The Economic Principles for Establishing Reasonable Regulation of Debit-Card Interchange Fees that Could Improve Consumer Welfare

By

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February 22, 2011

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Executive Summary

Over the last century economists have developed a three-step process that regulators should follow for designing rules that are in the public interest. The regulator should (1) determine whether there is a market failure; (2) design the best feasible remedy for that failure; and (3) ensure that imposing the remedy will improve social welfare after considering known costs and possible unintended consequences.

This study applies this framework to the draft regulation of debit card interchange fees issued for public comment by the Board of Governors of the Federal Reserve System ("Board") December 16, 2010.[1] Based on our research and analysis we have reached four main conclusions.

(1) The proposals that the Board has issued for comment are not based on a proper diagnosis of the problem to be fixed; only by properly diagnosing the problem could the Board ascertain whether the proposed rules are "reasonable" under Section 904 of the Electronic Fund Transfer Act. Debit cards have improved the efficiency of the payment system by displacing checks, as officials of the Federal Reserve System have recognized on numerous occasions. Debit cards have become the most popular non-cash form of payment and are preferred by consumers over alternative forms of payments, especially checks. Consumers report that debit cards are more often accepted by merchants than checks according to the Federal Reserve's 2008 Survey of Consumer Payment Choice. There is no evidence that debit cards are overused or that there is a problem to be fixed. The fact that merchants pay much of the cost of debit card transactions just means that debit is similar to other two-sided markets in which merchants participate, including shopping malls and advertising on search engines, social networks, and traditional media. The Board has not identified a market failure that its proposals are designed to correct.

(2) The proposals that the Board has issued for comment employ remedies that the Board staff itself has found to have no support in the economic literature. Summarizing the consensus in the economics literature the Board staff has found that "economic theory underlying the efficient interchange fee provides no rationale for … a strictly cost-based interchange fee."[2] The economics literature is virtually unanimous on this point. As a general matter, adopting the wrong regulatory solution to a problem that is not well defined is likely to make consumers worse off.

(3) The proposed regulations could make consumers worse off, according to the Board staff, and would in fact make consumers much worse off according to our analysis; the proposed regulations are thus not economically sound or reasonable. The Board staff has found that it is "hard to anticipate" whether consumers will be better or worse off.[3] Our analysis in the accompanying "Consumer Impact Study" finds consumers are likely to be substantially harmed on balance by the proposed regulation, because the higher costs they would face on their checking accounts would likely exceed any price reductions they would

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[1] "Debit Card Interchange Fees and Routing; Proposed Rule," The Federal Reserve System, *Federal Register*, 75:248, December 28, 2010, at p. 81737. Available at: http://edocket.access.gpo.gov/2010/pdf/2010-32061.pdf ("The Proposed Rules").

[2] Robin A. Prager, Mark D. Manuszak, Elizabeth K. Kiser, and Ron Borzekowski (2009), "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, 2009-03, at p. 48 ("The Fed Economists" or "The Fed Economists (2009)").

[3] "Federal Reserve Board of Governors Holds an Open Meeting," *CQ Financial Transcripts*, December 16, 2010, at p. 11 of 28 ("Board December 16, 2010 Open Meeting").

receive from merchants, at least over the first 24 months of the regulation.[4] We also find that lower-income households and small businesses would be harmed if the proposed regulations were implemented.

(4) The proposed regulations that the Board issued for comment should, in our view, be withdrawn and significantly revised, and the Board should ensure that any future proposals meet the tests of either not harming consumers or demonstrating some other efficiency that could outweigh the costs to consumers of the regulations. We argue that the market-set interchange fee is likely to be close to the socially efficient interchange fee, even if there is a market failure of the sort the staff suggests could occur in debit cards. Until the Board conducts the necessary empirical research to estimate socially optimal interchange fees, we believe the Board should find that market-set interchange fees are "reasonable and proportional to cost." Market-set rates would cause less harm to consumers and other parties in the economy than the interchange fee cap and safe harbor in the draft rule issued for comment by the Board. Market-set rates are no less reasonable and proportional to costs, especially given the wide variation in costs among banks found by the Board. The Board should err on the side of caution before adopting rules that harm consumers, especially lower-income ones, and harm small businesses.

[4] David S. Evans, Robert L. Litan, and Richard Schmalensee, "Economic Analysis of the Effects of the Federal Reserve Board's Proposed Debit Car Interchange Fee Regulations on Consumers and Small Businesses," Submission to the Board of Governors of the Federal Reserve System, February 22, 2011, at pp. 6-8 ("Consumer Impact Study").

I. Introduction and Overview

Over the last century economists have developed a three-step process for designing regulations that are in the public interest.[5]

- Identify if there is a market failure that needs to be fixed, and, if so, what that failure is. If there is no significant market failure, the process ends because any regulation is more likely to be harmful than beneficial.
- Determine the best feasible method for correcting that failure.
- Ensure that after considering costs and the risk of unintended consequences the public is likely to be better off with regulation than with the results of an unregulated, inevitably imperfect market. If the proposed regulation does not make the public better off it should be either replaced by one that does, or the market should be left alone.

This framework is analogous to that used by physicians. The physician asks: is there an illness, and, if so, what is it; what's the best medicine for the illness; and, after taking side effects into account, is the patient going to be better off with the medicine? If not, would the patient be better off with a different medicine or no medicine at all? A cardinal rule for the physician, as for the regulator, is "to do good or to do no harm."[6]

We apply this framework to the regulation of debit card interchange fees by the Board of Governors of the Federal Reserve System ("Board") as required by Section 1075 of the Dodd-Frank Wall Street Reform and Consumer Protection Act ("Dodd-Frank"). The Board considered proposals for regulating debit cards on December 16, 2010 and agreed to release those proposals for comment.

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[5] Kenneth Arrow, Robert W. Hahn, Richard Schmalensee, et al. (1996), "Is There a Role for Benefit-Cost Analysis in Environmental, Health, and Safety Regulation," *Science*, 272, pp. 221-222.

[6] Hippocrates, "Of the Epidemics," Translated by Francis Adams, available at http://classics.mit.edu/Hippocrates/epidemics.1.i.html.

We conclude that the proposals the Board released with respect to interchange fee regulation are not economically sound at least in part because they did not emerge from the three-step process above. The Board:

- did not clearly identify a significant market failure;
- did not take into account the virtually unanimous conclusion in the economics literature and the work of its own economists that purely cost-based regulation, which the Board proposed, is inappropriate in this setting;
- did not ensure that the proposal would be in the interest of consumers; and,
- should withdraw the proposal and revise it so that it would at least not harm consumers.[7]

This introduction summarizes our basis for these findings.

A. Has There Been a Proper Diagnosis of the Problem to be Fixed?

The debit card market seems to have worked very well for consumers. Debit cards compete with other means of payment for merchant acceptance and consumer use. And they have competed effectively: the number of debit card transactions grew from 8.4 billion in 2000, to 21.6 billion in 2005, to 36.6 billion in 2009.[8] The total dollar value of transactions charged on debit cards increased from $311 billion in 2000, to $869 billion in 2005, to $1,421 billion in 2009.[9] In terms of numbers of transactions, debit cards are the favorite noncash method of

[7] We focus on consumer welfare in our analysis for several reasons. 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.

[8] The Nilson Report.

[9] Ibid.

payment for consumers.[10] Debit cards have improved the efficiency of the payment system by displacing checks.[11]

This (and other evidence of effective competition and social benefit) on its face argues that regulation, with all its attendant costs, is not called for. This evidence begs the critical question that regulators must answer before prescribing a remedy that overrules the market: what is the problem? At the hearing, Chairman Bernanke asked the staff to identify the problem, or market failure, that justified government regulation.[12] The staff suggested that a problem could result from the fact that consumers usually make the decision on how to pay.[13] In theory, consumers might overuse debit cards because they do not bear the total costs caused by their decision, since they do not see the costs they impose on merchants when they pay with a debit card. But, of course, consumers do not bear the full costs of paying with cash, checks, or credit cards either. The increased use of debit cards in recent years has been in large part a switch away from checks. In releasing the 2010 study of the use of noncash payments in the United States, the Federal Reserve System's Financial Services Policy Committee noted that,

> The number of noncash payments in the United States grew more slowly between 2006 and 2009 than in prior periods and the total value of noncash payments declined. As in previous years, check payments continued to decline

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[10] "The 2010 Federal Reserve Payments Study: Noncash Payment Trends in the United States: 2006 – 2009," *The Federal Reserve System*, December 2010, at p. 4.

[11] Ibid., at p. 5.

[12] "There's a presumption that prices will be set by market competition, generally, but then, of course there are counter examples such as electric utilities, for example, where the government intervention can be justified … for various reasons. Can you … help us thin[k] about … what are the arguments for and against allowing interchange fees to be determined in the market versus having a regulatory intervention when we think about the economics?" Board December 16, 2010 Open Meeting, at p. 8 of 28. And as Governor Warsh noted, Chairman Bernanke's question referred to what the "market failure" was. Board December 16, 2010 Open Meeting, at p. 13 of 28.

[13] Board December 16, 2010 Open Meeting, at pp. 8-9 of 28.

> and were eclipsed by debit cards as the most used noncash instrument in the United States.[14]

In this release, Richard Oliver, executive vice president of the Federal Reserve Bank of Atlanta and the manager of the Federal Reserve System's check and ACH business nationwide, also noted that, "The results of the study clearly underscore this nation's efforts to move toward a more efficient electronic clearing system for all types of retail payments."[15]

Unsurprisingly, there does not appear to be any evidence that consumers have used debit cards excessively and, despite extensive study and monitoring of the growth of electronic payments by the Federal Reserve System, we have found no statement by any official of the Federal Reserve that has suggested that the growth of debit cards was not in the public interest.

There is a large theoretical literature in economics that suggests that the private market may not choose the socially efficient interchange fee, but that literature does not find that the market interchange fee should necessarily be lowered. In a comprehensive survey paper that accurately summarized that literature as of mid-2009, Board economists Robin Prager, Mark Manuszak, Elizabeth Kiser and Ron Borzekowski concluded:

> 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 cost and demand considerations underlying the merchant decision to accept cards and the extent of competition among issuing and acquiring banks.[16] (emphasis added)

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[14] "Federal Reserve Study Shows More Than Three-Quarters of Noncash Payments Are Now Electronic," *Federal Reserve Financial Services Policy Committee*, December 8, 2010, available at http://www.federalreserve.gov/newsevents/press/other/20101208a.htm.

[15] Ibid.

[16] The Fed Economists (2009), at p. 4.

The draft regulations the Board has put out for comment do not appear to reflect any of the factors identified by these staff economists. The Notice of Proposed Rulemaking in the Federal Register does not identify any market failure or suggest any analysis to determine the problem for which the Board is seeking a reasonable solution.

B. Has the Best Solution to the Problem Been Selected?

The Board was presented with proposed rules that would base debit card interchange fees on the average variable costs of certain tasks that issuers undertake for debit card transactions. It is striking that while the theoretical literature in economics describes a variety of possible market failures that might affect interchange rates, there is broad agreement that cost-based regulation is not an appropriate response to *any* of them. Again, the Fed Economists summarized this consensus well:

> [T]he determination of which costs should be included in a cost-based fee is necessarily arbitrary, and measuring those costs is nontrivial, particularly if frequent re-estimation of costs is necessary. More importantly, the **economic theory underlying the efficient interchange fee provides no rationale for either a strictly cost-based interchange fee** or an interchange fee of zero.[17] (emphasis added)

As Professor Calvano makes clear in his accompanying submission, more recent studies have only strengthened this conclusion: in striking contrast to most regulatory environments, the literature is unanimous that it is not efficient for interchange fees to be equal to any measure of any entity's marginal, incremental, or average cost.[18] The proposal to base regulation on cost alone in this case is like a physician, unsure of the right diagnosis, nonetheless prescribing a remedy that the medical literature agrees is inappropriate for any plausible illness considered.

[17] The Fed Economists (2009), at p. 48. Also, see The Fed Economists (2009), at p. 62.

C. Is the Regulation Likely to Make Consumers Better Off?

Section 904 of the Electronic Fund Transfer Act requires the Board, to the extent practicable, "demonstrate that the consumer protections of the proposed regulations outweigh the compliance costs imposed on consumers and financial institutions."[19] Perhaps the most obvious and most serious problem with the proposals that were presented to the Board is that there was no finding that they would benefit consumers. In fact, the Board was informed by a Board staff economist that, "[O]verall it's hard to anticipate what the overall [e]ffect on consumers will be."[20]

The Board was told that consumers could pay higher fees for their checking accounts and for using debit cards, that consumers *might* obtain benefits from lower prices at merchants, but that it was not possible to predict whether consumers would, on balance, be better or worse off as a result of the regulations.[21] In other words the staff felt it was possible that the proposed regulations would make consumers worse off. It is hard to imagine a physician recommending that a patient take a particular medicine even though its effects are "hard to anticipate."

In fact, research and analysis we have conducted shows that consumers are likely to be harmed on balance by the proposed regulation, because the higher costs they would face on their checking accounts would likely exceed any price reductions they would receive from

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[18] Emilo Calvano, "Note on the Economic Theory of Interchange," Submission to the Board of Governors of the Federal Reserve System, February 22, 2011, at pp. 4-8 ("Calvano Report").

[19] 15 U.S.C. § 1693b(a) (3).

[20] Board December 16, 2010 Open Meeting, at p. 11 of 28.

[21] Ibid. Board economist, Mark Manuszak, stated, "[A]ny savings that consumers might realize at point of sale could be offset by fee increases at their banks, as well as changes in terms that debit cardholders face for card use and deposit accounts. So, specifically, account holders at covered institutions may face higher fees for debit card use or additional account fees, and they couldn't foresee if less favorable terms for their debit -- for their deposit accounts and related services.… [O]verall it's hard to anticipate what the overall [e]ffect on consumers will be."

merchants, at least over the first 24 months of the regulation.[22] Even after 24 months, there is no economic basis for concluding that the cost-based interchange limits set by the Board would necessarily produce net benefits for consumers. Consumers may continue to get less back from merchants in lower prices than they pay in higher retail banking fees. More importantly, consumers would likely suffer harm from reduced innovation, weakened efficiency incentives, and other well-known consequences of government price regulation. The Board's proposal violates the cardinal rule of regulation: "do no harm." As we discuss below, the Board could follow the Congressional mandate and devise interchange fee standards that are "reasonable and proportional to cost" without harming consumers.

D. Is There a Better Approach to Regulation?

We understand that the Board is required by Congress to promulgate standards for assessing debit card interchange fees by April 21, 2011 and that these must be implemented by July 21, 2011. We have several suggestions for what the Board should do – and not do – at this point:

- First, the Board should begin now to conduct the serious empirical research and analysis necessary to determine what restrictions on interchange fees, if any, would best serve the public interest. That involves identifying what the market failure is, if any; finding the best solution for whatever market failure is found; and making sure the regulated solution will benefit consumers. In conducting this analysis the Board and its staff can rely on extensive economic research into two-sided platform businesses generally and payments systems in particular, as well as its own expertise and experience with the banking industry.[23] The literature is unanimous that a proper analysis must consider

[22] See generally, Consumer Impact Study, at pp 6-8.

[23] For recent contributions to this literature see Marc Rysman (2009), "The Economics of Two-Sided Markets," *Journal of Economic Perspectives*, 23:3, pp. 125-143 ("Rysman 2009"); Julian Wright (2004), "The Determinants of Optimal Interchange Fees in Payment Systems," *Journal of Industrial Economics*, 52:1, pp. 1–26 ("Wright 2004"); and Özlem Bedre-Defolie and Emilio Calvano (2009), "Pricing Payment Cards," ECB Working Paper No. 1139. Available at SSRN: http://ssrn.com/abstract=1522026 ("Bedre-Defolie and Calvano 2009").

factors other than cost in order to determine rates that are "reasonable and proportional to cost."

- Second, the Board should not promulgate regulations that are likely to harm consumers materially. Regulations that harm consumers would not generally be considered reasonable, particularly if sound and thorough economic analysis does not support them. The greater the cut in interchange fees, the greater the likelihood of substantial harm to consumers and the greater the disruption to their depository account relationships.

- Third, the Board should seriously consider finding that market-set interchange fees are "reasonable and proportional to cost," at least until the research and analysis described above can be completed. Without additional empirical work, the Fed Economists concluded that regulation was risky: "[T]he possible effects of any intervention are highly uncertain. Although economic models can provide some insights regarding the qualitative effects of a policy intervention, they typically have little to say about the quantitative magnitudes of these effects."[24]

  We are not aware of any empirical analysis showing that the efficient interchange fee is below the market-determined rate, let alone substantially below. In what follows we briefly discuss some recent theoretical work that seems broadly consistent with Dr. Prager's answer to Chairman Bernanke concerning the possible market failure. This work, which is based on a number of assumptions, suggests that the efficient rate may be equal to or below the market-set rate but that the gap, if any, is likely to be small. In light of all this, market-set interchange fees seem reasonable given the current state of knowledge, and, as costs vary substantially among issuers, they are more reasonable and no less "reasonable and proportional to cost" than the safe harbor and ceiling proposed by the Board.

E. Organization of This Report

The remainder of this report has six sections that present the basis for the conclusions summarized above.

- Section II examines the likelihood that the proposed regulation will harm consumers, contrary to the intent of Dodd-Frank.

- Section III considers the overall economic impact of the recent growth in debit card usage and concludes that this is a story of market success, not market failure.

- Section IV shows in more detail that the Board has not identified a market failure that its proposed regulation is designed to correct.

[24] The Fed Economists (2009), at p. 42.

- Section V demonstrates that the proposed regulation is not justified by any of the possible market failures discussed in the theoretical literature.
- Section VI considers the implications of some recent theoretical work for the empirical research and analysis the Board needs to do in order to estimate the gap, if any, between socially efficient and market-set interchange fees. We argue both that it is possible to estimate this gap and that the gap is most likely small, perhaps small enough, in light of the inevitable costs of price regulation, to justify a finding that market-set fees are reasonable and proportional to cost.
- Section VII considers what the Board should do now to meet its statutory deadline in the absence of an estimate of the difference between market-set and socially-efficient interchange fees. We argue, as above, that the Board should avoid what may well prove to be unjustified disruption of an industry that has served consumers well and should, therefore, require, at most, a small reduction in interchange fees.

II. The Fed's Proposed Regulation Will Likely Harm Consumers

In a separate submission we have documented that the Board's proposed interchange fee cap of between 7 and 12 cents for debit-card issuers would result in substantial, direct, and immediate harm to individuals and small businesses that currently have checking accounts.[25] Almost all households and small business in the United States would likely be affected.[26] The Board's proposal would reduce the debit card interchange fee revenues that banks and credit unions earn on consumer and small business checking accounts by $33.4-$38.6 billion in the 24 months immediately following July 21, 2011, the date the proposed regulations will become effective.[27] We have found that banks and credit unions will pass on much of the revenues lost

[25] Consumer Impact Study.

[26] Based on 2007 data, 89.7 percent of households had a checking account. See "Changes in U.S. Family Finances from 2004 to 2007: Evidence from the Survey of Consumer Finances," *Federal Reserve Bulletin*, February 2009, at p. A20.

[27] Consumer Impact Study, at pp. 14-15. As discussed there we believe that it is likely that banks and credit unions with less than $10 billion in assets would not receive debit card interchange fees significantly higher than those received by larger institutions despite the fact that these smaller institutions are technically exempt from the interchange fee regulations.

from merchants (and merchant acquirers) to consumers in the form of higher fees and reduced services and will do so quickly.[28]

Our research and analysis indicates that consumers are unlikely to receive significant savings in the form of lower prices from merchants during the 24 month period after the proposed regulations become effective. Most large merchants would not go to the trouble of reducing prices in the near term in response to the tiny cost reductions they would receive: about 10 cents on an average $59.89 transaction and less than 2 cents on a $10 purchase.[29] Many small and medium sized merchants would not receive any cost reductions in the near term from the acquirers or from the agents for these acquirers.[30] They would thus have no savings to pass on in the near term. As discussed above, it is generally accepted that the government should replace market-set prices with regulator-determined prices only when doing so is likely to benefit consumers. Such benefits are likely only when regulation is squarely aimed at correcting a significant market failure. Because price regulation often has unanticipated costs and rarely, if ever, has unanticipated benefits, regulation is likely to be

[28] While the Board staff did not quantify these losses they also concluded that demand depository account customers could be harmed by the debit card interchange fee proposals. Board economist Mark Manuszak stated, "…any savings that consumers might realize at point of sale could be offset by fee increases at their banks, as well as changes in terms that debit cardholders face for card use and deposit accounts." See Board December 16, 2010 Open Meeting, at p. 10 of 28.

[29] There is extensive evidence that prices are do not change quickly in response to small changes in costs and in particular do not adjust downwards quickly in response to reductions in costs. For further discussion see the Consumer Impact Study, at pp. 48-51.

[30] As we describe more fully in the Consumer Impact Study, the smaller merchants that account for about 75 percent of all merchants that accept cards usually have contracts specifying a single "blended" merchant discount rate across multiple brands and card types, and these rates would probably not change substantially in the short term in response to the reductions in debit card interchange fees.

beneficial after the fact only when estimated benefits are well above estimated costs before the fact.[31]

There is accordingly no sound basis for adopting a regulation that before the fact seems as likely to harm consumers as to benefit them. Therefore, it is not reasonable for the Board to implement the proposed rules given that it cannot support a prediction that the rules would make consumers better off and that its own staff acknowledges that it is possible that the rules would make consumers worse off.

Our analysis indicates that imposing the proposed rules would not be the coin toss between "consumers win and consumers lose," as the staff's conclusion that it was "hard to anticipate" might suggest. In fact, consumers and small businesses who use checking accounts would likely lose tens of billions of dollars in the 24 months after these rules would take effect.

III. Debit Cards Look Like a Market Success, Not a Market Failure

Debit cards have been embraced by both merchants and consumers and look like a real success story for the American economy. They have enabled consumers to reduce the number of paper checks they write. Debit cards have provided a convenient payment method for physical and online transactions that does not require the use of credit. As former Board Vice Chairman Donald Kohn noted in 2006, "[c]onsumers seem to view debit cards as a natural

[31] See, generally, A.E. Kahn, *The Economics of Regulation*, II (New York: Wiley, 1971), ch. 7 and W.K. Viscusi, J.E. Harrington, and J. M. Vernon, *Economics of Regulation and Antitrust,* 4th Ed (Cambridge: MIT Press, 2005), ch. 10 ("Viscusi et al. 2005").

progression from cash and checks because they are a convenient electronic means of making payments without incurring the additional debt often associated with credit card use."[32]

Consumers use debit cards in part to help manage their budgets,[33] as they tend to use these cards to pay for daily necessities such as groceries, gasoline, and drugstore purchases.[34] Debit cards have enabled consumers to conveniently pay for these items electronically, without using cumbersome paper checks. Virtually all depository accounts now come with a debit card. According to the Federal Reserve's 2009 Survey of Consumer Payment Choice, 77.6 percent of consumers had a debit card.[35] Consumers surveyed by Federal Reserve that year also reported that debit cards are more widely accepted than checks by merchants.[36] As indicated previously, in 2009, consumers made 36.6 billion debit card transactions, with a total value of $1.421 trillion.

Merchants have also embraced debit cards. Many merchants have installed PIN pads so that consumers who wanted to pay with their PIN codes could do so. According to the acquirers who responded to the Board's survey conducted in late 2010, 22 percent of merchant locations are able to accept PIN debit transactions and it is our understanding from knowledgeable sources in the industry that these account for about 80 percent of volume.[37] Since May 2003,

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[32] Donald L. Kohn , "Evolution of Retail Payments and the Role of the Federal Reserve," presentation At the Western Payments Alliance 2006 Payments Symposium, Las Vegas, Nevada, September 11, 2006, available at http://www.federalreserve.gov/newsevents/speech/kohn20060911a.htm

[33] Drazen Prelec and George Loewenstein (1998), "The Red and Black: Mental Accounting of Savings and Debit," *Marketing Science*, 17:1.

[34] Kevin Foster, Erik Meijer, Scott Schuh, and Michael A. Zabek (2010), "The 2008 Survey of Consumer Payment Choice," Federal Reserve Bank of Boston, Public Policy Discussion Papers, at table 23 ("Foster et al 2010").

[35] Schuh, Scott, "Basic Facts about U.S. Consumer Payment Choice," Presented at the MPD Payments Innovation Institute, Harvard Faculty Club, Cambridge, MA, November 5, 2010 ("Schuh November 2010 Presentation").

[36] Foster et al 2010, at table 27.

[37] The Proposed Rules, at p. 81725.

retailers have been able to choose whether or not they wanted to take signature debit cards in addition to credit cards.[38] It is our understanding from conversations with knowledgeable industry observers that virtually no merchants accepting credit cards have decided to forgo debit cards. Because fewer people are pulling out their checkbooks to pay, checkout lines move faster for everyone.

Competition authorities, courts, and economists often look at output, prices, innovation, and quality of service to assess how well a market is working.[39] On all these metrics it appears that the debit card business has performed well.[40]

- Debit card output has increased dramatically. The number of transactions on debit cards grew at an average rate of 17.8 percent per year between 2000 and 2009, while the dollar value of transactions increased at an average annual rate of 18.4 percent during that decade. The fraction of households that use a debit card increased from 17.6 percent in 1995 to 67 percent in 2007 based on the Board's Survey of Consumer Finance.[41] More recently, the Survey of Consumer Payment Choice conducted by the Federal Reserve Bank of Boston found that 77.6 percent of consumers had debit cards in 2009.[42]

- Debit card prices have fallen for consumers. At the beginning of the 2000s many banks charged consumers fees for using their debit cards. By the end of the 2000s few consumers paid for using their debit cards, and about two-thirds of debit cards came with rewards that provided consumers with value for using their cards.[43]

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[38] Prior to that date MasterCard and Visa required merchants that entered into contract to accept their cards to honor all cards that consumers presented with their brands on them regardless of whether they were debit or credit cards. Wal-Mart and other merchants wanted to be able to take credit cards but not signature debit cards. The card networks agreed to this as part of a settlement of the lawsuit.

[39] We are not suggesting that any of these metrics provides definitive evidence about whether there is or is not a market failure of some sort. They are often used, however, as indicators of market performance along with other metrics.

[40] In addition published signature debit card interchange rates for merchants have been roughly constant since mid-2004 and for most networks published PIN debit card interchange fee rates have changed much since mid 2005. See The Fed Economists (2009), at figure 3.

[41] Loretta J. Mester (2009), "Changes in the Use of Electronic Means of Payment: 1995-2007," *Business Review*, pp. 29-37.

[42] Schuh November 2010 Presentation.

[43] "2009 Debit Card Rewards – Consumer Insights," Consumer Loyalty Study , First Data, April 2009.

- Debit card features and services have expanded for consumers. Introduced to most US consumers in the mid-1990s, debit cards began to acquire a range of value-added services beginning in the 2000s. Multiple fraud and risk management offerings were introduced to reduce consumer liability for fraud, and enhance the intrinsic fraud prevention characteristics of the debit card. "Swipe and go" solutions allowing fast payment (with neither signature nor PIN) for low value purchases were introduced in the mid-2000s. In addition, debit rewards, from points programs to savings booster solutions, became standard by the late 2000s.

- Debit cards have resulted in significant innovations in payments. The introduction of debit cards in the mid-1990s tapped into a broad consumer preference for using payment solutions that drew from a consumer's "funds at hand." This in turn led to a host of innovations around prepaid card solutions, including "open loop" prepaid cards that enabled debit transactions anywhere Visa or MasterCard were accepted. These open loop cards became available in many forms, including gift cards, electronic benefits transfer (EBT) card programs, payroll cards, and many other solutions. Particularly useful for populations with minimal access to other card solutions (e.g. youth, government benefits recipients), these solutions extended electronic payments to areas previously dominated by cash.

From the standpoint of overall economic efficiency, debit cards have been instrumental in finally moving the American payment system into the digital era. In an August 2006 speech, the President of the Federal Reserve Bank of Atlanta noted that "[w]ith rapid growth in the use of credit cards, debit cards and point-of-purchase check conversion, our vision of an efficient, predominantly electronic system [for payments] is in sight."[44] As the former Chief Operating Office of the Federal Reserve Bank of St. Louis noted in a 2003 article,

> Nationwide, we know consumers are choosing the efficiency of electronic payments, such as ACH and debit cards, over checks. One of the Fed's objectives is to promote an efficient payment system, so we endorse these trends.[45]

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[44] "Guynn Reflects on Changes in Banking and Economics and Addresses Future Concerns," The Federal Reserve Bank of Atlanta, August 22, 2006, available at http://www.frbatlanta.org/news/pressreleases/atlantafed/press_release_guynn_reflects_on_changes_in_banking_and_economics.cfm.

[45] W. LeGrande Rives (2003), "The Check Re-engineering Initiative: It Really Is Business as Usual," *Central Banker*, available at http://www.stlouisfed.org/publications/cb/articles/?id=899.

As of 2004, the percentage of transactions made by paper check in the United States was considerably higher than in virtually every industrialized country, as shown in Table 1 below. Check use in the United States fell dramatically over the latter part of the 2000s even though merchants were increasingly able to scan checks and process them electronically.

Table 1- Percent of All Transactions Made by Check for Selected Industrialized Countries

	2004	2005	2006	2007	2008
United States	41.3	37.0	32.6	28.6	26.0
France	29.7	27.8	25.8	23.8	22.1
Canada	18.9	17.2	15.8	14.5	13.0
Italy	15.7	14.6	13.9	12.5	11.1
United Kingdom	15.9	13.9	12.3	10.7	9.2
Singapore	4.6	4.5	4.2	4.3	3.8
Germany	0.8	0.7	0.6	0.5	0.4
Belgium	1.1	0.8	0.7	0.5	0.4
Switzerland	0.3	0.2	0.1	0.1	0.1
Sweden	0.1	0.1	0.0	0.0	0.0
Japan	3.5	3.4	2.2	1.5	NA

Source: Bank of International Settlements, *Country Statistics of Payment Settlements 2008*

Notes: Excludes checks written by banks. Germany has different methodology and data collection since 2007

The use of debit cards by consumers is one of the leading factors in the declining use of checks. Debit cards were initially introduced as a substitute for writing checks. The value for the consumer was that she did not have to present identification and go through the time-consuming process of having a check accepted. The value for the merchant was use of debit cards could reduce checkout lines and waiting time at the cash register while reducing check fraud and the cost of returned checks.[46] Over time the value of debit cards to consumers and

[46] Elizabeth Klee (2006), "Paper or Plastic? The Effect of Time on the use of Checks and Debit Cards at Grocery Stores," *Finance and Economics Discussion Series*, Board of Governors of the Federal Reserve System, 2006-02.

merchants increased as banks and networks provided more features such as improved fraud control, processing times, and cash back.

All in all, observers who are innocent of interchange fee disputes would almost certainly find it hard to see how this performance would signal the need for regulation rather than applause.

IV. The Board Has Not Identified a Market Failure

In the open meeting in which the proposed rule was discussed, Chairman Bernanke asked the staff to explain the basis for price regulation of the debit card business:

> There's a presumption that prices will be set by market competition, generally, but then, of course, there are counterexamples such as, electric utilities, for example, where the government intervention can be justified by various -- for various reasons. Can you … help us thin[k] about … what are the arguments for and against allowing interchange fees to be determined in the market versus having a regulatory intervention …?[47]

Staff economist Dr. Robin Prager answered at length:

> [I]n most markets increased competition leads to lower prices. However, in payment card markets, competition between networks tends to drive interchange fees higher. And the reason for this is that in these markets the party that decides what method of payment will be used at the point-of-sale, that is, the customer, is different from the party that incurs the costs associated with that decision, the merchant. And in general, customers don't tend to take into account the costs incurred by merchants as a result of their decisions. The networks want banks to issue their cards, and they want customers to hold and use their cards. And they provide an incentive to the banks to issue cards by offering higher interchange fees. The banks use the revenues from these interchange fees to offer more attractive deposit account terms to their customers, including, in some cases, rewards for making payments with debit cards. Meanwhile, the merchants, who ultimately foot the bill for their customers' payment choices, have little or no ability to influence the customer's decision with regard to what payment method to use. In addition, given the near ubiquity of card acceptance and the expectations of customers, many merchants believe that they really don't have

[47] Board December 16, 2010 Open Meeting, at p. 8 of 28.

> the option of refusing to accept card payments. So even though merchants would prefer lower interchange fees, unless the fees are extremely high, they're likely to continue to accept cards. And as a result competition in these markets tends to focus on the issuers and the cardholders who prefer higher interchange.[48]

Dr. Prager's description of debit card competition is broadly accurate, but economists do not generally recognize most of the features that she emphasizes as symptoms of market failure. Rather, they are understood to occur in a wide variety of markets that are generally thought to perform well and are not candidates for price regulation.

Free television stations are a good example. Consumers decide which television station to watch at any particular time. An advertiser that wants to reach a particular set of viewers does not have any ability to get viewers to watch shows for which advertising is cheap. Television stations and the networks with which they are affiliated compete to get viewers by offering free programming. They spend a great deal of money on this. To recover this money they charge advertisers. Of course, advertisers would prefer that stations spent less money on programming so they could offer cheaper advertising rates, so long as the stations still delivered the viewers. The advertisers pass the cost of advertising onto all customers, not just the ones who happened to watch their advertising. These same features apply to the internet-search business, magazines, newspapers, radio, social networking and other advertising-supported businesses.

Shopping malls are another example. Shoppers decide which shopping mall to visit. If a store wants to benefit from the foot traffic at a mall, then it has to pay – typically an annual rent and often a percentage of its transaction volume as well. Shopping malls compete for shoppers by securing good locations, building malls that shoppers want to visit, and recruiting an

[48] Ibid., at pp. 8-9 of 28.

appealing group of merchants that shoppers can patronize when they come to the mall. They also compete by offering free amenities like parking and perhaps even music and upscale decor. Shoppers typically do not pay to patronize shopping malls, so they bear none of the costs incurred to attract them. Merchants bear all of those costs and more, and they would, of course, benefit if malls delivered foot traffic but if the shoppers paid the mall instead of them. If any single mall tried to do this, of course, its traffic would decline and its merchants would not be happy. Online shopping malls and aggregators have the same basic business model: Amazon and eBay charge sellers but not buyers.

Advertising-supported media and shopping malls are two examples of businesses that are in "two-sided markets." In these markets businesses usually provide a service that brings two different kinds of customers together for the purpose of a value-creating interaction.[49] A significant portion of the economy is based on two-sided markets.[50] Many of the leading companies in the United States operate "multi-sided platforms" that have become global brands. These include Apple, eBay, Facebook, Google, Microsoft, NYSE, and Yahoo.

The recognition that the economics of these businesses was different than the standard one-sided business treated in classic textbooks occurred around 2000.[51] In one-sided businesses, economists have long known that the socially efficient prices are equal to marginal costs inclusive of a fair rate of return on capital and that competition drives prices to this level. Two-sided businesses must generally attract sufficient numbers of both groups to be viable, so

[49] In the case of advertising-supported media consumers in particular need to be bribed with content to come to a place where they are exposed to advertising.

[50] Thomas Eisenmann, Geoffrey Parker, and Marshall W. Van Alstyne (2006), "Strategies for Two-Sided Markets," *Harvard Business Review*.

[51] Jean-Charles Rochet and Jean Tirole (2006), "Two-Sided Markets: A Progress Report," *The RAND Journal of Economics*, 37:3, pp. 645-667 ("Rochet and Tirole 2006"). David S. Evans (2010), "Introduction," Essays on

the terms offered to both sides must involve a price *level* that generates at least a fair rate of return and a price *structure* that induces balanced participation. It is possible in theory that the efficient price structure for a two-sided business has one price above the corresponding marginal cost and one price well below marginal cost. Such price structures are in fact common in practice. For example, free content to television viewers (in effect a subsidy for watching at a particular time) builds an audience that advertisers value because they can present messages to them. In many two-sided businesses, as in television stations and shopping malls, one "side" covers most or all of both variable and fixed costs, and the other "side" pays little or nothing.[52]

The economics literature has also found as a general matter that the market prices established by two-sided businesses can deviate from socially efficient prices for a variety of complicated reasons. In practice, of course, the prices set by ordinary one-sided businesses are rarely socially efficient: perfect competition exists only in textbooks, and departures from perfect competition lead to prices that are too high. Nonetheless, economists and policy makers generally prescribe price regulation only when substantial departures from perfect competition are essentially unavoidable – in what are commonly called natural monopoly businesses, such as the distribution of electric power mentioned by Chairman Bernanke. A large literature has documented the adverse effects of regulation, particularly on productive efficiency and innovation.[53]

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the Economics of Two-Sided Markets: Economics, Antitrust and Strategy. Available at SSRN: http://ssrn.com/abstract=1714254.

[52] It is worth noting that every successful payment system of which we are aware began with a pricing structure in which merchants, not consumers, contributed the bulk of revenues. Thus this pattern emerged well before charge, credit or debit cards became ubiquitous.

[53] See Paul L. Joskow and Nancy L. Rose (1982), "The Effects of Economic Regulation," *Handbook of Industrial Organization*, 2, pp. 1449 – 1506 and the extensive literature they discuss; and Viscusi et al. 2005.

In two-sided industries, as in all industries, market power can also lead to price levels that are too high relative to the perfectly competitive ideal. But the price level is not at issue here, since regulating only interchange fees does not directly affect the price level. Interchange fees are transfers from one side (merchants and acquiring banks) of payment system businesses to the other side (consumers and issuing banks) and thus do not directly affect the net per-transaction revenue. Interchange fee regulation is regulation of the price structure, not the price level. As noted above and well summarized by the Fed Economists, the theoretical literature has shown that a variety of fairly subtle factors could lead market-set interchange fees – and thus the market-set price structure – to deviate from the social ideal:

> 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 cost and demand considerations underlying the merchant decision to accept cards and the extent of competition among issuing and acquiring banks.[54]

The problem here is that, in her response to Chairman Bernanke, Dr. Prager did not provide evidence on any of those factors or any of the others mentioned in the economic literature, nor did she suggest that a particular model in that literature both described the U.S. debit card market and showed that the market-set interchange fee was too high. Thus she did not in fact provide the complete answer to his question on market failure that the situation would seem to warrant. Her answer mainly described the process of competition in a particular two-sided market. Unfortunately, her short answer at the hearing is the only analysis of market failure that we have seen from the Board at this point.[55]

[54] The Fed Economists (2009), at p. 4.

[55] Our point, of course, is not that Dr. Prager should have given a long comprehensive answer at the hearing but rather that her short answer is all there is in the record we have seen on a very critical issue.

The full problem is, however, even more serious than this. Just as regulation of the price level of single-sided businesses is only justified in extreme cases, regulation of the price structure of a two-sided business is only appropriate if that structure deviates substantially and persistently from the social optimum. Consistent with the views of most economists who have written on this subject, Dr. Prager did not assert that there is a substantial deviation here or suggest there was any evidence that would support such an assertion. Just as few single-sided businesses operate in perfectly competitive markets, the theoretical literature suggests that few if any two-sided businesses have exactly the socially optimal price structures that theoretical models imply.

If the general market features discussed in Dr. Prager's response, with no supporting empirical analysis, were found to be sufficient to justify the proposed regulation here, then those same general features would also justify regulation that would shift most of the costs of other merchant-supported products – including newspapers, radio, television, search engines, social networks, shopping malls, and others – from merchants to consumers. As an economic matter, however, there is simply no justification for such regulation of two-sided markets just because they are two-sided.

Neither the Notice of Proposed Rulemaking in the Federal Register nor any other document linked to this proceeding provides a discussion of market failure that might either replace or clarify that given by Dr. Prager. As the Board has thus not identified a problem in the debit card market that prevents interchange fees from being "reasonable," it lacks any economic basis for asserting that its proposed regulation makes it likely that they will become "reasonable."

V. The Proposed Cost-Based Regulation is Plainly the Wrong Remedy

In fact, there is a consensus among economists, including those at the Board who have studied this issue, that the cost-based approach proposed by the Board is not an economically reasonable and sound solution to *any* theoretically plausible market failure involving interchange fees. As we noted above, the Fed Economists published a survey of the theoretical literature on interchange fees in May 2009. That literature considers a variety of factors that could in principle lead market-set interchange fees not to be socially efficient, though it contains no empirical work demonstrating the existence or estimating the importance of any of these factors. That literature is also essentially unanimous in concluding that even if one or more of these factors leads market-set interchange fees to be socially inefficient, cost-based regulation is not the answer. The Fed Economists provide a clear and succinct summary:

> … [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.[56]

Professor Calvano's accompanying submission summarizes the key papers by economists that have examined the economics of interchange fees, including papers written too recently to be included in the Fed Economists' survey.[57] 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.[58] That is to say, if there is any substantial market failure that has seemed to be even a

[56] The Fed Economists (2009), at p. 48.

[57] Calvano Report, at pp. 4-8.

[58] 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

theoretical possibility, the one clear message from the literature is that an appropriate remedy cannot be devised without considering more than costs. Thus if the debit card market is suffering from any market failure disease that has so far been imagined, then it is essentially certain that the Board's proposed cost-based medicine would not cure it.

The reason is straightforward: as noted above, the purpose and effect of the interchange fee is to shift costs from one set of a payment system's customers – acquirers and the merchants they serve – to another set – issuers and the consumers they serve. 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, like 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.

The Board clearly recognized that it could consider factors other than cost in designing a reasonable remedy and that it was not required to focus only on issuers' costs. At the hearing, Dr. Manuszak noted that the 12 cent cap was higher than actual costs for some issuers but argued that "we're not required … to disallow all profit that might come along."[59] And in discussing the "proportional to cost" language in the statute, Dr. Prager asserted that, "The statute doesn't require the proportion to be the same for every issuer."[60] Thus the Board did not

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Review Conference, Proceedings of a Conference held in Sydney on November 29, 2007; Alan Frankel and Allan Shampine (2006), "Economic Effects of Interchange Fees," *Antitrust Law Journal*.

[59] Board December 16, 2010 Open Meeting, at p. 19 of 28.

[60] Ibid.

believe it needed to make interchange fees equal to issuers' individual costs or even strictly proportional to issuer-specific costs. Under the same approach the Board could have explicitly considered non-cost factors, including merchant and consumer demand functions, to determine an upper bound on reasonable fees. To put it in the terms of the statute, a rule that considered merchant and consumer demand functions in addition to costs would be an appropriate response to a statute calling for a price that is "reasonable and proportional" to a subset of the costs issuers incur.

The Board's implementation of 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.[61] 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 to consider other factors, as even public utility regulation generally does, it 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. In short, the Board's implementation of cost-based regulation, even as an interim measure until informative empirical work on other relevant factors can be done, is not economically sound.

VI. Estimating Socially Efficient Interchange Fees

In their survey of the theoretical literature, the Fed Economists list some of the non-cost factors that must be studied empirically in order to estimate the gap, if any, between the market-set interchange fee and the socially efficient fee:

> At a minimum, calculation of the efficient interchange fee requires estimation of the demand curves for card services for heterogeneous consumers and merchants, in addition to precise cost data for acquirers, issuers, merchants, and consumers.[62]

Some models imply that additional demand-related factors must also be estimated.

We share the Fed Economists' view that such estimation must be done if interchange fee regulation is to be placed on a sound basis. While such estimation will not be a simple task, we do not believe that it is beyond the capacity of the Board's able staff. After all, the antitrust enforcement agencies – the U.S. Federal Trade Commission and the Antitrust Division of the Department of Justice, as well as their counterparts in the European Union and elsewhere – make decisions on proposed mergers in a variety of industries that are based on estimates of own-price and cross-price elasticities of demand. And they are generally not able to bring to bear anything like the extensive data or the deep experience and expertise that the Board staff can employ to study banking in general and debit card services in particular.

In order to estimate the socially efficient interchange fee, it will be necessary first to determine which of the various models in the literature, or which combination of them, best describes this market. Then that model can be used, perhaps after estimating all its parameters,

[61] Viscusi et al. 2005.

[62] The Fed Economists (2009), at p. 18.

to determine whether there is a substantial gap between the market-set interchange fee and the socially efficient fee.

In order to shed some light on the issues involved in such estimation, we have worked with the recently developed model of Bedre-Defolie and Calvano ("BC").[63] The BC analysis, in contrast to most other models in this literature, turns on the fact that consumers choose whether to pay with cards or cash, a feature of this market that Dr. Prager emphasized in her response to Chairman Bernanke.[64] The BC model implies that the socially efficient interchange fee is never above the privately optimal fee and is typically below it. It therefore seems the best readily available theoretical framework for dealing with the market failure that the Board may have implicitly in mind.

In the BC model, merchants are heterogeneous and receive benefits from consumers that vary from transaction to transaction, but they can only decide whether or not to accept cards on the basis of the average expected benefit of doing so. Heterogeneous cardholders, in contrast, can decide how to pay on a transaction-by-transaction basis. It turns out to be both privately profitable and socially efficient to charge merchants only a per-transaction fee but to charge consumers both a per-transaction fee, which could be positive or negative, and a fixed per-period fee for carrying the card. In our setting one can think of the fixed fee as subsumed in the various terms and conditions of a depository account relationship.

As shown in Professor Calvano's submission, the condition that must be satisfied by the socially optimal interchange fee has a relatively simple form under the assumptions that there are no fixed costs to cover, there is a single issuer operating a single network, total transaction

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[63] Bedre-Defolie and Calvano 2009. The BC analysis appeared too late to be discussed by the Fed Economists, but it clearly builds on and in some sense encompasses much of the literature they survey.

volume is fixed, interchange fee changes are fully passed through by issuers and acquirers, and that consumers benefit only from using the card and not from carrying it.

$$\frac{f(i^*)}{m(i^*)} = \frac{\eta_B}{\eta_S} \div \frac{\upsilon_B}{\upsilon_S},$$

Here i^* is the socially optimal interchange fee, f and m, which depend on i^*, are the optimal per-transaction prices paid by issuers (and card-holders) 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 buyers' and sellers' average surplus per card transaction, respectively. It is important to note that the ratio on the left is independent of the costs of the two sides. If marginal costs change, the socially optimal interchange changes so as to maintain the optimal price ratio, which does not depend on the distribution of costs between issuers and acquirers.

The quantities on the right side of this equation depend on the demand curves of heterogeneous consumers and merchants, just as the Fed Economists stated in the quote above. These quantities are not constants and will generally depend on the fees charged to merchants and consumers.

Formulas like the one above, which makes it crystal clear that knowing only costs is not enough to estimate socially optimal interchange fees, also arise in other models in the interchange fee literature.[65] More realistic models that relax some of the assumptions noted

[64] See Board December 16, 2010 Open Meeting, at pp. 8-9 of 28.

[65] See Rochet, Jean-Charles and Jean Tirole (2003), "Platform Competition in Two-sided Markets," *Journal of the European Economic Association*, 1:4, pp. 990-1029, (see equation 7); Rochet and Tirole 2006, (see equation 10); and E. Glen Weyl (2010), "A Price Theory of Multi-Sided Platforms," American Economic Review, 100:4, pp. 1642-72. It can be derived from equations presented in other papers as well.

above will generally not yield such an algebraically simple result, of course. But the Board's staff has considerable experience in obtaining numerical solutions to very complex economic models.

An experiment with the BC framework, discussed in more detail in the submission by Professor Calvano[66], has persuaded us that when the Board staff conducts the appropriate research and analysis, the Board staff will conclude that the socially efficient interchange fee is very close to the market-set fee. That strongly implies that the proposed regulations, which would lead to dramatic reductions in the market-set fee, would reduce social and consumer welfare. That prediction is, of course, consistent with the evidence we have reported that consumers would lose tens of billions of dollars if the proposed regulations were implemented.[67]

For the experiment, we assume 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^*:[68]

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

If the market-set debit card interchange fee i^M = 44 cents,[69] 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

[66] Calvano Report, at pp. 8-13.

[67] See generally, Consumer Impact Study, at pp 6-8.

[68] 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.

(=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.

In addition, we considered the impact of the facts that published interchange fees vary by type of merchant and that the fees for the largest merchants are individually negotiated. BC show (Proposition 5 in their paper) that if all merchants are identical, market-set interchange fees are socially optimal in their model. If interchange fees varied in reality so as to perfectly discriminate among merchants, an assumption that several authors consider plausible,[70] it follows that there would be no gap between market-set and socially efficient fees. Interchange fees in fact vary in a fairly fine-grained fashion by merchant category and merchant size.[71] While the current systems of interchange fees cannot, of course, perfectly discriminate, there

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[69] The Proposed Rules, at p. 81725.

[70] See Rochet, Jean-Charles and Jean Tirole (2002), "Cooperation among Competitors: Some Economics of Payment Card Associations," *The RAND Journal of Economics*, 33:4, pp. 549-570.; Rochet, Jean-Charles and Jean Tirole (2010), "Must-Take Cards: Merchant Discounts and Avoided Cost," *Journal of the European Economic Association*, forthcoming.; Chakravorti, Sujit and Ted To (2007), "A Theory of Credit Cards," *International Journal of Industrial Organization*, 25:3, pp. 583-595.; and Zhu Wang (2010), "Regulating Debit Cards: The Case of Ad Valorem Fees," *Economic Review*, 95:1, pp. 71-93.

[71] 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.

would have to be quite substantial heterogeneity not captured by the existing interchange regime in order to support the Board's drastic proposed regulation.

To be sure, these two analyses do not prove that the Board's proposed cut in interchange fees goes far beyond what would be socially efficient, but they suggest that the Board has overshot the mark. Moreover, the Board has apparently not conducted any similar analysis suggesting that it has *not* gone too far and has in fact devised a regulation that will do good and do no harm. Policy makers cannot draw confident assertions about socially optimal interchange fees until the Board staff has done the serious empirical research and analysis necessary to support such assertions.

VII. Regulating Now, Without Solid Estimates of Socially Efficient Interchange Fees

We understand that the Board is required by Congress to promulgate standards for accessing debit card interchange fees by April 21, 2011 and that these must be implemented by July 21, 2011. We do not believe it will be possible for the Board staff to complete the empirical work necessary to estimate socially efficient interchange rates, starting from February 23, 2011, by April 21, 2011, though we would expect that the Board could complete such as analysis in a matter of months with sufficient resources. Given this situation, we have three basic recommendations for the Board.

First, the Board should begin now to conduct the economic research necessary to identify the market failure or failures, if any, in the debit card market and to estimate socially efficient interchange fees. In this task, the Board staff should be guided by the extensive economic literature on two-sided markets in general and payments markets in particular.[72] This approach requires the Board to follow the guidance of the Fed Economists and the literature they survey and to abandon the indefensible premise that regulation based on cost alone, and variable cost in particular, can ever be anything but arbitrary.

As noted above, we do not claim that this task will be easy, but the Board is required by law to set standards for accessing reasonable interchange fees. Without a defensible estimate of how, if at all, market-set interchange fees depart from the efficient level, the Board cannot argue that *any* standards it promulgates will not harm consumers and worsen market performance. Moreover, the Board's economic expertise and data-gathering capability should be more than adequate to this task. Given the costs and unintended consequences of regulation, if the gap between market-set fees and the Board's ultimate estimates of socially optimal fees is small, then the Board may best serve the public interest by finding that the default interchange fees set by debit card networks are reasonable and appropriately proportional to cost.

Second, before this necessary research and analysis is completed and duly considered, the Board should not promulgate regulations that are likely to do significant net harm. The proposed drastic cuts in market-set interchange fees would be likely to harm consumers substantially, contrary to the stated intent of the Dodd-Frank Act to protect consumers. Drastic cuts would disrupt depository account relationships, raising fees and reducing services. It does not seem reasonable to impose significant costs of these sorts before conducting a sound and thorough economic analysis that might or might not support the proposed regulations and might, in fact, support a finding that market-set interchange fees are reasonable and thus call for another drastic change in the opposite direction in the future. We have seen no evidence that

[72] See, for instance, Rysman 2009 and Wright 2004.

the socially efficient interchange fee is dramatically lower than the market interchange fee and, as noted above, the evidence suggests that it is not. The greater the cut in interchange fees the Board orders this year, the greater the likelihood of substantial harm to consumers and the greater the disruption to their depository account relationships. These considerations, and the guiding principle that government regulation should first of all do no harm, argue that at most modest reductions in interchanges fees are appropriate at this stage.

Third, the Board, in fact, should seriously consider finding that market-set interchange fees are reasonable and proportional to cost until serious research and analysis proves otherwise. It is quite possible that such a finding would ultimately be supported by the Board's careful empirical analysis. If so, any regulatory apparatus put in place now would need to be dismantled. Moreover, regulation in the absence of any supporting analysis is a throw of the dice with potentially significant risks to consumers. As the Fed Economists concluded, appropriately, "… the possible effects of any intervention are highly uncertain."[73] Besides the adverse impacts on consumers that we have discussed, price regulation almost always slows innovation and has a variety of unanticipated, adverse consequences.

We have seen no empirical analysis showing that the efficient interchange fee is substantially below the market-determined rate. Our work with the BC model, which reflects the features of the debit card market that the Board staff appears to find to be most important, suggests otherwise. The market-set interchange fee is presumptively more reasonable than the Board's proposed ceiling in the current state of knowledge given the lack of indicia that performance or output of debit cards has been in any way impaired, and, as costs vary widely among issuers, it seems as "proportional to cost" as the ceilings proposed by the Board. The

[73] The Fed Economists (2009), at p. 42.

Board should err on the side of caution and avoid imposing regulations that run the risk of harming consumers.