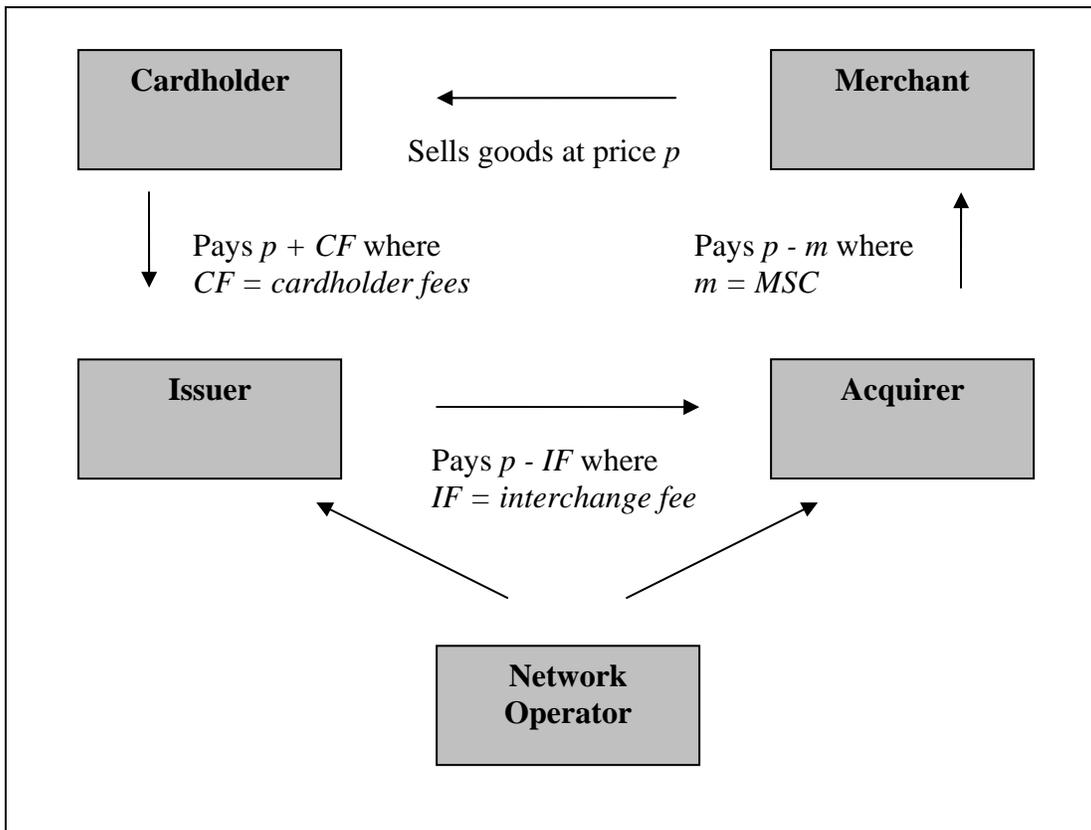
⁴³ This presents a somewhat simplified version of the merchant discount. For example, in any given country there may be different merchant discounts charged to different types of merchants.

⁴⁴ Similarly, this presents a somewhat simplified version of the cardholder fees. For example, in any given country there may be different cardholder fees charged to different types of accounts.

Figure 2

1) $IF_{it} = f(DC_{it}, DM_{it}, EMC_{it}, CC_{it}, CM_{it})$
2) $MSC_{it} = f(CM_{it}, DM_{it}(DC_{it}), IF_{it}(DC_{it}, DM_{it}, EMC_{it}, CC_{it}, CM_{it}))$
3) $CF_{it} = f(CC_{it}, DC_{it}(DM_{it}), IF_{it}(DC_{it}, DM_{it}, EMC_{it}, CC_{it}, CM_{it}))$

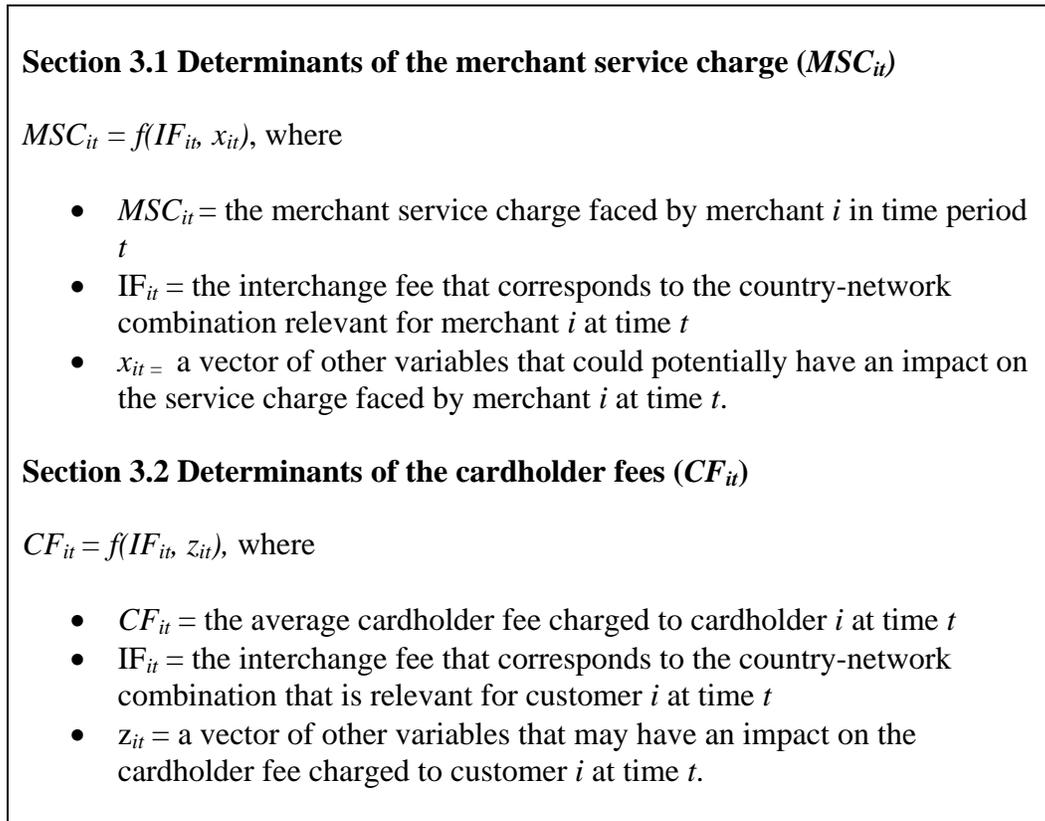
Figure 3



Unfortunately, the statistical analysis conducted by the authors of the Interim Report almost completely disregards these interdependent relationships. Instead the authors estimate a series of regressions that assume that interchange fees are determined independently of the factors that determine the merchant discount and the factors that determine the cardholder fee. Figure 4 shows the equations that underlie

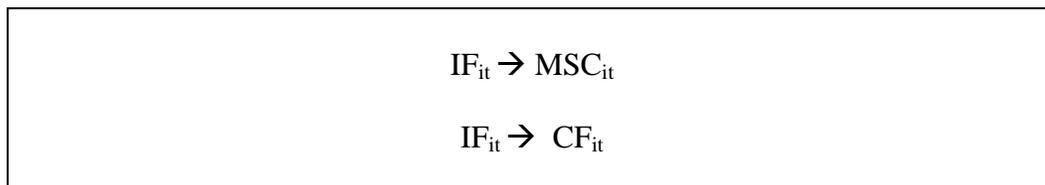
the statistical analysis presented in the report. (In section 3.1 of the report, i indexes merchants. In section 3.2, it indexes cardholders.)

Figure 4



The interrelationships are also diagrammed in Figure 5.

Figure 5



This failure to recognize the interdependencies between the determinants of interchange fees, merchant discounts and cardholder fees has serious—indeed fatal—consequences for the Commission’s statistical analysis. In the language of statistics and econometrics, the Commission assumed that the interchange fee is an *exogenous* variable in its estimation when in fact the interchange fee is an *endogenous* variable; it is simultaneously determined along with the merchant service charge and cardholder fees by exogenous variables, some of which may reflect persistent national differences, that are determined outside this market. It is well known that the statistical results obtained from correlating (or more precisely regressing) an endogenous variable on another endogenous variable are essentially meaningless.⁴⁵ To conduct a reliable statistical analysis of the payment card industry the Commission could rely on, it would be necessary to use statistical techniques that are appropriate for analysing interdependent relationships.⁴⁶

The Commission relies on its statistical analysis primarily for estimates of the amount of the interchange fee that would be passed on to merchants by acquirers and cardholders by issuers. As we have just explained those estimates are worthless because they assume that the interchange fee is determined exogenously when in fact it is determined by the same factors that determine the merchant and cardholder fees. There are several other problems with the Commission’s statistical analysis that, even putting the endogeneity point aside, make its pass-through analysis incorrect. We mention just a few of them here.

First, in section 3.1, the estimated “impact” of the interchange fee on the merchant service fee varies dramatically across countries (Table 12). It is negative (although not significant) in some countries, positive and not significant in others, and positive and significant in the remaining ones. In one of the countries where it is

⁴⁵ See, e.g., J. Wooldridge, *Econometric Analysis of Cross Section and Panel Data*, Cambridge, MA.: The MIT Press, 2002. Chapters 10 - 11. Wooldridge clearly points out that the pooled OLS, fixed effects, and random effects estimators that the statistical Annex of the Report presents in tables 9, 10, 11, 12, 13, 15, and 16 are inconsistent if the right-hand-side variables are not strictly exogenous.

⁴⁶ The dynamic-panel-data models presented in just one of the tables (Table 14) are generalized-method-of-moments, instrumental-variable estimators that in theory take the lack of strictly exogenous right-hand-side variables into account. However, the statistical Annex presents them in section 3.1 almost like an afterthought, without breaking the estimation down on a country-by-country basis, and without controlling for the cost of servicing merchants. Furthermore, the dynamic models are absent in section 3.2

positive and significant (the Netherlands), it is apparently as high as 4.164, whereas in another one (Portugal) it is as low as 0.255.

Second, in section 3.1 the country-by-country regression results change dramatically once the average acquiring resource cost is included as a right-hand-side variable (Table 13).⁴⁷ Whereas the estimated “impact” of the interchange fee in the Netherlands is as high as 4.164 and significant at 10 percent without controlling for acquiring cost (Table 12), it is as low as -0.957 (although not significant) once the average acquiring cost is included on the right hand side (Table 13). Whereas the estimated “impact” of the interchange fee is as high as 0.415 and significant at 1 percent in Spain without controlling for acquiring cost (Table 12), it drops to -0.211 (and still significant at 1 percent) once the average acquiring cost is included on the right hand side. The Interim Report does not tell us which one of these numbers its authors believe we should take seriously, if any.

Third, in section 3.2, if the cardholder fee is the price that cardholders face for using their cards, it is not clear why the Interim Report does not control for the resource costs that issuers incur to provide card services to consumers just as it controls (in some models) for the costs that acquirers incur to provide transaction processing services to merchants. Furthermore, it is far from clear that the Interim Report has taken all the relevant fees into account—the APR, for one, seems to have been excluded. It is also worth noting that issuers can adjust the prices they charge cardholders by making changes in, say, reward schemes rather than in explicit fees. Also, the measure of cardholder fees is biased by the fact that cardholder benefits (such as airline miles) are not included and that most systems have a zero marginal cardholder fee.

Furthermore, in section 3.2 the effect of the interchange fee on the cardholder fee could vary across countries just as the effect of the interchange fee on the merchant service charge is estimated to do. The Interim Report, however, does not

⁴⁷ Apparently, the model reported in Table 12 includes the log of the number of transactions at merchant i and time t and the log of the length of the relationship with merchant i at time t as controls on the right hand side. The model reported in Table 13, on the other hand, replaces the controls included in Table 12 with the log of the average acquiring cost per transaction that applies to merchant i at time t .

make any attempt to allow for this country-specific heterogeneity, other than including country-specific binary variables (i.e., country-idiosyncratic intercepts) in Table 16.

B. Analysis of Bank Profitability

Based on its analysis of issuer and acquirer profitability, the Interim Report reaches two main conclusions:

(1) there are “high and persistent profit ratios” for payment cards that, along with other factors, “suggest the existence and exercise of market power”; and

(2) there is evidence that “casts doubt on the assumption that in the absence of interchange fees, issuers could not recoup their costs from cardholders.”⁴⁸

Unfortunately, these conclusions are based on invalid measures of profit that provide no meaningful information on the absolute or relative levels of bank profitability. The Interim Report does not follow accepted accounting and economic conventions for measuring profitability. Moreover, the Interim Report fails to account in any way for the fact that credit card issuing involves making unsecured loans to individuals and therefore results in financial risk for which businesses are ordinarily, and quite properly, compensated in competitive markets.

Consider the “profit ratio” measure, equal to $(\text{income} - \text{cost}) / \text{cost}$, used in the Interim Report. There is no basis in economics for believing that this profit ratio provides a meaningful basis for determining whether firms are earning supra-competitive profits that might be attributable to market power.

The Interim Report contains no analysis of what the competitive “profit ratio” should be for any of the businesses it considers. It therefore has no basis for concluding whether firms are making a competitive, more than competitive, or less than competitive rate of return. For example, the Report appears to reach the conclusion that “the credit card issuing business was very profitable in all 25 Member States in 2004” based solely on the observation that most issuers had

⁴⁸ See European Commission, “Interim Report I Payment Cards,” Apr. 12, 2006, p. 77.

positive profit ratios in 2004.⁴⁹ There is no benchmark in the Interim Report of what the competitive risk-adjusted profit ratio should be.⁵⁰ Its conclusion that some issuers would still be profitable (meaning have a positive profit ratio) even in the absence of interchange fees also suggests it may view a zero profit ratio as a competitive outcome. In any case, the fact that issuing is “viable” even with a zero interchange does not imply that this outcome is efficient

A positive profit ratio does not, however, equate to supra-competitive profits or what economists sometimes call rents. First, the profit ratio measure used in the Report appears to exclude a number of cost items that would be relevant to assessing economic profits, most importantly the opportunity cost of capital lent out or otherwise employed.⁵¹⁵² Every competitive business needs to pay interest on debt outstanding as well as a competitive rate of return to its equity holders. No firm could stay in business in the long run if it did not pay interest on its debt and offer equity holders a competitive risk-adjusted rate of return. Looking at a “profit ratio” that excludes these costs would find that competitive firms, including the wheat farmers

⁴⁹ *Ibid*, p. 66-67.

⁵⁰ “To judge a return, one must compare it to alternatives rates of return... Excess economic profit exists if the earned rate of return exceeds the competitive rate.” See Dennis Carlton and Jeffrey Perloff, Modern Industrial Organization, Addison Wesley, 2005. 252.

⁵¹ The Interim Report states that the “questionnaire provided a breakdown of the most relevant parameters for total revenues and total costs. In the acquiring business, total revenues are given by total revenues are given by merchant service charges, terminal processing fees, currency conversion fees, and ‘other type of incomes’; total costs, in turn, include interchange fees, transaction processing costs, and ‘other type of costs’. In the issuing business, total revenues are given by interest charged, interchange fees, cardholder fees, currency conversion fees, income from co-branding, and ‘other type of incomes’; total costs include costs for the provision of a free funding period, card production and transaction processing costs, billing, fraud, credit losses, costs related to rebates, staff costs and ‘other type of costs’. The parameter ‘other type of income/cost’ aims to capture any other relevant type of income or cost in the acquiring and issuing of cards, as perceived by the respondents, which does not fall under the other categories. Costs related to the depreciation of assets, for instance, could be included in this category.” See European Commission, “Interim Report I Payment Cards,” Apr. 12, 2006, p. 63. The explicitly identified “most relevant” parameters do not include (a) the cost of interest paid on debt held by the firm, (b) some measure of the required rate of return to equity shareholders, or (c) income or other taxes paid. These parameters also do obviously include general overhead costs of the firm that would need to be covered by revenue from its business lines. Other relevant costs, such as the cost of acquiring cardholders and merchants, as well as costs that are joint with other lines of business, may also be missing from the analysis.

⁵² “Economic profits are revenues minus the opportunity costs of inputs.” Don E. Waldman and Elizabeth J. Jensen, Industrial Organization, Reading, MA: Addison Wesley, 1997. 436. “To calculate profits of the firm as the economist sees them, these opportunity costs have to be subtracted out” Joseph Stiglitz and Carl Walsh, Principles of Microeconomics, New York: W.W Norton & Co., 2002. 166. “Economists include all opportunity costs when analysing a firm whereas accountants measure only explicitly costs.” N. Gregory Mankiw, Principles of Microeconomics, Fort Worth: Dryden Press, 1998. 266.

who inhabit economics textbooks, earned positive profits.⁵³ Positive profit ratios do not therefore equate with supracompetitive rates of return that might be attributable to market power. Put another way, any firm that does not have a positive profit ratio is paying nothing for the capital it employs and accordingly cannot remain in business for very long.

Second, a competitive rate of return must also account for risk. Risk is a major determinant of returns under competition.⁵⁴ It is well known in economics that risk-averse investors require higher returns from riskier assets.⁵⁵ Thus, higher risk firms must earn higher average rates of return on capital employed to provide a competitive rate of return for its debt and equity holders.⁵⁶ (This may or may not translate into a higher profit ratio as calculated in this Report, of course.) The profit ratio measure used in the Report does not control in any way for risk. Failing to control for risk would lead to absurd conclusions such as that firms in the overall economy earn significant supra-competitive returns simply because, for example, the CAC40 provides higher returns than government bonds.

Finally, and perhaps most fundamentally, looking at profit ratios or profit margins rather than rates of return on invested capital is flawed. While one expects risk-adjusted rates of return to equalize across industries under competition, there is absolutely no reason to expect profit ratios to be the same across industries. The

⁵³ “Failure to take into account opportunity costs means that reported profits often overstates true economic profits.” Joseph Stiglitz, *Principles of Microeconomics*, New York: W.W Norton & Co., 2002. 167. “Note that because the accountant ignores the implicit costs, accounting profit is larger than economic profit. For a business to be profitable from an economist’s standpoint, total revenue must cover all opportunity costs, both explicit and implicit.” N. Gregory Mankiw, *Principles of Microeconomics*, Fort Worth: Dryden Press, 1998. 266.

⁵⁴ “Profits also include an element of reward for risk.” Paul A. Samuelson and William D. Nordhaus, *Economics*, Boston; Irwin-McGraw-Hill, 1998. 255.

⁵⁵ “To determine whether a firm is earning an excess rate of return, the proper comparison is between the rate of return actually earned and the competitive risk-adjusted rate of return, which is the rate earned by competitive firms engaged in projects with the same level of risk as that of the firm under analysis. Investors dislike risk and must be compensated for bearing it: The greater the risk, the higher the expected rate of return.” See Dennis Carlton and Jeffrey Perloff, *Modern Industrial Organization*, Addison Wesley, 2005. 251.

⁵⁶ “Investors must be compensated for bearing risk: the higher the risk, the higher the expected rate of return. Two competitive firms will have different rates of return, therefore, if they are pursuing projects with different degrees of risk. A firm is earning an excess rate of return if the actual rate of return is higher than the risk-adjusted rate of return, which is the return a competitive firm will earn if its projects carried the same level or risk as the firm being examined.” Don E. Waldman and Elizabeth J. Jensen, *Industrial Organization*, Reading, MA: Addison Wesley, 1997. 435.

competitive profit ratio will differ across different firms and industries, depending on a number of factors.⁵⁷

The problems we have identified with the profitability discussion in the Interim Report remove all support for the conclusions based upon it. Without some estimate of the competitive risk-adjusted rate of return, there is no basis for concluding either that there are supra-competitive profits attributable to market power in credit cards or that issuers would be profitable even if interchange fee revenues were eliminated. We therefore believe the Commission would have to engage in more careful empirical research to establish whether credit-card issuing earns supra-competitive profits⁵⁸ and whether the interchange fees are causally related to any such supra-competitive profits that are found. If it does so, it then needs to consider what if any implications that finding has for remedies. One of the theoretical findings from the economic literature is that socially efficient interchange fee is higher with greater market power on the issuer side, because greater cost cutting on the issuer side would be needed to result in lower (and more efficient) cardholder prices.⁵⁹

C. The Interim Report's Market Power Theory

The Interim Report appears to conclude that interchange fees lead to a market failure in the payment card industry on the basis of three results that we have shown to be quite unreliable and misleading:

- (1) interchange fees are largely passed on by acquirers to merchants;

⁵⁷ *Ibid.*, p. 437-438.

⁵⁸ The Commission might want to look at the U.S. debate on this subject. Several authors have argued that credit-card issuers earn supra-competitive profits. However, they conclude that those profits result from irrational behaviour on the part of credit-card customers who do not intend to borrow but then do and end up paying high interest rates. See, e.g., Lawrence M. Ausubel (Mar. 1991) "The Failure of Competition in the Credit Card Market," *American Economic Review*, 81(1): 50-81. Other authors have argued that credit-card issuers earn relatively normal rates of return after risks are accounted for. David S. Evans and Richard Schmalensee, [Paying with Plastic](#), Cambridge, MA: MIT Press, 1999. 251-257. C. Lapuerta and S.C. Myers, Measuring Profitability in the Credit Card Business. Unpublished manuscript (Jan. 7, 1977).

⁵⁹ Jean-Charles Rochet and Jean Tirole (Winter 2002) "Cooperation Among Competitors: Some Economics of Payment Card Associations," *RAND Journal of Economics*, 33(4): 549-570. However this observation does not apply to the interchange that maximizes (short term) total user surplus, which does not incorporate issuers margins.

(2) those interchange fee revenues are largely retained by issuers who do not pass this revenue on to cardholders in the form of lower fees; and, the interchange fees revenues are retained by card issuers and give rise to supra-competitive profits.

The Interim Report concludes that the interchange fee is a mechanism for raising prices to merchants and transferring the profits to issuers who then retain them as a result of their market power over cardholders. The first two results on which this conclusion rests are unreliable because of the statistical analyses rely on the false assumption that interchange fees are exogenously determined; the third result on which the conclusion rests is unreliable because it is based on an invalid measure of profits and does not account for risk.

VI. CONSIDERATION OF REMEDIES

At least when it comes to interchange fees the Interim Report does not provide any coherent analysis that would enable one to connect the dots between the goals pursued, the problem identified, and the remedies suggested.

The Interim Report begins by noting the importance of payment cards in achieving the goals of Lisbon agenda. Yet firms will not engage in innovation unless they have some reasonable prospect of achieving a profit payoff for their investment and risk taking. Indeed the failure to provide such incentives—through strong intellectual property rights, for example—has been often pointed to as one of the sources of the perception that Europe is behind other regions in entrepreneurship and risk taking.

The Interim Report seems, in this context, to be rather quick in condemning credit card issuers for earning profits and seeking to eliminate those profits. At a minimum, the Commission needs to consider the long-term consequences on innovation in payment systems, and in the growth of efficient sources of lending, of seeking to limit profits. On this issue the Commission should consider the evidence

that credit card lending, like other sources of microfinance, have facilitated the formation and growth of small businesses.⁶⁰

The Interim Report also begins by noting the importance of achieving the goals of SEPA. In this context it seems odd that the Interim Report has not considered the role of the domestic and international payment schemes in the past in promoting just this goal. We are not suggesting that the domestic or international market structures are perfect or that they could not be improved. However, in evaluating the cost and benefits of any remedies we believe that it is important to recognize that, especially prior to the introduction of the Euro, the proprietary payment systems were the major agents for creating an integrated pan-European—and in fact global—payment system. Even today, only as a result of the interoperable domestic and international payment schemes can one travel through all 25 member states and use one means of payment at a vast number of merchants—using a card issued by your domestic bank that is co-branded with MasterCard, Visa, or American Express. The interchange fee has played a role in encouraging banks to issue cards to consumers and thereby to promote a pan-European payment system. At a minimum, the Commission should consider the consequences of reducing interchange fees on the price and availability of payment cards to European consumers.

At various points the Interim Report seems to suggest that interchange fees are at the heart of a competition policy problem that should be addressed by the competition authorities. There is no evidence, however, that reducing interchange fees would increase consumer welfare even if, *quod non*, the estimates of pass through on the issuer and acquiring side of the business presented in the Interim Report were valid. We explain why next.

The Commission's estimates indicate that acquirers would pass on between 40 and 70 percent of a cut in interchange fees. Take the mid-point of that range, 55 percent. Merchants would therefore receive roughly 55 percent of the benefit of the

⁶⁰ David S. Evans and David G. Blanchflower (Winter 2004) "The Role of Credit Cards in Providing Financing for Small Businesses," *Payment Card Economics Review*, 2: 77-96.

reduced interchange fees, with the remaining 45 percent being retained by acquirers in the form of higher profits. Merchants would not pass on all of that 55 percent to consumers unless they were perfectly competitive. Many merchant sectors that take payment cards in many European countries, however, are quite concentrated. For example, the largest five supermarket chains have more than 50 percent of sales in France and Germany. The largest four have more than 75 percent in the UK. The largest three department store chains have more than 50 percent of sales in France, Germany, and the UK.⁶¹ To be conservative, let us suppose that the merchant sector is on average as competitive as the acquiring sector (for which the Report estimates at 40-70 percent passthrough). Then merchants would on average pass on 55 percent of their cost savings to consumers. That means that 55 percent of 55 percent or roughly 30 percent of any cut in interchange fees would be passed on to payment card consumers.

The Commission has estimated that issuing banks would pass on roughly 25 percent of interchange fees reductions to cardholders in the form of higher fees.⁶² Thus, the increase in cost to cardholders from higher prices from issuers is roughly (25 versus 30 percent) the same as the decrease in cost to cardholders from lower prices at merchants.⁶³

We believe that it is in fact unlikely that merchants, at least in the short run, would pass on any appreciable amount of a plausible reduction in interchange fees.

⁶¹ Sources for information on concentration in Europe are, among others, the following: Euromonitor International, "Department Stores in France," Sept. 2005; Euromonitor International, "Department Stores in Germany," Sept. 2005; Mintel, "UK Retail Briefing—Mixed Goods Focus," Oct. 2005; IGD, "European Grocery Retailing—France 2004"; IGD, "European Grocery Retailing—Germany 2004"; IGD, "European Grocery Retailing—Italy 2004"; IGD, "European Grocery Retailing—Spain 2004"; IGD, "European Grocery Retailing—UK 2004"; PriMetrica Limited, "The Yearbook of European Telecommunications—France 2004"; PriMetrica Limited, "The Yearbook of European Telecommunications—Germany 2004"; PriMetrica Limited, "The Yearbook of European Telecommunications—Italy 2004"; PriMetrica Limited, "The Yearbook of European Telecommunications—Spain 2004"; Keynote, "Mobile Phones—Market Report UK 2005"; Ofcom, "The Communications Market UK 2004—Telecommunications Appendices"; Datamonitor, "Airlines France," Oct. 2005; Datamonitor, "Airlines Germany," Oct. 2005; Datamonitor, "Airlines Italy," Oct. 2005; Datamonitor, "Airlines Spain," Oct. 2005; Keynote, "Airlines UK—Market Report 2005"; Datamonitor, "France—Service stations," May 2006; Datamonitor, "Germany—Service stations," May 2006; Datamonitor, "Italy—Service stations," May 2006; Datamonitor, "Spain—Service stations," May 2006; and Keynote, "Forecourt Retailing UK—Market Assessment 2005."

⁶² See European Commission, "Interim Report I Payment Cards," Apr. 12, 2006, p. 56. It is unclear to us whether this is the right interpretation of the regression results reported in Section 3.2 of the econometric appendix.

⁶³ Since merchants typically do not charge different prices to customers based on type of payment method the cost decrease to consumers would be realized by all customers not just card-paying customers.

Take an average transaction of €40 and an average interchange fee of 1.0 percent. Mandating a zero IF would reduce the cost to acquirer 40 cents, of which, on the assumptions above, 12 cents (30 percent) would be passed on. Since most merchants do not distinguish between card-paying and other customers (i.e. even when permitted they do not surcharge⁶⁴) the overall price decrease across all consumers would be even less—about 4 cents of the €40 transaction amount for a merchant at which cards account for one third of transaction volume. As a result of menu and other transaction costs, it is unlikely that merchants would reduce prices by this amount.

Thus, based on the estimates in the Interim Report on pass through, the effect of reducing interchange fees at least in the short run would be

- (1) To redistribute profits from issuers to acquirers and merchants.
- (2) To raise overall prices to cardholders.
- (3) To leave overall merchant prices to consumers constant.⁶⁵

These results are consistent with the findings of Chang, Evans, and Garcia-Swartz concerning the economic effects of the interchange fee reductions in Australia. There is no evidence in Australia that interchange fee reductions were passed on to consumers in the form of lower prices. Instead, merchants realized a significant increase in profits, which came in part from issuers and in part from cardholders.⁶⁶

A considerable body of economic research explores the pros and cons of government regulation. When it is designed to solve a real market failure and is well executed, government regulation can improve the functioning of the economy and

⁶⁴ Howard Chang, David S. Evans, and Daniel D. Garcia Swartz (Dec. 2005) “The Effect of Regulatory Intervention in Two-Sided Markets: An Assessment of Interchange-Fee Capping in Australia,” *Review of Network Economics*, 4(4): 341-342. David S. Evans and Richard Schmalensee (2005) “The Economics of Interchange Fees and Their Regulation: An Overview,” paper presented at a Conference Interchange Fees in Credit and Debit Card Industries: What Role for Public Authorities? Federal Reserve Bank of Kansas City, Santa Fe, New Mexico, May 4-6, p. 27.

⁶⁵ See also, Jean-Charles Rochet, (2006) “The Consequences of Reducing Interchange Fees” (IDEI Working Paper).

⁶⁶ Howard Chang, David S. Evans, and Daniel D. Garcia Swartz (Dec. 2005) “The Effect of Regulatory Intervention in Two-Sided Markets: An Assessment of Interchange-Fee Capping in Australia,” *Review of Network Economics*, 4(4): 328-358.

make consumers better off. Unfortunately, government regulation can have unanticipated consequences that render it ineffective or worse.

There are clear indications now that one of the effects of interchange fee regulation—or the threat of it—is, intentionally or not, tilt the scales of competition towards for-profit unitary card systems. In Australia, American Express and Diners Club experienced an approximately 20 percent increase in transactions partly as a result of banks shifting volume from the regulated card associations to the unregulated card systems.⁶⁷

Globally, the threat of interchange fee litigation and regulation has encouraged MasterCard, the second largest system in the world, to reorganize itself into a for-profit equity cooperation in which banks do not have a controlling interest. It will be able to set fees to acquiring banks and subsidies to issuing banks without using anything that resembles an interchange fee, and it will be able to retain potentially substantial profits. Before promulgating recommendations, the Interim Report should consider whether interchange fee regulations do, in fact, provide these sorts of incentives to expand unitary systems at the expense of association-based systems. If interchange fee regulations—or other government-mandated regulations of payment card association rules and practices—do discourage the growth and continuation of these associations, the Interim Report should consider carefully whether that is consistent with the goals of SEPA and the Lisbon Agenda specifically, and to the benefit of European consumers generally.

⁶⁷ *Ibid*, p. 348.