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The Regulation of Interchange Fees by the U.S. Federal Reserve Board: A Primer on Economic Principles

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I. INTRODUCTION

The Board of Governors of the Federal Reserve System ("Board") is the latest of a series of central banks and antitrust authorities to tackle the thorny issues of interchange fees.[2] It did not ask for the job. During the process of drafting financial reform legislation the U.S. Senate passed the "Durbin Amendment," which required the Board to regulate the amount of interchange fees that banks that issue debit cards could receive. That amendment became part of the Dodd-Frank Wall Street Reform and Consumer Protection Act. The Dodd-Frank Act was passed by Congress and became law on July 21, 2010.

The Durbin Amendment instructed the Board to adopt rules that would ensure the interchange fees banks received were "reasonable and proportional" to cost.[3] The amendment said the Board should consider "the incremental cost incurred by an issuer for the role of the issuer in the authorization, clearance, or settlement of a particular electronic debit transaction" but should not consider "other costs incurred by an issuer which are not specific to a particular electronic debit transaction."[4] It did not elaborate on what was reasonable. The Board was given until April 21, 2011 to adopt the rules, and the rules are supposed to go into effect on July 21, 2011.

The Board staff started its work shortly after the legislation was signed into law. It appears that the staff focused much of its effort on collecting data and information from the issuers, acquirers, networks, and other industry participants. A key part of the data collection focused on the costs incurred by banks for providing debit cards to their customers. The staff found that the volume-weighted average variable cost of authorization, clearing, and settlement was 4 cents, the

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[1] David S. Evans is with University of Chicago and University College; Robert E. Litan is with the Kaufmann Foundation and the Brookings Institution; and Richard Schmalensee is with MIT. This paper is based on David S. Evans, Robert E. Litan, & Richard Schmalensee, *The Economic Principles for Establishing Reasonable Regulation of Debit-Card Interchange Fees that Could Improve Consumer Welfare* (February 22, 2011), a*vailable at* SSRN: http://ssrn.com/abstract=1769890. The authors would like to thank large members of the Electronics Payment Coalition for financial support and Emilio Calvano, Howard Chang, and Scott Walster for helpful comments and suggestions.

[2] Other authorities and central banks to take on this issue include the European Commission, the Reserve Bank of Australia, the Ministry of the Economy in Spain, the Hungarian competition authority, the Office of Fair Trading in the United Kingdom, the Office of Competition and Consumer Protection in Poland, and the Israel Antitrust Authority.

[3] *See* Sec. 1075 Reasonable Fees and Rules for Payment Card Transactions, from H.R.4173, the Dodd-Frank Wall Street Reform and Consumer Protection Act. *Available at* http://www.opencongress.org/bill/111-h4173/text.

[4] *Id.*

median was about 7 cents, and that 80 percent of the surveyed banks had average variable costs less than 12 cents.[5]

The staff devised two alternative proposals that were presented formally to the Board at an open hearing on December 16, 2010.[6] Under the "12-cent cap" proposal a bank would be in compliance so long as it did not receive debit card interchange fees of more than 12 cents per transaction. Under the "7-cent safe harbor" proposal the bank would be in compliance so long as it did not receive debit card interchange fees of more than 7 cents per transaction or its actual average variable costs up to a maximum of 12 cents (the "7-cent safe harbor").[7] The average debit interchange fee was 44 cents per transaction in 2009 according to the Board. The 7-cent safe harbor proposal would therefore decrease debit card interchange fee revenue by 84 percent, while the 12-cent cap would reduce fee revenue by about 73 percent. After a series of questions to and responses from the staff, the Board agreed to issue the proposals for public comment.

In considering the Board's proposals, this article focuses on the principles for regulating debit card interchange fees and, in particular, examines what the source of the problem is and what the best solution to that problem is from the standpoint of the public. In the language of regulatory economics we address: What is the market failure that is the source of the problem and what is the best remedy for that problem? Our analysis therefore has implications for interchange fee regulations by central banks and competition authorities worldwide.

II. CONSUMER WELFARE

Public policies should of course make the public better off.[8] The Fed staff expressed uncertainty over whether consumers would be winners or losers from the regulation. At the Board's December 16th open hearing one of the lead economists responded that,"[O]verall it's hard to anticipate what the overall [e]ffect on consumers will be" because lower merchant prices would be offset by higher bank fees.[9] The merchants who have advocated debit card interchange fee regulations in the United States say that the regulations will save consumers more than a billion dollars a month. They argue that merchants pay that amount in interchange fees to debit card issuers and, if they did not have to, they would lower prices to consumers by that amount. That position ignores very complicated issues concerning how much

[5] *Debit Card Interchange Fees and Routing; Proposed Rule*, The Federal Reserve System, FEDERAL REGISTER, 75:248, at 81726 (December 28, 2010), ("The Proposed Rules"). *Available at*: http://edocket.access.gpo.gov/2010/pdf/2010-32061.pdf

[6] *Federal Reserve Board of Governors Holds an Open Meeting*, CQ FINANCIAL TRANSCRIPTS, p. 11 (December 16, 2010), ("Board December 16, 2010 Open Meeting"). A video of the open hearing can be viewed *at* http://www.youtube.com/watch?v=IaJqZMfqXNY.

[7] Based on the cost data collected by the Federal Reserve Board a relatively small portion of total debit card transactions would be in banks with costs higher than 7 cents. Assuming the networks adopted 7 cents per transaction as the debit interchange fee we would expect the average effective interchange fee to be just slightly higher than 7 cents. For more details, *see* David S. Evans, Robert L. Litan, & Richard Schmalensee, *Economic Analysis of the Effects of the Federal Reserve Board's Proposed Debit Car Interchange Fee Regulations on Consumers and Small Businesses*, at footnote 16, (February 22, 2011), ("Consumer Impact Study"). *Available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1769887.

[8] A market failure means that market forces are not maximizing social surplus and that leads to the possibility that a remedy for that market failure could increase social surplus. *See*, generally, A.E. KAHN, THE ECONOMICS OF REGULATION, II Ch. 7, (1971), and W.K. Viscusi, J.E. Harrington, & J. M. Vernon, ECONOMICS OF REGULATION AND ANTITRUST, 4TH ED. (2005) ("Viscusi et al. 2005").

[9] Board December 16, 2010 Open Meeting, *supra* note 6, at 11.

of the lost revenue banks would pass on to their customers and how much of the cost savings merchants would pass on to their customers. We address that issue in a companion paper and summarize the results below.[10]

Retail banking is a highly competitive industry in the United States.[11] There were about 15,000 banks and credit unions in 2010 and most local metropolitan markets are not concentrated. There were, for example, 83 banks and credit unions in the Washington, D.C. metropolitan area in 2010.

It is well known by economists that firms in highly competitive markets tend to pass on most of any cost changes to consumers.[12] The historical evidence shows that this is the case in retail banking. When banks had a rapid increase in debit card interchange fee revenues they competed that revenue away and passed on the benefits to consumers by adopting free checking, reducing other fees, and expanding services. Likewise, when banks have experienced increases in costs, or reductions of revenues, as they recently did because of overdraft fee regulations in the United States, they have increased fees and curtailed benefits. There has been a dramatic decrease in free checking in the United States as a result of the overdraft regulations and the anticipation of the debit card fee regulations—a 14.5 percent drop in 2010 alone accounting for approximately 20 million checking accounts.

The proposed debit card fee regulations would eliminate more than one-fifth of revenues from checking accounts. Banks have already started considering and experimenting with increased checking account fees and limitations on debit card use as a result of the anticipated loss of debit card interchange fee revenues.[13] We expect that retail banks and credit unions would pass on most of the lost revenue from debit card interchange fees to consumers in the form of higher checking account fees, debit fees, and reduced services.

There is no basis for assuming that all markets in which firms accept debit cards are highly competitive. Most American consumers, for example, have just a few supermarkets that are conveniently available to them. Within markets some firms have more market power than others. Therefore, there is no presumption that all merchants would pass on most of the cost savings in the long run. In the near term there's even less reason to believe that the fee reductions would lead to lower prices. The typical savings for a merchant would amount to about 1.6-1.8 cents on a $10.00 item. There is extensive evidence that prices are sticky in the short run—about a year—and therefore one would not expect merchants to pass on these small cost savings quickly.[14] (The banks are in a different situation since they are facing a big loss of revenue per account and one that makes many existing accounts unprofitable.)

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[10] *See* the Consumer Impact Study, *supra* note 7.

[11] *See* George Hanc, *The Future of Banking in America*, 16:1 FDIC BANKING REVIEW, p.1 (2004). "[D]eregulation of products and markets intensified competition among banks and between banks and nonbank financial companies…Competition will continue to be intense, and few banks, if any, will be insulated from its effects."

[12] With constant marginal costs firms in highly competitive industries prices would rise by the amount of the marginal cost increase and fall by the amount of the marginal cost decrease.

[13] *See* Robin Sidel, *At Banks, New Fees Replacing Old Levies*, WALL STREET J., (January 5, 2011); Robin Sidel, *Checking Isn't Free at More Branches*, WALL STREET J., (February 19, 2011); and Robin Sidel, *ATM Fees Heading Higher*, WALL STREET J., (March 16, 2011).

[14] *See* Consumer Impact Study, *supra* note 7 at 38-39.

If the pass through for merchants and banks were symmetric (say 50 percent each), then consumers as a group would come out even. What they would pay in higher bank fees would be offset by lower prices at the point of sales. Our analysis shows that the pass through is asymmetric. Banks are likely to pass on much of the decreased revenue in the form of higher prices while the merchants are likely to pass back only a portion in lower consumer prices. The result is that, on a net basis, consumers lose.

The sums are not trivial. Over the first two years of the regulation banks would lose between $33.4 and $38.6 billion of debit interchange fee revenue from their checking accounts, depending on which proposal was adopted, and would look to checking account holders to replace much of that.[15] Large merchants could get a windfall—about $17.2-19.9 billion according to our calculations over the first two years of the regulations.[16] Home Depot's CFO estimated that the debit fee reductions would result in additional $35 million of profit for Home Depot annually.[17]

A similar experiment with reducing interchange fees was conducted in Australia starting in 2003. The initial focus was on credit card interchange fees. Evans, Chang, & Garcia found that banks increased credit card fees and reduced rewards in the first couple of years and there is evidence that over time banks ended up passing all of the reduced revenues on to consumers in the form of higher prices.[18] The more controversial and unsettled issue in Australia is what the merchants did with the savings they got. The Reserve Bank of Australia claims they passed it back to consumers but that is based entirely on the proposition that firms in competitive industries pass through all cost decreases. In fact, many of the merchant categories in Australia are not very competitive—retail trade in Australia is quite concentrated with two national supermarket chains to take one example. While measuring the impact of small cost decreases on prices is a challenging empirical exercise there is no evidence that Australian consumers got any money back.

As far as we know there is no empirically based evidence that cost-based interchange regulations increase consumer or social surplus. As we mentioned above, some advocates of interchange fee reductions make the ungrounded and economically implausible assertion that merchants would pass on most of the cost savings to the consumers.[19] Others claim that the reduced interchange fees will lead to a more efficient use of payment instruments at the point of sale but provide limited or no empirical support for that claim.[20] Finally, other advocates of

[15] *Id.*, at 12.

[16] *Id.*, at 42.

[17] *Event Brief of Q4 2010 Home Depot Inc, Earnings Conference Call – Final*, CQ FD DISCLOSURE, (February 22, 2011).

[18] Howard Chang, David S. Evans, & Daniel D. Garcia Swartz, *The Effect of Regulatory Intervention in Two-Sided Markets: An Assessment of Interchange-Fee Capping in Australia*, 4(4) REV. NETWORK ECON., pp. 328 – 358, (2005).

[19] *See* The Retail Industry Leaders Association submission to the Board of Governors of the Federal Reserve System (February 22, 2011) and *Reform Of Australia's Payments System Preliminary Conclusions Of The 2007/08 Review*, RESERVE BANK OF AUSTRALIA, at pp 22-23 (April 2008). *Available at* http://www.rba.gov.au/payments-system/reforms/review-cardreforms/pdf/review-0708-pre-conclusions.pdf.

[20] For a discussion of this issue *see*, Daniel D. Garcia-Swartz, Robert W. Hahn, & Anne Layne-Farrar, *The Move Toward a Cashless Society: A Closer Look at Payment Instrument Economics*, 5(2) REV. NETWORK ECON. (2006).

interchange fee regulations point out that some countries have zero interchange fees, such as Canada, and still have widespread use of debit cards.[21]

None of these comparisons adjusts for the very significant differences across countries in banking and payment institutions. The fact that the interchange fee in one country is different than the interchange fee in the United States does not, by itself, prove anything given dramatic differences across countries in retail banking, the evolution of payment card systems, the extent of check and credit card use, the features of debit cards offered, and the fees that consumers have to pay for debit cards and for checking accounts. For example, in many of the countries that have zero interchange fees banks charge consumers for card transactions, limit the transactions that can be made, impose other charges that U.S. consumers have not had to pay, and do not enable consumers to pay online with their cards.[22]

The competition and regulatory authorities that have objected to the market-determined interchange fees have not, to our knowledge, provided any rigorous economic analysis that lowering these fees would, on net, improve consumer welfare or increase social surplus. A basic principle for interchange fee regulation is that there should be evidence that whatever is being proposed will actually make consumers better off or, more broadly, increase social surplus. Wishful thinking and speculation is not enough.

III. MARKET FAILURE

In the United States, at least, there is a broad consensus among economists, across the political spectrum, that the government should regulate markets only when there is a market failure for which it is possible to design a remedy that results in the public being better off with regulation than with the market result. There is now an extensive literature on whether there is a market failure in payment cards and this subject has been one of the central areas of study in the relatively new (post-2000) literature on the economics of two-sided platforms. Two-sided

[21] *See* Steven C. Salop et al., *Economic Analysis of Debit Card Regulation Under Section 920*, Oct. 27, 2010, submitted to the Federal Reserve as prepared materials for a meeting between the Federal Reserve Staff and Merchants Payment Coalition on November 2, 2010 ("Salop et al.") and Dennis W. Carlton, *Externalities in Payment Card Networks: Theory and Evidence, Commentary, The Changing Retail Payments Landscape: What Role for Central Banks*, proceedings of a conference held at the Federal Reserve Bank of Kansas City, pp. 129-130 (November 9-10, 2009).

[22] For instance, in Canada, RBC Royal Bank's basic checking account has monthly fees of CDN $4.00 per month and includes 15 free debits per month (ATM transaction, debit card transactions, account inquires, etc.). Each additional excess transaction is charged a fee of CDN $.65. The minimum price for an account with unlimited transactions is CDN $10.95 per month. Also in Canada, at the Bank of Montreal, the minimum per monthly fee for an account with unlimited transactions is CDN $25.00 and per transaction fees in excess of limits (10 or 30 depending on the account) are CDN $.60. In New Zealand the basic transaction account at the Bank of New Zealand includes a NZD 35 cent per transaction fee, and in Iceland at the Arion Bank account holders are charged around USD 7 cents per transaction. The domestic debit card networks with zero interchange in some countries, such as New Zealand and the Netherlands, are limited to face-to-face transactions and consumers must use a credit card or a debit card tied to a separate payment network, such as Visa or MasterCard, to make purchases online. Until 2005, the domestic debit card network in Canada (Interac) could not be used for online transactions. Since 2005, Interac has offered an online payment service, but it is only accepted by approximately 500 merchants and banks may charge fees per transaction as described above.

platforms serve two different groups of customers such as shopping malls, which bring retailers and shoppers together, or media, which bring advertisers and viewers together.[23]

As with all industries it is possible that two-sided platform businesses have market power and therefore price higher than the ideal price under perfect competition. Generally the government does not impose price or rate of return regulation on industries that have market power except in the extreme circumstances of public utilities where there is both a combination of natural monopoly and the government has granted the company something in return, such as a right of way. In the United States and, to a large extent, in the European Union, even the antitrust laws do not seek to regulate market power because of the recognition that monopoly profits are a reward for taking risks.[24] As a result, by themselves, claims that interchange fees should be regulated because MasterCard and Visa have market power do not provide a sound justification for price regulation.[25]

Firms in two-sided markets, however, have to choose not only the level of prices—how high should prices be to maximize profits—but also the structure of prices—what share of the cost and profit from the platform should each group of customers contribute. It is well known that many two-sided businesses have skewed pricing structures and that it is common for these businesses to charge prices at or below marginal cost, sometimes offering services for free to attract a particular group of needed customers. By itself, the fact that consumers pay little if anything for debit cards and that merchants are the major source of revenue is not unusual. Merchants bear most of the cost for shopping malls, search engines, radio, newspapers, and free television.

Under some assumptions, however, it is possible that payment card networks would adopt a pricing structure that is skewed too much towards one group or the other. Many of the papers that have addressed this issue have found that payment networks that are trying to maximize their own profits will not necessarily adopt the same pricing structure as would a social planner seeking to maximize social surplus. However, as the Board staff noted:

> In theory, privately-set interchange fees can be either too high or too low relative to the efficient interchange fee, depending on a number of factors, including the

[23] For recent summaries of the literature *see* E. Glen Weyl, *A Price Theory of Multi-Sided Platforms*, 100(4) AMER. ECON. REV., pp. 1642-72 (2010) and David S. Evans, *Essays on the Economics of Two-Sided Markets: Economics, Antitrust and Strategy* (2010), *available at* SSRN: http://ssrn.com/abstract=1714254.

[24] David S. Evans & Keith N. Hylton, *The Lawful Acquisition and Exercise of Monopoly Power and its Implications for the Objectives of Antitrust*, 4(2) COMPETITION POL'Y INT'L, p. 203. (2008), *available at* SSRN: http://ssrn.com/abstract=1275431.

[25] The submission to the Federal Reserve by Constantine Cannon on behalf of the Merchant Payment Coalition (including appended reports by James Miller and Steve Salop) appears to make the argument that MasterCard and Visa are able to charge high interchange fees because of market power over merchants that they obtained inappropriately. If it were true that would be an argument for an antitrust case against the networks, but even if that case were successful the courts would be loathe to impose price regulation. *See*, generally, Constantine Cannon's February 22, 2011 submission to the Federal Reserve *available at* http://www.federalreserve.gov/SECRS/2011/March/20110303/R-1404/R-1404_022211_67840_571559563177_1.pdf.

> cost and demand considerations underlying the merchant decision to accept cards and the extent of competition among issuing and acquiring banks.[26]

Under some assumptions it is possible to conclude that payment systems will systematically set interchange fees too high so that merchants are bearing more of the cost relative to cardholders than a social planner would like. Bedre-Defolie & Calvano ("BC"), for example, have developed a model that turns on the fact that consumers choose whether to pay with cards or cash.[27] This analysis is particularly relevant to the Board's consideration since the staff suggested that the fact that consumers get to decide how to pay was the source of a market failure.[28] The BC model implies that the socially efficient interchange fee is never above the privately optimal fee and is typically below it.

Of course, as with all models, this one is based on some assumptions that may not hold in fact.[29] Just because a model says there is a market failure does not mean that there necessarily is one. To reach that conclusion one needs to assess whether the model fits that business reality. Nevertheless, this model allows us to make an important point. Even when there is a basis for concluding that there is a market failure that results in interchange fees being set too high one must know empirical details of demand and other factors to estimate the socially optimal interchange fee. Dropping interchange fees too much could result in an even lower social welfare than keeping interchange fees at the level set by profit-maximizing firms. In fact, the BC model implies that the drastic cut resulting from the proposal put forward by the Board for comment would not result in a socially optimal interchange fee. To show this we need to go into the BC model in more detail.

BC shows that the socially optimal interchange fee is given by a relatively simple formula under the assumptions that there are no fixed costs to cover; there is a single issuer operating a single network; total transaction volume is fixed; interchange fee changes are fully passed through by issuers and acquirers; and consumers benefit only from using the card and not from carrying it:

$$\frac{f(i^*)}{m(i^*)} = \frac{n_B}{n_S} \div \frac{v_B}{v_S}.$$

[26] Robin A. Prager, Mark D. Manuszak, Elizabeth K. Kiser, & Ron Borzekowski, *Interchange Fees and Payment Card Networks: Economics, Industry Developments, and Policy Issues*, Finance and Economics Discussion Series, Board of Governors of the Federal Reserve System, p. 4 (2009-03), ("The Fed Economists" or "The Fed Economists (2009)").

[27] Özlem Bedre-Defolie & Emilio Calvano, *Pricing Payment Cards*, ECB Working Paper No. 1139 (2009). *Available at* SSRN: http://ssrn.com/abstract=1522026.

[28] *See* Board December 16, 2010 Open Meeting, *supra* note 6 at 8-9.

[29] For example, BC assume in the model that other than the initial decision regarding whether to accept a card, merchants do not further influence consumers' decisions regarding whether to use a card for payment. In practice, merchants can attempt to steer consumers away from using cards and can offer discounts for using other payment methods. Another assumption in the BC model is that there is significant heterogeneity among merchants within a given interchange fee tier in their benefits from card usage. If this were not the case, the privately optimal interchange fee would coincide with the (constrained) socially optimal interchange fee.

In this formula i^* is the socially optimal interchange fee, f and m, which depend on the socially optimal interchange fee, are the optimal per-transaction prices paid by issuers (and cardholders) and by acquirers (and merchants), respectively; η_B is the consumers' price elasticity of demand for card usage; η_S is the merchants' price elasticity of demand for card acceptance; and υ_B and υ_S are, respectively buyers' and sellers' average surplus per card transaction (that is the average benefit in excess of cost). We note here, and will return to, the fact that the optimal interchange fee does not depend on the costs of providing services to merchants or cardholders in this model.

BC show that in this model the socially optimal interchange fee is lower than the market set interchange fee. But that conclusion is based entirely on the socially interchange fee being "less" than the market interchange fee, they do not say anything about whether the socially optimal fee is 1 percent lower, 10 percent lower, 80 percent lower, or any other amount. To say more than the socially optimal fee "is less" requires empirical work on the parameters of the model which include demand elasticities and average surpluses for consumers and merchants. However, in a submission to the Board, Professor Calvano showed that it is highly implausible that the socially optimal interchange fee could be as low as the 12 cent cap proposed by the Board staff.[30]

Calvano assumes that consumers' and merchants' demand functions are linear. This common modeling assumption dramatically simplifies the expressions for the difference between the market-set interchange fee, i^M, and the socially optimal fee, i^*:[31]

$$i^* = i^M - \frac{\upsilon_B + \upsilon_S}{12}.$$

If the market-set debit card interchange fee i^M = 44 cents,[32] then in order for the socially efficient interchange fee i^* to be equal to 12 cents, as the Board's proposed 12 cent cap proposal implies, the average total surplus per card transaction—the combined benefit to both merchant and consumer from using a card instead of cash or check—would have to be $3.84 (=12(.44-.12)). That is an absurdly high benefit of paying or being paid with a debit card relative to using cash or checks. It would amount to about 10 percent of the total value of the average debit card transaction of $38.50. Under the 7-cent safe harbor proposal the implied benefit would be $4.44, which would be almost 12 percent of the value of the average debit card transaction. In light of the ready availability and frequent use of cash, checks, and credit cards, the implied consumer benefit from being able to use a debit card is likely to be, at most, a small fraction of a dollar. Similarly, merchants' costs of processing transactions are generally measured in dimes, not dollars. This suggests that the Board's proposed cap and safe harbor are significantly below the socially optimal interchange fee. The same would be true for the Reserve Bank of Australia, which has also adopted 12 cents and other dramatic reductions in interchange fees.

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[30] Emilo Calvano, *Note on the Economic Theory of Interchange*, Submission to the Board of Governors of the Federal Reserve System, (February 22, 2011), ("Calvano Report"). *Available at* http://www.federalreserve.gov/SECRS/2011/March/20110308/R-1404/R-1404_030811_69122_621890579792_1.pdf.

[31] We retained the BC assumption that banks can perfectly capture consumer benefits from interchange fee changes. Relaxing that extreme simplifying assumption would lead to a higher value for the privately optimal interchange fee, so that the equation below arguably gives an upper bound on the difference.

[32] The Proposed Rules, *supra* note 5 at 81725.

The BC model also finds that the market-set interchange fee and the socially optimal interchange fee are likely to be closer to the extent that it is possible for card networks to negotiate individual rates with merchants that correspond to their willingness to pay for accepting cards, (that is to the extent card networks can engage in price discrimination). In fact MasterCard and Visa have set numerous interchange fees for different categories of merchants and types of transaction[33] and then, in addition, engage in extensive volume-based discounting including individual deals with very large merchants, such as WalMart.

These analyses cannot prove that the 12-cent interchange fee cap is socially inefficient just as they cannot prove that the 44-cent market interchange fee is socially efficient. They are based on models, which may not adequately reflect how the business operates, and are based on formulas that can only be calculated based on empirical estimates of merchant and cardholder demand, among other things. They do stress the critical point that there is no basis for leaping from the conclusion that markets set interchange fees too high to the conclusion that interchange fees should be cut drastically. That is another basic principle of interchange fee regulation. Just because a model says the interchange fee should be less—it does not mean fees should be a lot less.

IV. COST-BASED REGULATION

If there is one thing economists who have studied interchange fees have agreed on it is that cost-based regulation is not an economically reasonable and sound solution to *any* theoretically plausible market failure involving interchange fees. The Board staff provided a clear and succinct summary in their May 2009 paper:

> … [T]he economic theory underlying the efficient interchange fee provides no rationale for either a strictly cost-based interchange fee or an interchange fee of zero.[34]

A survey that Professor Calvano submitted to the Board summarizes the key papers by economists who have examined the economics of interchange fees, including papers written too recently to be included in the Fed Economists' survey.[35] As he shows, all of the relevant papers conclude that there is no economic basis for assuming that it would be socially efficient, or would raise consumer welfare, to set the interchange fee based only on consideration of costs.[36] That is to say, if there is any substantial market failure that has seemed to be even a theoretical possibility, the one clear message from the literature is that an appropriate remedy cannot be devised without considering more than costs. A fundamental principle of interchange fee

[33] MasterCard's published debit card rate schedule, for instance, has 41 different categories; *see* http://www.mastercard.com/us/merchant/pdf/MasterCard_Interchange_Rates_and_Criteria.pdf, at pp. 74-89.

[34] The Fed Economists (2009), *supra* note 26 at 48.

[35] Calvano Report, *supra* note 30 at 4-8.

[36] Economist Alan Frankel has argued that interchange fees should be zero. He argues that privately and jointly set interchange fees may permit the exercise of market power. He does not, however, attempt to demonstrate that an interchange fee of zero is optimal. His papers contain no formal economic analysis and are inconsistent with the formal models of interchange that have been published in peer-reviewed economics journals. *See* Alan Frankel, *Towards a Competitive Card Payments Marketplace*, in Reserve Bank of Australia, Payments System Review Conference, Proceedings of a Conference held in Sydney on November 29, 2007; Alan Frankel & Allan Shampine, *Economic Effects of Interchange Fees*, ANTITRUST L. J. (2006).

regulation is that making interchange fees equal to any measure of cost is almost certainly wrong.[37]

The reason is straightforward. The purpose and effect of the interchange fee is to shift costs from one set of a payment system's customers they serve—acquirers and the merchants—to another set—issuers and the consumers. It is not surprising that economic theory makes clear that knowing only the costs involved can tell one nothing about what fraction of those costs each side should bear. A very similar problem arises in the regulation of multi-product single-sided firms with fixed costs, such as electric distribution companies. In these situations setting all prices equal to marginal costs does not cover fixed costs. Knowledge of costs alone can tell one nothing about how prices should optimally depart from marginal cost in order to cover total cost. In both settings one must have information on demand conditions.

Cost-based regulation departs from good regulatory practice in other settings. In classic public utility regulation, where the argument for cost-based regulation (to mitigate market power coming from a natural monopoly) is strongest, prices are not based on only a subset of variable costs, and fixed costs are not ignored.[38] Here we see no economic justification for considering only some of the variable costs of providing debit cards and for ignoring the associated fixed costs that must somehow be covered.

In fact, whether interchange fee regulation is to be based only on costs or should consider other factors, as even public utility regulation generally does, any regulation should logically take into account all costs incurred by both issuers and acquirers to provide debit card services to merchants and consumers. The difficult issue is how those costs should be covered—that is, who should bear them. Moreover, as debit cards are provided along with other services as features of depository account relationships, there is no obvious economic argument for ignoring account-specific costs that are not specific to debit cards.

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[37] One approach that has been proposed that is, in some sense, cost-based is to set interchange fees at a level so that merchants' costs of accepting cards (inclusive of the merchant discount, other costs, and net of applicable benefits) are no higher than their costs (again, inclusive of all costs and net of applicable benefits) when a payment is made with cash or checks rather than cards. This approach has been referred to as the "tourist test" to reflect whether a merchant would choose to turn down payment by card (if it could do so) from a captive customer who is able to pay with cash. *See* Jean-Charles Rochet & Jean Tirole, *Must-Take Cards: Merchant Discounts and Avoided Cost*, J. EUR. ECON. ASSOC., forthcoming. The intuition behind this approach is to eliminate the externality that may be present when a consumer chooses to use a payment method that is expensive for the merchant. If the merchant is roughly indifferent between cards and other payment methods, then the externality is eliminated. The European Commission has adopted a version of this approach in its assessment of cross-border interchange fees. While elegant in theory, it is far from obvious how this approach should be used, if at all, in practice. Consumers do not generally face explicit per transaction prices for most payment methods, contrary to what is assumed in the model underlying the tourist test. Moreover, cash and checks impose different costs on most merchants, and the costs they impose differ across merchants. And, to the extent that consumers' use of checks is "subsidized" because many consumers do not pay explicit bank fees for checks, use of other payment methods, including cards, will need to be similarly "subsidized." That is, the interchange fee resulting from the "tourist test" would likely be too low. In addition, there are multiple credit, debit, and payment cards issued by different card systems (including proprietary card systems without interchange fees), while the basic tourist test model assumes that merchants are homogenous and the only payment methods are cash and one card system. The tourist test is thus interesting as abstract theory, but it is unclear that it can be implemented in practice or that attempts to do so would be welfare-enhancing. Nor is it clear that interchange fees that deviate from the levels implied by the tourist test would demonstrate the existence of a market failure that needs to be addressed by regulation.

[38] Viscusi et al., *supra* note 8.

V. REASONABLE INTERCHANGE FEE REGULATION

The Board is required to issue rules for assuring that the interchange fees banks receive when their cardholders pay merchants with their debit cards is "reasonable and proportional" to cost. Economists at least would conclude that the fee is reasonable if it increases consumer or social welfare from the market level and unreasonable if it reduces welfare.[39] The Board's proposal to reduce debit card interchange fees from 44 cents on average to either 7 or 12 cents does not seem reasonable based on this standard. Our analysis on the impact of the regulations finds that consumers would lose, on balance, since banks would pass on more of the revenue losses to their checking account customers than merchants would pass back to consumers in the form of lower prices. Professor Calvano's analysis further finds that it is highly implausible that the Board's proposed interchange fees are near the socially optimal level.

Unfortunately, the Board staff focused on developing cost-based regulation despite recognizing the consensus in the economics literature that cost-based regulation of interchange fees is not appropriate.[40] The economics literature now shows clearly and unanimously that it is not possible to devise interchange fee regulations that serve the public interest without considering cardholder and merchant demand and, ultimately, asking whether the regulator-set fees will make consumer or social welfare higher relative to the market-set fees. We would not claim that this task is easy. But it would seem worth the investment of time and resources given that the regulations involve the most popular payment instrument aside from cash, and would result in shifting roughly more than ten billion dollars from the merchant to the consumer side of this two-sided market.

The Board should, in our view, seriously consider finding that market-set interchange fees are reasonable and proportional to cost until serious research and analysis prove otherwise. Although some theoretical models indicate that the market-set interchange fee may be too high, there is no empirical or theoretical research that we are aware of that shows the market-set interchange fee is substantially above the socially optimal interchange fee. The market-based interchange fee is more reasonable than the Board's proposed cost-based interchange fees which would decrease consumer welfare significantly.

Our analysis has important implications for banking regulators and competition authorities around the world that are looking into interchange fees for debit and credit cards. It is widely accepted now that the purpose of competition policy is to serve consumer welfare. The "consumer is king" as the European Commission's former head of competition policy, Mario Monti, has said.[41] Banking regulators are more concerned with the safety and soundness of the

[39]There are some reasons for focusing on consumer welfare primarily in this particular case. First, the broad purpose the Dodd-Frank Act articulates in its preamble is "to protect consumers from abusive financial services practices." Second, advocates of reducing interchange fees often argue that doing so would benefit consumers by lowering retail prices, so the ultimate effect on consumers would appear to be a key test. Third, more broadly, the statute instructs the Board to ensure that interchange fees are "reasonable," and regulations that harm consumers are not generally considered "reasonable" in public policy discussions. Finally, Section 904 of the Electronic Fund Transfer Act, which Section 1075 of Dodd-Frank amends, also requires that the Board consider the impact of regulations on consumers, as we discuss further below.

[40] They, in effect, focused on establishing fees that were "proportional to cost" but ignored the legislation's mandate that these fees be "reasonable."

[41] Mario Monti, *European Competition Policy and the Citizen*, speech given regarding European Competition Day, (June 9, 2000).

banking system and the integrity of the payments system. But it is hard to imagine any reason why they should impose regulations that harm consumers without demonstrable offsetting benefits. The cost-based approach to regulation that the Reserve Bank of Australia, the European Commission, and thus far the Board, have taken is almost guaranteed to lead to just that perverse result. Setting interchange fees equal to some portion of the variable cost of providing payment cards generally results in a dramatic reduction in the interchange fee, a shift of a significant burden of the debit card product from merchants to consumers, and an interchange fee that is likely to be far lower than the socially optimal fee.