

**ECONOMIC ANALYSIS TO GUIDE INTERPRETATION OF
PROVISIONS OF THE DODD-FRANK ACT REGARDING
REGULATION OF DEBIT INTERCHANGE FEES**

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I. SUMMARY OF CONCLUSIONS

The Dodd-Frank Wall Street Reform and Consumer Protection Act (“Dodd-Frank Act” or “Act”) requires the Federal Reserve Board (“Board”) to prescribe regulations for assessing whether debit interchange fees are “reasonable and proportional to the cost incurred by the issuer with respect to the transaction.” In prescribing such regulations, the Act directs the Board to distinguish between “the incremental cost incurred by an issuer in the authorization, clearance, or settlement of a particular electronic debit transaction” – costs that should be considered in the Board’s assessment – and “other costs incurred by an issuer which are not specific to a particular electronic debit transaction” – costs that should not be considered in the Board’s assessment. The Act also directs the Board to “consider the functional similarity” between electronic debit transactions and “checking transactions” in issuing regulations.

Bank of America (“BAC”) has asked me to provide an economic analysis to aid the Board in implementing its responsibilities in connection with the debit-interchange rate provisions of the Dodd-Frank Act. My analysis focuses on interpreting the Act’s provision for oversight of debit interchange rates under the assumption that the goal is to achieve economic efficiency in use of alternative payment mechanisms. In my judgment, this should be the goal, because doing so provides the greatest benefits for cardholders and merchants.

The first issue that I address is the appropriate economic meaning of the “incremental cost ... of a particular electronic debit transaction.” I explain that, as is true for the provision of products and services in general, focusing only on the immediate, directly measured costs associated with a single transaction is inconsistent with economic efficiency. An economically

relevant measure of the incremental cost associated with a transaction must take into account how all the supplier's costs change as transaction volume changes; otherwise, suppliers may not have the proper incentive to anticipate future growth in demand for their services and to add capacity (before it is actually needed) in order to supply efficiently the services needed to handle incremental transaction volume. Similarly, failing to take into account such costs would reduce suppliers' incentives to invest in and implement innovations that, while costly to develop, may reduce the transaction-specific "costs" identified by a regulator.

Economic theory, and experience with binding price caps in the past, illustrates how capping prices below a supplier's true incremental cost generally leads to inefficient restriction of supply or reduced service quality. Here, capping debit interchange rates at levels that do not cover issuers' true incremental cost to supply all the services associated with a transaction could cause issuers to reduce the quality of debit services provided to cardholders and merchants, and diminish their incentives to innovate (discouraging them, for example, from making incremental capacity investments that increase the speed of authorization, clearance, and settlement of debit transactions). This in turn would harm the merchants that were the intended beneficiaries of the regulatory intervention. Capping debit interchange rates at levels that do not cover issuers' true incremental cost also will reduce debit usage by restricting the incentives of issuers to promote and supply debit services and the incentives of consumers to use debit. This in turn will lead consumers to substitute toward other payment methods, such as checks, that are more costly for merchants and more costly for society as a whole.

Any regulations promulgated by the Board, therefore, should make clear that the "incremental cost...of a transaction" includes all costs that vary with the number of debit

transactions that the issuer handles (including additional costs incurred to maintain the preexisting level of service on the new and preexisting volume). These costs include those that change when the issuer handles more transactions, including costs to add required infrastructure to support authorization, clearance, and settlement functions (such as information technology and customer service personnel and associated “overhead”) to maintain the same level of service to existing cardholders and merchants on the original volume of transactions. The incremental cost of a transaction, properly defined, therefore includes not only the “immediate” costs that “vary” during the seconds when an issuer processes a single transaction, but costs that vary with changes in the scale of transactions more broadly. Only this definition leads to economically efficient incentives for issuers to provide the volume and quality of services that cardholders and merchants need for efficient use of debit as a payment mechanism.

The second issue I address is the proper economic interpretation of the Act’s provision that the Board should take into account the “functional similarity” of checks and debit and, in particular, the relevance of the Act’s noting that “checking transactions . . . clear at par.”¹ I start by observing that market acceptance and expansion of debit, and the largely corresponding decline in usage of checks, for transacting at retail demonstrate the substantial additional value provided by debit to merchants and cardholders from this substitution. Economic efficiency requires that this additional value should be reflected in use pricing in order to encourage continued movement of consumer transactions to preferred (and more efficient) payment

¹ It is important to note that the fact that checks clear at par does not mean that there are no costs to merchants of accepting checks. Merchants incur a variety of costs to accept checks, including verification fees (estimated by Nilson at eight cents a check), check guarantee fees (estimated at 0.92 basis points of volume), and charges for returned checks and the costs associated with checks that are not honored due to insufficient funds or fraud. (*See*, “Check Authorization – 2009,” Nilson Report #953 (July 2010)).

methods (such as debit) and away from payment methods that are more costly (offer fewer services) to both merchants and their customers.

It is economically efficient for regulation to take into account “functional similarity,” and equivalently “functional dissimilarity,” of suppliers’ offerings in order to insure that price caps do not reduce incentives for suppliers to promote and for customers to select services that provide valuable functions not offered by alternatives. Here, economic analysis demonstrates that functional similarity is best understood by comparing features of debit cards to those of alternative payment mechanisms. In particular, the functional dissimilarity between debit and checks is manifest in a variety of differences, including the speed with which transactions are executed, the speed with which the transaction is settled and the merchant receives payment, the likelihood that the merchant will not receive funds due to cardholder fraud or to insufficient funds in the customer’s checking account, etc.

These functional dissimilarities – which weigh exclusively (or virtually exclusively) in favor of debit over checks – mean that economic efficiency is enhanced by providing consumers with incentives to use debit rather than checks (and cash). This can be accomplished by taking into account benefits and costs of debit cards from merchants’ and cardholders’ perspective, and recognizing the benefits to merchants when issuers are motivated (through interchange fees that exceed the immediate incremental costs associated with executing a particular transaction) to encourage cardholders to use debit more intensively. As I explain below, this makes it economically efficient to set a factor of proportionality that exceeds one, with the magnitude of the factor reflecting the cost to issuers to provide incentives for cardholders to use debit, rather than checks, and critically the magnitude of the benefits that debit provides to merchants.

The third issue that I address is economic considerations for how the Board should make “adjustments to interchange transaction fees for fraud prevention costs.” The Act provides that the Board can make such adjustments if “reasonably necessary to make allowance for costs incurred by the issuer in preventing fraud in relation to electronic debit transactions involving that issuer.” I interpret this to reflect the Act’s acknowledgement that some such costs do not link to a particular transaction, but instead are associated with the issuer’s business as a whole.

From an economic perspective, the goal in recognizing and permitting recovery of such costs is to provide incentives for activities related to fraud identification and deterrence to be performed by the parties that can do so most efficiently, whether it is the issuer, merchant, network or a third party. To the extent that issuers are well positioned to monitor, detect and deter fraud, the Board should provide incentives for them to do so through appropriate adjustment to the debit interchange fee. If price regulation on interchange rates prevents networks and issuers from collecting on the margin for providing such services (or higher quality services), then such services may not be supplied, or they will be supplied by an alternative supplier that is not as well positioned to do so, and therefore does so less efficiently.

After discussing economic considerations that should guide the Board’s consideration of specific provisions of the Dodd-Frank Act, I examine the broader question of the appropriate mechanism by which the Board should oversee debit interchange rates. I explain that, given the economic inefficiency that attends price regulation, the approach most likely to preserve efficient incentives is for the Board to provide principles to guide networks in setting interchange rates, and perhaps a safe-harbor target average interchange rate, and then to oversee and evaluate the rates set in the marketplace. I explain that considerations of economic efficiency argue for

imposing any guidelines or limitations on interchange rates only at the network level (and not for specific types of issuers), based on industry-wide measures of the costs associated with the transaction and an appropriate proportionality factor, and allowing each network the flexibility to set the fee structure that it judges most likely to expand usage of debit and encourage its growth relative to less efficient alternatives such as checks.

Finally, I address an issue that should guide the Board, and any party charged with regulating or proposing standards for regulation of prices – the need to take account of the cost of regulation and weigh these costs against anticipated benefits from regulation. This tradeoff is clearly acknowledged by the Electronic Fund Transfer Act (“EFT Act”), which is amended by the Dodd-Frank Act’s provisions for debit interchange fee regulation (these provisions became Section 920 of the EFT Act). The EFT Act mandates cost-benefit analysis of proposed regulations, and requires regulators to “prepare an analysis of economic impact which considers the costs and benefits to financial institutions, consumers, and other users of electronic fund transfers, including the extent to which additional documentation, reports, records, or other paper work would be required, and the effects upon competition in the provision of electronic banking services among large and small financial institutions and the availability of such services to different classes of consumers, particularly low income consumers.”

Any regulation, or regulatory framework, proposed by the Board should be evaluated in light of the costs it will impose on all parties to debit interchange transactions, in both the long- and short-terms – including issuers, acquirers, cardholders and the merchants that may be considered to be the beneficiaries of the regulation. The Board also should consider how collection and dissemination of data needed to establish and justify to industry participants a

particular level of interchange could affect competition among issuers; sharing of cost and other data, even at an aggregate level, can diminish individual firms' incentives to lower their own costs and to compete vigorously. The fact that certain groups (e.g., small issuers) and types of cards (e.g., prepaid government cards) were explicitly "exempted" from the debit interchange fee controls in the Dodd-Frank Act suggests recognition of the potential harm that regulation of debit interchange rates could create. This should encourage the Board to be cautious and thorough in anticipating the consequences of regulations limiting debit interchange fees.

II. BACKGROUND

The Nilson Report (a widely referenced source of data on the payment industry²) identifies 11 methods of payment, of which five are paper-based (cash, checks, money orders, official checks, travelers cheques and food stamps); four are card-based (credit, debit, prepaid and electronic benefits transfer); and two are electronic based (remote and preauthorized payments). In 2003, the four primary payment systems (cash, checks, credit cards and debit cards) accounted for almost 90 percent of total payment transactions volume, while the same four payment systems accounted for almost 85 percent of total transaction volume in 2008.³

A. Growth of Debit

According to Nilson, debit has been the fastest growing payment method in the United States since 2003. Debit accounted for 9.7 percent of personal consumption expenditure in 2003 and increased by 7.3 percentage points to 17 percent by 2008. During the same five-year period,

² The Nilson Report website lists over 60 publications in which it is quoted or interviewed, including The Wall Street Journal, The New York Times, and The Economist. See <http://www.nilsonreport.com/>.

³ "U.S. Consumer Payment Systems," Nilson Report #939 (December 2009), p. 10.

the share of personal consumption expenditures accounted for by checks declined from 35 to 20.5 percent, or by 14.5 percentage points,⁴ while the aggregate share for all paper-based systems fell from 58 to 42.8 percent (with the decline in check usage accounting for virtually all of the decline in paper-based payment systems). By 2008, transaction volume using cards exceeded the volume with paper.

Debit transactions tend to be smaller than those performed with checks and credit cards. Consequently, debit accounts for a larger share of transactions than of transaction volume; in 2003, debit accounted for 13 percent of transactions, which increased to 23.6 percent in 2008. Checks, which accounted for 22.3 percent of transactions in 2003, declined to 13.8 percent of transactions in 2008.

In December 2009, Nilson projected substantial growth in the use of cards, and debit cards in particular, relative to other payment methods:

In 2009, card-based payment transactions are projected to exceed paper-based transactions for the first time. By 2012, debit cards are projected to overtake cash in number of transactions. By 2013, card-based transactions are projected to have a 56.10% share compared to 36.64% for paper transactions, and 7.26% for electronic transactions.⁵

At the end of 2009, Nilson projected that, by 2013, purchase volume on debit cards would increase by 55.3 percent over the volume in 2008, compared with growth of credit card volume over this time period of only 7.1 percent.⁶ Based on this growth, Nilson projected that debit card volume in 2013 would be \$2.1 trillion, while credit card volume would be \$2.3 trillion

⁴ "U.S. Consumer Payment Systems," Nilson Report #939 (December 2009), p. 10.

⁵ "U.S. Consumer Payment Systems," Nilson Report #939 (December 2009), p. 10. As noted above, card-based transaction volume exceeded paper-based transaction volume in 2008.

⁶ "All U.S. Payment Cards Projected," Nilson Report #938 (December 2009), p. 8.

(10 percent greater); in 2008, credit card volume was \$2.2 trillion, which was 60 percent greater than debit volume (\$1.3 trillion).⁷ While Nilson projected that the total number of credit card accounts would decline by 10.6 percent between 2008 and 2013, it projected the total number of debit card accounts would increase by almost 20 percent during this same period.⁸

The average transaction size for a debit purchase transaction in 2008 was \$39, while the average transaction size for credit card purchase transactions was \$90, or more than twice as large.⁹ In part, this reflects the difference in average demographics of credit and debit card users, as well as the different types of purchases for which credit and debit commonly are used.

[REDACTED]

[REDACTED]

[REDACTED] A recent study found that, compared with individuals with incomes of \$50,000-74,999, those with incomes less than \$25,000 were 45 percent less likely to have a credit card, but only 16 percent less likely to have a debit card.¹¹ An article that reported on findings from panel data collected for Visa noted that those data indicate that the decline in credit card spending and simultaneous increase in debit card spending in the first quarter of 2009 (compared with the same quarter of 2008) reflected the recession-related reduction in discretionary spending (for which credit cards normally are used)

⁷ "All U.S. Payment Cards Projected," Nilson Report #938 (December 2009), p. 8.

⁸ "U.S. Debit Cards Projected," Nilson Report #938 (December 2009), p. 10.

⁹ "U.S. Debit Cards Projected," Nilson Report #938 (December 2009), p. 8 (calculated as purchase volume divided by purchase transactions).

¹¹ Scott Schuh and Joanna Stavins, "Why are (some) consumers (finally) writing fewer checks? The role of payment characteristics," 34 *Journal of Banking and Finance* 1745 (2010) ("Schuh and Stavins"), p. 1753.

while consumers continued their nondiscretionary spending (for which they tend to use debit cards).¹²

B. Merchant Acceptance of Debit

Merchant acceptance of debit has been growing, with debit increasingly accepted by new categories of merchants where transactions tend to be small (e.g., fast food outlets). A study of payment trends in thirteen countries concluded that “[o]ur empirical results suggest that the adoption of POS debit terminals by merchants was the key factor in the explosive growth in debit card usage. This suggests that both consumers and merchants generally prefer debit cards to other payment alternatives for certain types of transactions.”¹³

Grocery stores were early adopters of debit cards. A study based on scanner data from a grocery chain found that the amount of time needed to transact with debit was lower than for credit cards, and substantially lower (by 50 percent or more) than for checks.¹⁴ The time needed to give a shopper cash back also was lower with debit (0.26 seconds per dollar) than with checks (0.77 seconds per dollar).¹⁵ The study also found that, compared with cash, authorization and verification costs were lower with debit (9.4 seconds) than with credit (15.1 seconds) and checks (35.5 seconds).¹⁶ From an economic standpoint, the early move of grocery stores to adopt debit reflects the fact that checks historically have been an important form of payment for grocery

¹² Susan Herbst-Murphy, “Trends and Preferences in Consumer Payments: Lessons from the Visa Payment Panel Study,” Federal Reserve Bank of Philadelphia Payment Cards Center Discussion Paper (May 2010) (“Herbst-Murphy”), p. 2.

¹³ Gene Amromin and Sujit Chakravorti, *Debit Card and Cash Usage: A Cross-Country Analysis*, March 2007 (“Amromin and Chakravorti”), p. 28.

¹⁴ Elizabeth Klee, “How people pay: Evidence from grocery store data.” *55 Journal of Monetary Economics* (2008) 526-541 (“Klee”), p. 533.

¹⁵ Klee, p. 533.

¹⁶ Klee, p. 535.

stores and the substantial functional advantages that debit provides (relative to checks) for merchants.

C. Debit is Displacing Checks

A recent consumer survey (the Survey of Consumer Payment Choice (“SCPC”)) confirms that paper-based payment methods are being displaced by cards and electronic payment methods. According to the survey:

- “[m]ore consumers now have debit cards than credit cards (80.2 percent versus 78.3 percent), and consumers use debit cards more often than cash, credit cards or checks individually.”¹⁷
- This move to debit cards has occurred while “U.S. consumers have more payment instruments to choose from than ever before (nine).”¹⁸
- “More than half of U.S. consumers (51.6 percent) said they wrote fewer checks in 2008 than they did in 2005. In contrast...49.5 percent of consumers reported an increase in their use of debit cards...”¹⁹
- Non-adopters of ATM or debit cards have higher average cash holdings on their person (\$141) and make larger average monthly withdrawals (\$462) compared with adopters of ATM/debit (\$68 and \$313, respectively).²⁰

⁷ Kevin Foster, Erik Meijer, Scott Schuh, and Michael A. Zabek, “The 2008 Survey of Consumer Payment Choice.” Federal Reserve Bank of Boston Public Policy Discussion Papers, April 2010 (“Foster et al.”), p. 2.

¹⁷ Foster et al., p. 9.

¹⁸ Foster et al., p. 10.

²⁰ Foster et al., pp. 22 and 23.

According to a recent study, “the share of all noncash payments (by consumers, businesses, and government) made using checks fell from 77% to 36% [from 1995 to 2006], while the shares of three other instruments increased, especially the shares of debit cards [from 2 to 27 percent] and Automated Clearing House (ACH).”²¹ This study attributes 34 percent of the decline in check share to a “decrease in relative convenience of checks” and 11 percent to the “increase in relative cost of checks.”²² The study concluded that “[o]ne of the most common substitutions of payment use from checks to another payment instrument has occurred with debit cards....On average, most consumers view debit cards as having better timing than checks...”²³ A consumer study found that 88 percent of debit users reported “convenience” as a reason for using debit rather than other payment methods, while only 8.3 percent of non-users of debit reported “convenience” as a reason for using a payment method other than debit.²⁴ The same study found that debit users who reported “a desire for Time and Convenience” viewed debit as a substitute for cash “and somewhat less strongly, for checks.”

Data from the Visa Payment Panel Study (“VPPS”) also document the switch from checks to debit, and the increased adoption of electronic payment forms generally. One analyst of the VPPS data commented that “[p]articularly striking is the displacement of checks by debit cards.”²⁵ The data showed that “the [monthly] incidence of check use declined from 84 percent

²¹ Schuh and Stavins, p. 1745.

²² Schuh and Stavins, p. 1756. The measure of the relative convenience of checks was based on the share of consumers surveyed who reported that checks were convenient (declined from 50 percent in 2001 to 25.7 percent in 2005). *Id.*

²³ Schuh and Stavins, p. 1755.

²⁴ Ron Borzekowski, Elizabeth K. Kiser and Shaista Ahmed, “Consumers’ Use of Debit Cards: Patterns, Preferences, and Price Response,” *Journal of Money, Credit and Banking*, Vol. 40, No. 1 (February 2008) (“Borzekowski et al.”), p. 158.

²⁵ Herbst-Murphy, p. 1.

to 69 percent” between 2000 and 2008.²⁶ Ownership of debit cards increased from 60 percent in 1997 to 92 percent in 2008, with usage increasing from 17 to 60 percent over this period. “[I]n just a seven-year period, changes in American consumer payment preferences caused a shift in transactions from only \$1 of every \$14 being made with a debit card to nearly \$1 in every \$5.”²⁷

Analysis has found that consumer choice between debit and alternative payment mechanisms of checks and credit cards is affected by the “price” (benefits) to consumers of the alternatives. A recent study examined how cardholders with debit cards that provide rewards would react if those rewards were eliminated. The study evaluated the impact for two different sets of such consumers: “consumers who receive rewards on debit cards only [and] consumers who receive rewards on both credit and debit cards.”²⁸ It found that “[a]t all types of stores except fast food, both groups of consumers would reduce their probability of choosing debit cards if rewards on debit cards were removed... [with reductions ranging from] 2.1 to 6 percentage points for consumers with DC [debit card] rewards only, and from 3.4 to 7.5 percentage points for consumers with CC&DC [credit card and debit card] rewards” (or by about 10 percent on average, given the initial probability of using debit).²⁹

D. Conclusion

The growth in debit acceptance and use between 2003 and 2008, and the projected continued expansion in its use, shows that issuers have been very successful in providing

²⁶ Herbst-Murphy. p. 3.

²⁷ Herbst-Murphy. p. 6.

²⁸ Andrew T. Ching and Fumiko Hayashi, “Payment card rewards programs and consumer payment choice,” 34 *Journal of Banking & Finance* 34 (2010), 1773-1787, (“Ching and Hayashi”), p. 1783.

²⁹ Ching and Hayashi, p. 1784.

attractive debit functionality, and consumers have responded by adopting and using debit at the expense of other payment mechanisms, especially checks. Merchants have also responded by increasing their acceptance of debit, which reflects the functional advantages that debit provides to them and to their customers. From an economic standpoint, the growth in debit is not surprising; debit provides improved convenience and efficiency for both consumers and merchants relative to alternatives such as checks. In interpreting the Dodd-Frank Act's provisions for regulatory intervention in networks' and issuers' ability to freely establish terms and conditions for debit use, the Board should be cautious and take into account the danger that price-cap regulation could retard growth in use of a payment mechanism that market participants – merchants and cardholders – increasingly choose over other payment mechanisms.

III. MEASURING COST WITH RESPECT TO THE TRANSACTION

The Dodd-Frank Act permits the Board to prescribe regulations regarding debit interchange fees. The Act provides that “[t]he amount of any interchange transaction fee that an issuer may receive or charge with respect to an electronic debit transaction shall be reasonable and proportional to the cost incurred by the issuer with respect to the transaction.” Under the Act, the Board is allowed to collect from issuers and networks “such information as may be necessary to carry out the provisions” of this section of the Act, and in particular to allow it to distinguish between “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.” and “other costs incurred by an issuer which are not specific to a particular electronic debit transaction.”³⁰

A. Fixed, Variable, and Incremental Costs

Economists generally categorize costs into those that are fixed (unchanging with scale) and those that are variable or incremental (changing with scale of operations).³¹ Although the distinction may seem simple, determining which costs are fixed and which are variable depends critically on both the time period at issue and the scale of the relevant change in output.

In this context, a focus on costs that are incremental for small changes in debit transactions and over a very short period of time would result in a substantial underestimate of the relevant “incremental costs” that should be reflected in the Board-determined “cost incurred by the issuer with respect to the transaction.”³² Incremental costs measured as the increase in a firm’s costs when the issuer handles one, or a few, additional cardholder transactions may be

³⁰ The two categories of costs that the Act specifies are not exhaustive. In particular, issuers may have incremental costs that do not have to do with the specific functions of authorization, clearance, or settlement. These costs are nevertheless incremental, and the Board should consider them as well in crafting regulation that does not impair the efficient use of debit. As I mention below, these can be accounted for under the Act either by recognizing them in the measure of incremental costs for the associated functions or through the proportionality factor.

³¹ The Dodd-Frank Act refers to costs that are “incremental” for a particular debit transaction. In its card issuer survey, the Board requested that much of the data on costs be provided separately for “variable” and “fixed” costs within a particular category. In my discussion, I use the terms “incremental cost” and “variable cost” interchangeably to refer to costs that change as the issuer’s total debit volume and number of debit transactions changes. The key economic issue is whether the costs are “variable” on the margin, i.e., they change as transaction volume changes.

³² There are two types of “incremental” costs for debit volume: (1) costs that increase with the number of debit cardholders that an issuer has and (2) costs that increase with the number and/or volume of debit use by an issuer’s existing debit cardholders. These two dimensions of incremental cost need not be the same and the economic notion of incremental cost is a combination of the two. The relative importance of these two costs likely changes with the maturity of the debit system; when few people carried debit cards, issuers’ activities likely were intended largely to attract additional cardholders, while now that penetration of debit cards is high, continued growth in debit volume likely results largely from inducing existing cardholders to use their cards more intensively (e.g., by convincing additional merchants to accept the cards or by encouraging greater card use for smaller or larger transactions than historically was typical). The Board should consider both types of incremental costs in its analysis.

hard to discern, compared with the incremental costs when the issuer increases volume by 10 percent, even if correctly measured incremental costs per unit for small changes in output are equal to or larger than those for large changes in output. Similarly, even the change in an issuer's costs to add 10 percent more transactions in the short run may appear to be relatively small, but adjusting to the new larger scale (and serving that additional volume reliably and without reducing the quality of service provided to existing cardholders and merchants) may require an almost proportional increase in staffing for a variety of functions, increase in technology equipment and services, and other changes in scale. For example, while it might be possible for the issuer to have current employees handle more transactions in the short term without diminishing the quality of service provided, over the long term staffing would have to expand to maintain the existing level of quality.

Thus, in evaluating issuers' incremental costs, as it is required to do if it chooses to prescribe regulations for setting debit interchange fees, the Board should be attentive to the following economic principles:

1. Measure incremental costs over substantial changes in volume and time

Incremental costs are best measured by comparing issuers' costs at substantially different levels of output, and not by "short-run" cost increases resulting from processing one or a small number of additional transaction on a particular day.³³ For example, the costs to increase the

³³ This is related to the old story about the straw that broke the camel's back. The lesson of the story is that it would appear that one can always add an additional piece of straw to the camel's load without having any effect – after all, how much difference could one piece of straw make? In spite of this perception, one would not want to conclude that the marginal cost of transporting straw by camel is zero. Indeed, when you want to transport more straw you need more camels.

checkout services provided to additional shoppers at a grocery store should not be evaluated by calculating the increased cost to provide checkout services in a grocery store to one additional customer on a specific day. Such incremental costs likely are hard to discern, but this does not mean that the costs to serve an additional customer even on that one day are zero. Rather, the costs of serving that additional customer are simply difficult to identify, taking the form of slightly longer waiting times for other customers (an implicit reduction in the quality of service offered), less output on other tasks (such as cleanup and maintenance) and additional (and not indefinitely sustainable) effort required from workers and management. In contrast, if incremental costs were measured by comparing operating costs at stores that differ predictably in the number of shoppers and checkout volume handled, but were similar in the quality of service (e.g., length of time waiting in checkout lines), the true “incremental” costs to increase the grocery store’s output of checkout services would be apparent. These true incremental costs would include additional “inputs” such as cashiers, capital equipment (e.g., grocery carts and checkout lines) and more managerial talent.

A similar error in identifying incremental costs of debit transactions would result if the Board focuses too narrowly in attempting to measure the costs covered under the Act. Many of the processes for authorizing, clearing, and settling debit transactions are highly automated. Measuring an issuer’s “short-run” cost for processing an additional transaction through the system would understate the true incremental costs to reliably process additional transactions at a given quality of service. In particular, focusing only on the short-term cost of processing small incremental volumes that vary unpredictably day-to-day would not account for the need to add additional capacity to operate reliably and indefinitely at a larger scale while maintaining the

quality of services offered to existing customers. Issuers may adjust to periodic short-term fluctuations in demand without changing capacity but instead allowing service quality to adjust (e.g., allowing authorization speed to decline on days with unexpected or unusual transaction volume), reducing the provision of variable services such as monitoring and investigating suspect transactions, and/or temporarily requiring greater effort from their workers or diverting workers from other tasks. However, efficient long-term adaptation to a predictably greater (or smaller) transaction volume (or change in number of cardholders and/or merchants) requires adding employees, technology, management, and other resources. All of these must be included in an accurate measure of the incremental costs associated with a transaction.

2. Include all incremental costs, including those for expanding capacity and overhead

All costs that increase as utilization of debit increases should be included in variable, and thus incremental, costs, including costs associated with additional physical capacity, incremental overhead, and so on. Extending the example above, the incremental capacity cost associated with a particular transaction includes not only the incremental costs associated with additional information technology, but also the incremental costs associated with other complementary inputs. For example, if handling additional transactions requires more computers, and having more computers requires additional IT staff, then any costs associated with additional IT staff are incremental costs. Extending things further, if hiring additional IT staff leads the issuer to hire more human resource personnel, then the issuer's cost of these human resource employees also is an incremental cost associated with the transaction.

In short, costs that increase as debit volume increases should be considered part of an issuer's incremental costs, and thus are properly defined as part of the issuer's incremental cost associated with individual transactions. This includes many costs that might be considered fixed if wrongly viewed from an excessively narrow short-run perspective that does not allow issuers to vary inputs optimally with their expected output.

3. Include incremental costs to encourage adoption and use of debit

Debit issuers provide a variety of services to merchants. Some costs incurred by issuers that benefit merchants by increasing debit-card transaction volume (and merchant sales) do not fall automatically into the categories of "the authorization, clearance, or settlement of a particular electronic debit transaction," but from an economic perspective are incremental costs of the transaction. One example is costs to provide debit rewards or other benefits to cardholders that increase as the volume of purchases using debit increases. Another example is costs incurred by the issuer to add features that benefit cardholders and make debit a more efficient payment method for the cardholder. A specific example, based on discussion with BAC, is that BAC created an internet service to alert cardholders rapidly when their checking account balance is low or whenever a transaction is made with their debit card, a feature that BAC determined was important to cardholders. By offering these benefits to cardholders, merchants realize benefits as consumers substitute debit for more costly payment methods (such as checks).

From an economic perspective, these costs are associated with the transaction and should be incorporated in the incremental costs on which the Board evaluates whether interchange fees are "reasonable and proportional to the cost incurred by the issuer with respect to the

transaction.” This could be done by considering these as part of the costs measured under the statute. Alternatively, as I discuss below, these costs can be incorporated by adjusting the total of other identified incremental costs associated with the transaction by a proportionality factor that recognizes the role that issuers play in promoting cardholder adoption and use of debit in place of less efficient payment methods, such as checks. Unless the benefits of incremental cardholder incentives provided by issuers are recognized in setting the regulated interchange rate, the quality and quantity of debit services provided will be reduced. This will harm merchants and their customers.

B. Incremental Costs and the Board’s Issuer Survey

Earlier this year, the Board issued a survey to debit card issuers requesting them to provide information on the volume and costs of their debit programs. The survey asked issuers to categorize various expenses into fixed and variable. The Board issued surveys to merchant acquirers and networks as well.⁴

I have some specific concerns about the issuer survey and the instructions the Board provided to issuers for determining whether costs are fixed or variable. However, in spite of those concerns, the survey provides the Board with information that could be useful in properly estimating the incremental costs incurred with respect to the transaction. In particular, rather than focus on each issuer’s classification of its own costs as fixed or variable – an exercise likely to be interpreted inconsistently across issuers and unlikely to comport with the underlying economics – the Board could compare the total costs incurred by issuers with different sized

³ See http://www.federalreserve.gov/newsevents/files/merchant_acquirer_survey_20100920.pdf and http://www.federalreserve.gov/newsevents/files/payment_card_network_survey_20100920.pdf.

debit operations. In such a comparison, it would be important to account for differences in quality of debit services provided, and for the possibility that smaller issuers have smaller scale because they are less efficient than larger issuers. However, done properly, such comparisons would yield the economically relevant measure of “costs incurred with respect to the transaction,” namely the additional costs that an issuer incurs as it expands the volume of debit transactions that it handles.

If, instead, the Board relies on the issuers’ responses directly, and on each issuer’s allocation of costs into fixed and variable, then the Board should consider the following issues in interpreting those data.

1. Processing Costs

The survey asks issuers to provide a breakdown of their processing costs – costs incurred for obtaining authorizations, interbank clearing and settlement, cardholder posting, and so on – between fixed and variable costs. Board instructions state that fixed costs are those “that do not vary with changes in the number or value of transactions over the course of the reporting period.” Based on discussions with BAC, it appears that issuers were instructed to report some costs that vary in an economic sense with the number of transactions processed as fixed rather than variable.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Other IT support that properly is considered variable includes

staffing to support day-to-day processing requirements [REDACTED] and “overhead” costs associated with acquiring, maintaining and managing resources added to handle additional transactions volume.

2. Card Program Costs

Another section of the issuer survey focuses on “card program costs,” which are defined to include costs associated with card production and delivery, cardholder inquiries, and rewards costs. Card production and delivery costs are customer service-related, and largely are variable. Costs to handle cardholder inquiries also are largely variable. These costs include issuers’ costs associated with “replacement cards, fee waivers, transaction details, transaction fees, cardholder disputes, and other issues related to card transaction activity.” Based on discussion with BAC, I understand that the number of such inquiries, and therefore issuers’ cost to respond, increases with issuers’ scale of operations; an issuer with twice as many debit transactions likely will have about twice as many inquiries, which will require about twice as much expense to handle (e.g., about twice as many customer service personnel).³⁵

The allocation of card program costs, such as costs for cardholder inquiries, into fixed and variable is best evaluated by comparing costs at different scales of operation. Short-run fluctuations in costs for an individual issuer likely understate incremental costs, because the primary adjustment will be in quality of service (e.g., longer waits on service calls), while restoring the previous higher level of service quality will require longer-term adjustments in staffing and facilities. The same likely is true for card production and delivery costs; if the

³⁵ See Card Issuer Survey Instructions at http://www.federalreserve.gov/newsevents/files/card_issuer_survey_20100920.pdf.

probability that cardholders need replacement cards (because of lost, compromised or unusable cards) increases with card use, then a portion of card production and delivery costs are variable and increase with transaction activity.

This example illustrates that, when evaluated *ex post*, issuers' costs can vary substantially across cardholders and transactions. Most debit transactions require little or no customer service – everything works smoothly from all parties' perspective. But some debit transactions require substantial, labor-intensive resolution.³³ The incremental cost of settling a transaction therefore includes not only costs that issuers incur when all goes smoothly, but also the capacity they built into their systems to handle customer service issues that demand a high level of service.

Bank of America's responses to card program-related areas of the issuer survey imply average card production and delivery costs [REDACTED] and cardholder inquiry costs [REDACTED].³⁷ Most of these costs likely are incremental. I understand from discussion with BAC staff that [REDACTED] cardholder inquiries at its call centers are directly related to particular transactions. Further, some share of the costs associated with inquiries that are not directly related to particular transactions, such as requests for replacement cards, are incremental because they increase with card utilization.

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Accurate division of card program costs into those that are economically variable and those that are economically fixed is important. If all of these costs are treated as variable, then average variable costs associated with these functions [REDACTED]

[REDACTED] Indeed, the true economic cost could be even larger if the additional call center and other costs also require other “overhead” costs.

3. Fraud Losses and Fraud Prevention Costs

Fraud prevention costs and fraud losses are related – expenditures on fraud prevention activities will result in fewer fraud losses. Both fraud losses and fraud prevention costs likely are largely incremental: a growth in debit card volume will result in more fraud losses, and issuers and networks will spend more on fraud prevention as their debit card volume grows, if only to maintain the same level of fraud losses relative total debit volume. The type of fraud prevention costs that vary with utilization, and thus are incremental, include those incurred to prevent theft of card and PIN numbers. Both types of theft will vary with usage; the more cards and PIN numbers are used, the greater the probability of theft. Costs to contact cardholders for transaction verification (in the event that fraud is suspected) also increase with usage, while the number of fraudulent transactions, as well as the number of inquiries that turns out to be unnecessary, varies with transaction volume as well. Indeed, since these activities are transaction specific (i.e., they are generated by the characteristics of a transaction), they likely increase roughly proportionately with debit usage.

Thus, both fraud losses and fraud prevention costs should be included in transaction related costs. I discuss fraud prevention costs separately below, because the Act specifically provides for evaluation and potentially an adjustment to the fee for these costs.

4. Rewards Costs

Reward costs are also commonly part of the incremental costs issuers bear for a debit transaction. Cardholder reward programs such as Bank of America's "Keep the Change" cause cardholders to utilize debit cards more than they otherwise would. Issuers incur costs for these programs, which benefit merchants by incentivizing cardholders to use debit rather than other, less efficient payment alternatives. Although some set-up costs associated with rewards programs may be fixed and invariant to the scale of the debit provider's operations, most costs associated with rewards programs – including the rewards themselves – are variable and increase with the scale of the issuer's debit operations and thus are appropriately considered part of the issuer's incremental cost.

Most of BAC's costs for reward programs are for provision of the rewards to cardholders, and increase with the dollar value of transactions.³⁸ BAC reported rewards costs of [REDACTED], all of which are variable economic costs incurred by BAC for providing debit.³⁹ If not incorporated as costs of the transaction, these costs should be reflected in the proportionality factor, as I discuss below.

³⁸ There also are program administration expenses, which may be variable costs, but these are dwarfed by reward costs.

³⁹

regulations under the Act, the “functional similarity” between electronic debit transactions and checking transactions.

The Act’s assignment to the Board of responsibility for promulgating rules regarding the setting of debit interchange fees has the potential to place the Board in the role of setting a controlled price.⁴⁰ Setting a controlled price has predictable economic effects, with the impact of such controls depending on the characteristics of the market being regulated. In general, setting a price ceiling (i.e., limiting prices to be at or below a certain level and, in particular, below the competitive level) runs two primary risks: (1) the risk of reducing the output of the regulated product and (2) the risk of reducing the quality of the product offered to buyers. In the case of debit interchange fees, limiting the amount that merchants pay in interchange will reduce the output of debit by reducing the incentives of issuers to supply debit products and/or the incentives of consumers to utilize debit (by shifting the cost of debit to consumers). Limiting the amount issuers receive from merchants also will reduce incentives for issuers to provide the debit features and services demanded by merchants.

The cost to the economy in general and the loss to merchants in particular from the resulting reduction in use of debit will depend on (1) the advantages of debit relative to other payment mechanisms and (2) the magnitude of the resulting shift away from debit (the willingness and ability of consumers and issuers to substitute). A shift away from debit is likely to raise costs and be inefficient. In determining the appropriate proportionality factor, the Board should be careful not to eliminate or substantially reduce the growth in debit at the expense of

⁴⁰ While, as I discuss below in Section VI, I think the Board would be well advised to avoid specific fee regulation, the principles that I lay out here apply both to rigid pricing rules as well as more light-handed approaches.

checks; checks are less efficient and more costly for the merchant, and debit provides valuable cost savings and protections to merchants that checks do not. Thus, while all payment mechanisms are to some extent “functionally similar,” the important functional dissimilarities between debit and checks – and, in particular, the functional superiority of debit from the point of view of merchants – means that debit growth should continue to be encouraged. Debit interchange rates are a key mechanism for doing so. Because economic efficiency is enhanced when consumers are provided with incentives to use debit cards rather than checks (and cash), the appropriate proportionality factor (to be applied to the transactions-cost measure) will exceed one in recognition of debit’s benefits to merchants and the benefits from providing incentives to issuers to encourage cardholder use of debit cards.

A. The Economic Framework

Debit represents a payment method innovation with substantial advantages to merchants and consumers over alternatives such as checks and cash. The rapid growth in debit documented above confirms that debit has been a tremendous success. Experience around the world also confirms the advantages of debit relative to paper-based payment methods. According to one study, “[t]he increase in debit card transactions [in 13 countries studied] suggests that the net benefits of using debit cards have increased vis-à-vis other payment instruments for consumers and merchants...”⁴¹

In an unregulated market, the advantages of a new product typically would be enough to ensure its continued growth and the continued displacement of less efficient alternatives. As a

⁴¹ The authors found that, between 1988 and 2003 “debit card usage grew rapidly” and “check usage continues to decrease in most countries and has disappeared in many countries” studied. *See* Amromin and Chakravorti, pp. 4-5.

general matter, the growth of more efficient alternatives depends on providing incentives for firms to supply those products to the market and for consumers to shift their purchases to those new products. The efficiency gain from a new product provides the incentive to do so; to the extent that the new product costs less to produce than the old one, suppliers have the incentive to shift production to the new product; to the extent that the new product is more valuable to customers, customers have an incentive to buy it instead of the older products. Any efficiency advantage allows both sides to gain and thus the new product to grow and displace less efficient alternatives. Prices provide the mechanism by which both sides are induced to switch to the superior technology. By equating market supply and demand, competitive pricing tends to maximize market output and efficiency by splitting the gains between the parties efficiently.⁴²

When prices are controlled, there is the danger of interference with this mechanism. If the benefits on the consumer side are reduced, consumers have less incentive to switch, which limits growth of the more efficient alternative. Similarly, if surplus on the producer side is reduced, suppliers have less incentive to switch, which also limits growth of the more efficient alternative. Output is limited by the minimum of supply and demand (i.e., consumers cannot purchase more than suppliers supply and suppliers cannot sell more than consumers demand). This same logic extends to two-sided markets, where the roles of suppliers and demanders are played by the two sides of the market (in this case merchants on one side and issuers/cardholders on the other).

⁴² Prices above the competitive level would give consumers enhanced incentives to switch, but would reduce the amount suppliers would be willing to supply and thus would reduce overall output. Similarly, prices below the competitive level would enhance the incentives of suppliers to switch, but would limit output by reducing the incentives of buyers to do so.

This economic framework reveals that the appropriate proportionality factor must consider the economic impact of altering debit interchange rates. Economic analysis of price controls has been done mostly in the context of “one-sided” markets, but the same basic principles extend to two-sided markets such as debit systems. I next discuss some of the advantages of debit to merchants, the degree to which consumers would be induced to switch to alternatives such as checks if debit interchange rates were set too low, and the potential impact of regulated debit rates on issuers’ incentives to supply products and features that are attractive to merchants. I conclude with a discussion of the implications of this analysis for setting of the proportionality factor.

B. The Economic Effect of Price Controls

The United States has considerable experience with the harmful effects of price controls that prevent firms from charging prices that cover the relevant measure of economic marginal cost. Well known examples include retail and wholesale price controls on gasoline,⁴³ rent controls⁴⁴ and limits on payments to providers under Medicaid.⁴⁵ As established in the economic

⁴³ See, e.g., Hans H. Helbling and James E. Turley, “Oil Price Controls: A Counterproductive Effort.” Federal Reserve Bank of St. Louis (1975), p. 3 (“domestic producers are discouraged from producing [] oil, insofar as the implicit rate of return of keeping oil in the ground exceeds that of investing the proceeds from the current sale of oil at \$5.25 per barrel [the maximum price]”).

⁴⁴ See, e.g., Edward L. Glaeser and Erzo F. P. Luttmer, “The Misallocation of Housing under Rent Control,” 93 *The American Economic Review* (2003), pp. 1027-1046 (“in many cases products under price controls will be allocated somewhat (or completely) randomly to everyone who wants them. Furthermore, binding price controls attract new renters who would not be interested in renting at market prices. As such, rent control means that some renters, who would greatly value an apartment, are shut out while others, who never would have rented an apartment under free-market rates, obtain rental apartments”).

⁴⁵ See, e.g., David C. Grabowski, “A Longitudinal Study of Medicaid Payment, Private-Pay Price and Nursing Home Quality,” 4 *International Journal of Health Care Finance and Economics* (2004), pp. 5-26, p. 23 (“the estimated Medicaid payment-quality elasticities were fairly sizeable for the health care sector and indicate that the Medicaid rate may indeed be an important policy instrument towards addressing the quality of nursing home care”); Mark Duggan and Fiona M. Scott Morton, “The Distortionary Effects of Government Procurement: Evidence from Medicaid Prescription Drug Purchasing,” 121 *The Quarterly Journal of Economics* (2006), pp. 1-30, p. 4 (“our

literature, the adverse impact of below-cost price caps manifests in two ways: lower output and reduced quality of products and services.

The demand for price controls typically originates with buyers, who focus on how they will benefit from forced reductions in “price,” as if this can be accomplished without affecting supply. Not surprisingly, buyers prefer to pay less for a given volume and quality of purchases. However, in perfectly competitive as well as imperfectly competitive markets, price and supply cannot be separated in this way. As discussed above, forcing a reduction in price increases demand while it lowers incentives for suppliers to satisfy demand.

For this reason, price controls can harm even the parties they were intended to help. The impact on buyers may be uneven, as they historically are with rent controls – those lucky enough to have a rent-controlled apartment may benefit, while those who are trying to rent an apartment and are willing to pay the “market” price find no supply available. The market may “clear” at the controlled price, but the quality of the product or service provided is lowered for everyone so that suppliers can satisfy demand for the lower-cost, lower-quality product that they can supply profitably at that price.

The same economic principles apply, but with additional complexity, in the case of two-sided markets such as debit. In two-sided markets, producers set two prices, one for each side of the market. In such markets, a regulated price to one side of the market (here, the interchange fee charged to acquirers and which thereby affects the merchant discount fee charged by acquirers to merchants) has an impact on pricing to the other side of the market (the cost to

results strongly suggest that Medicaid coverage of prescription drugs has increased the price paid by other health care consumers for these same treatments”).

cardholders to obtain and use a debit card). If lowering the “price” to acquirers results in higher prices to cardholders for using debit, then debit becomes less attractive and will be used less by consumers.⁴⁶ Consumers of course are harmed directly by the higher prices they face, but merchants and overall efficiency can be harmed as well if consumers shift to other payment mechanisms that are less efficient from the point of view of the merchant or less efficient generally. Because, as I discussed above, debit provides benefits to merchants compared with alternative payment methods, reduced usage of debit will harm merchants and overall economic efficiency.

The growing provision of rewards, which have been common for credit cards for many years, to debit cardholders suggests how interchange rate regulation that limits interchange to a level that compensates issuers only for the cost to process a single transaction would result in less attractive debit products offered to cardholders. The revenue earned through interchange provides issuers with the incentive to induce consumers to use debit rather than alternative payment mechanisms such as checks. Debit rewards provide a mechanism for issuers to do so. Limiting the interchange fee will mean that issuers’ costs to provide benefits to cardholders and merchants will be financed in other ways, in particular through increased prices charged to cardholders for use of debit cards (by imposing explicit fees and/or reducing rewards and other benefits and by reducing service quality). Although increasing direct costs to cardholders for using debit might not seem to be harmful from the perspective of an individual merchant,

⁴⁶ When I discuss the potential for regulation to reduce debit use if the Board fails to consider how interchange rates motivate cardholder adoption and use of debit, I am not claiming that debit use will necessarily decline absolutely, but rather that growth in debit use will slow relative to growth if interchange rates were unregulated or a higher proportionality factor were selected.

slowing or reversing the movement by consumers toward use of debit could harm merchants by causing consumers to shift to payment methods that are more costly for merchants.

C. “Functional Similarity” of Debit and Checks

The economic framework above reflects two factors that should be considered in interpreting the Dodd-Frank Act’s requirement that the Board take into account the “functional similarity” of debit and checks:

- The role of issuers in providing incentives for consumers to adopt and use debit cards; and
- The value realized by merchants when customers use debit rather than checks.

Taken together, these two factors argue for incorporating a markup, through a proportionality factor, in setting the interchange rate paid by acquirers, in order to provide incentives for market participants to continue to engage in activities that allow the economy to realize more fully the advantages of debit.

Checks and debit have similar functionality in terms of the source and destination of transferred funds: both result in the transfer of a purchaser’s money from the purchaser’s checking account to a merchant. However, the two payment mechanisms differ in terms of other functionality provided. The table below compares features offered to merchants and customers on retail transactions by debit and checks.⁴⁷ The table shows that, on all dimensions, debit provides advantages. From the perspective of merchants, debit (but not a check) provides guaranteed payment for transactions approved at checkout, real-time fraud detection, a more

⁴⁷ [REDACTED]

efficient check-out process, and the ability to make sales when sales clerks and cashiers are not present. From the perspective of a retail customer, debit (but not a check) provides better fraud protection, more rapid transactions, the ability to purchase and make reservations over the internet and phone and to make purchases when sales clerks and cashiers are not present, and access to direct deposit accounts at all times.

| Features | Debit | Checks |
|--|-------|---|
| Merchant is guaranteed to receive funds once a transaction is approved at checkout. | Yes | No |
| Each transaction receives real-time fraud detection by the bank issuer to protect the customer, bank, and the merchant. | Yes | No |
| Merchants can provide fast, efficient check-out process for customers and have less cash-in-hand, lowering their operating costs. | Yes | No |
| Customers shop with confidence knowing that if the merchandise is not satisfactory, they can usually get their money back, with their bank doing the legwork to resolve a dispute with merchant. | Yes | No <small>(customer must resolve any dispute with a merchant directly)</small> |
| Customer can use to make purchases over the internet, phone, or at self-service kiosks (such as gas stations, movie tickets), and can use to make reservations (airline, hotel, car rental). | Yes | No |
| Merchants can sell goods "after hours" (gas), at self-service kiosks (Amtrak tickets), and automatically refill customers' accounts (commuter EZ-Pass). | Yes | No |
| Customer can make purchase or get cash without revealing private contact information to the merchant. | Yes | No <small>(customer typically asked for identification such as driver's license#, address, phone number)</small> |
| Gives customer access to DDA account 24 / 7 / 365 | Yes | Limited |
| Payment from person to person | No | Yes |

Source: BAC

As I discussed above, studies have quantified the time and other cost savings to merchants when cardholders purchase using debit rather than checks. One study estimated the

“ring time” to transact with debit at a grocery store was about 25 seconds less than with checks.⁴⁸

With a wage of \$9.61 per hour and an average transaction size of \$37, the savings to grocery merchants in labor costs alone would be roughly 0.20 percent of the purchase amount.⁴⁹ This is quite conservative since it does not consider other savings from the faster checkout (such as more efficient use of checkout facilities) and sources of gain from the other advantages shown in the table above.

The value to merchants of other functions provided by debit, but not checks, also can be estimated. In particular, the cost to merchants of achieving the level of payment guarantee provided by debit for a check transaction is substantial. In many cases, the cost of purchasing check guarantee and verification are high enough that the merchant either declines to accept a check (and thus loses some potential sales) or runs the risk of non-payment associated with check transactions. In cases where merchants actually purchase payment guarantee from third-party providers, the fees average about 0.92 basis points.⁵⁰

The growth of self- and automated checkout facilities is evidence of additional cost savings merchants achieve by reducing labor costs associated with checkout. The use of debit as opposed to checks facilitates the shift to self-checkout, with at least some of these gains attributable to the shift toward debit.

⁴⁸ Klep, p. 533.

⁴⁹ \$9.61 was the average hourly wage for grocery cashiers in May 2009 according to the Bureau of Labor Statistics. See <http://www.bls.gov/oes/2009/may/oes412011.htm>. \$37.00 is an average of Signature Debit and PIN Debit average purchase amounts. See Daniel D. Garcia-Swartz, Robert W. Hahn, and Anne Layne-Farrar, “The Move Toward a Cashless Society: Calculating the Costs and Benefits,” *Review of Network Economics* 5:2 (2006): 199-228, p. 201.

⁵⁰ See, “Check Authorization – 2009,” Nilson Report #953 (July 2010).

Taken together, the evidence shows that merchants benefit substantially from the use of debit relative to checks. Thus, from the point of view of merchants (which is what is critically relevant from the point of view of evaluating the level of interchange rates), debit and checks are functionally dissimilar in important ways. In particular, while both provide a mechanism to transfer funds from a customer's demand deposit account to the merchant's account, the associated services provided by the two are not the same.

The value of payment guarantee provides a good example of the general importance of the functional differences between payment by debit and check. To keep things simple, assume (counterfactually) that payment guarantee is the only difference between debit and checks. For most transactions, payment guarantee is included as part of the debit transaction, while merchants must pay separately for that service for checks. If it costs issuers less to provide payment guarantee as part of the debit transaction than it costs merchants to purchase payment guarantee themselves, then all else equal (as I have assumed here) there will be an efficiency gain from shifting to debit. However, the transaction will shift to debit only if the issuer and cardholder jointly find it cheaper for themselves, ignoring the benefits to the merchant. If the merchant expects to save 50 bp on the transaction from the shift to debit (due to the provision of payment guarantee) but the net cost to the issuer (who absorbs some of the cost of the payment guarantee) and the cardholder are 30 bp, then the transaction will be done by check even though there is a net 20 bp gain from shifting to debit. If the interchange fee is set so that the price of debit reflects the 50 bp value to the merchant, then the transaction will shift to debit if the costs to the issuer and consumer are less than 50 bp or equivalently when overall costs are reduced by shifting the transaction to debit.

In summary, efficient pricing of debit transactions must recognize this lack of “functional similarity” in addition to the “cost” of debit transactions. The proportionality factor allowed for in the Act provides a natural mechanism for doing so.

D. Cardholders respond to debit fees and rewards

In general, the quantitative impact of price controls depends on the elasticity of response on the constrained side of the market (the elasticity of supply in the case of a price ceiling). Here, this corresponds to evaluating the response of issuers and cardholders to the lower revenues received (issuers) and higher fees paid (cardholders).

Given the benefits of debit compared with checks, it is helpful to understand how debit has been “priced” to consumers. Debit cards are linked to a cardholder’s Demand Deposit Account (“DDA”). In general, debit cards are provided to cardholders without an incremental annual fee or any explicit cost of use, even though issuers incur costs to attract and service users of debit cards. If interchange rates were limited to a level that provided issuers with less revenue to finance their activities in recruiting and encouraging use of debit (by setting fees at a level that covers only the narrow cost of the transaction or less), then issuers either will reduce those efforts, and thereby cause a reduction in debit use, or they will increase fees to consumers in order to finance those efforts, and thereby also reduce the usage of debit by reducing the attractiveness of debit to consumers. As a matter of economic theory, this impact will be larger

(a) the more elastic is cardholder demand for debit and (b) the greater the pass-through of interchange to cardholders through rewards and other benefits.⁵¹

Empirical literature on the responsiveness of consumers' use of debit to the cost of use of such cards is limited. One study found:

a substantial price response for debit card use. Consumers respond strongly to fees charged for so-called PIN (personal identification number) debit transactions by using a signature rather than a PIN to secure transactions; however, the fee also reduces the likelihood that the consumer uses a debit card at all. On average, a 1.8% fee on a debit card transaction (nearly all of which are charged only on PIN transactions) is associated with a 12% decline in the likelihood of use. We believe this to be a conservative estimate of the response to payment price at the point of sale.⁵²

Another study, using the same dataset, found that, in a hypothetical situation where a merchant decides not to accept debit, consumers select paper-based payment methods instead. The authors of that study conclude that:

dropping debit or checks shows little gain or a slight loss. These merchant incentives do not appear socially optimal, since dropping credit or debit card payments causes market share to shift away from electronic payments and toward paper-based payments, which may be more costly to society.⁵³

A third study (discussed in Section II, above) also finds that the probability of using debit declines when debit rewards are eliminated.

⁵¹ I expect that, because of competition among issuers, there will be substantial, perhaps complete, pass through. It should be noted that complete pass through does not require perfect competition among issuers. Indeed, pass through can be complete, or even exceed one, when there is "imperfect" competition among issuers.

⁵² Borzekowski et al., p. 151.

⁵³ Ron Borzekowski and Elizabeth K. Kiser, "The choice at the checkout: Quantifying demand across payment instruments," *International Journal of Industrial Organization* 26 (2008) 889-902, p. 891.

E. Applying this Economic Framework to Relate “Proportionality” and “Functional Similarity”

The previous discussion has established that (1) debit provides important and valuable functions and cost savings to merchants compared with checks; and (2) consumers respond to the “price” that issuers charge them to use debit cards (a “price” that can be negative if issuers provide rewards debit cards or other benefits without charging an incremental fee for providing a debit card to checking account customers). The proportionality factor applied to a properly measured “cost incurred by the issuer with respect to the transaction” should be set to achieve these efficiency gains by encouraging adoption and use of debit by consumers in place of functionally inferior checks. A proportionality factor that exceeds one will provide the appropriate incentives for issuers to engage in innovation, product development and marketing activities to motivate greater use of debit to the benefit of merchants, cardholders and economic efficiency generally.

The benefits from “setting” the debit interchange rate as a multiple of the costs determined to be associated with a transaction is that issuers, who compete for debit customers, will have incentives to engage in activities to improve their products and motivate cardholders to replace paper-based transactions with debit. Assume, for example, that the costs incurred by the issuer with respect to the transaction are $\$T$. An interchange rate equal to $(1+p) \times \$T$, where p is greater than zero, will provide the issuer with $(p \times \$T)$ in interchange revenue, which competitive pressure from other issuers will lead it to spend in activities to (a) attract additional debit customers (who otherwise would use alternative payment methods, such as less efficient checks); (b) incentivize (through rewards or other benefits) debit customers to use their debit cards more intensively in place of less efficient payment methods, particularly checks; and (c) invest in

innovation that makes debit products more attractive (such as mobile usage, which again encourages use of debit rather than less efficient payment methods). Thus, the proportionality factor should recognize and relate to debit's functional superiority – both today and to be realized in the future – over checks.

A simple rule would use a proportionality factor so that the implied interchange fee reflects the benefits that debit provides to merchants. In general, the larger are the benefits to merchants from debit relative to its alternatives (e.g., checks), the greater the gain from higher interchange and the resulting shift of usage toward debit. These economic principles are reflected in the "Tourist Test" concept adopted by the European Union. The tourist test explicitly recognizes the benefits of debit to merchants and implies that interchange fees that generate merchant discount fees below the level of merchant benefits are likely to be inefficient.⁵⁴

The Dodd-Frank Act instructs the Board to enact rules that will ensure that debit interchange fees are "reasonable and proportional" to the costs incurred by issuers. The proportionality factor provides a natural mechanism for taking efficiency into account and thereby avoiding some of the pitfalls inherent in price regulation. In particular, economic analysis implies that the proportionality factor should account for unmeasured or omitted elements of cost and the functional advantages that debit provides to merchants relative to other payment mechanisms such as checks. Consideration of the advantages of debit is supported by

⁵⁴ See Jean-Charles Rochet and Jean Tirole, "Must-Take Cards and the Tourist Test," DNB Working Paper 127 (2007).

the Act itself, which instructs the Board to consider the “functional similarity” of debit and checks when determining whether fees are “reasonable and proportional.”

V. FRAUD PREVENTION

Issuers engage in a variety of activities related to operating their debit card programs, some of which may not translate simply into a cost “with respect to the transaction,” and might not be quantified completely by comparing costs of different sized issuers as I proposed above (as a way for the Board to quantify costs incremental to transaction volume). One activity that might not result in costs that increase directly with transaction volume is investment in fraud prevention; if successful, such innovation benefits merchants (by reducing fraud costs borne by merchants) and cardholders (who, even if they are protected by an issuer’s zero-fraud liability policy, may suffer the inconvenience and time costs of card denials and replacements).

Successful fraud prevention activities lower the fraud losses that are a component of the “costs related to the transaction,” and so such activities are efficient. If these costs were not incorporated in the interchange fee, then issuers and networks might substitute fraud losses, which are recognized as transaction-related costs, for fraud prevention, even if fraud prevention were more efficient.

Fraud prevention activities are not the only costs incurred by an issuer that may not be related fully to the volume of an issuer’s debit transactions. However, these are the only such costs that the Dodd-Frank Act expressly permits the Board to consider along with “costs related to the transaction.” The Act states that the Board may “allow for an adjustment to the fee amount received or charged by an issuer” based on costs of the transaction if “(i) such

adjustment is reasonably necessary to make allowance for costs incurred by the issuer in preventing fraud in relation to electronic debit transactions involving that issuer; and (ii) the issuer complies with the fraud-related standards established by the Board...” The Act further identifies a number of factors that the Board “shall consider” in “issuing the standards and prescribing regulations” for fraud prevention costs “incurred by the issuer”:

(I) the nature, type, and occurrence of fraud in electronic debit transactions; (II) the extent to which the occurrence of fraud depends on whether authorization in an electronic debit transaction is based on signature, PIN, or other means; (III) the available and economical means by which fraud on electronic debit transactions may be reduced; (IV) the fraud prevention and data security costs expended by each party involved in electronic debit transactions (including consumers, persons who accept debit cards as a form of payment, financial institutions, retailers and payment card networks); (V) the costs of fraudulent transactions absorbed by each party involved in such transactions including consumers, persons who accept debit cards as a form of payment, financial institutions, retailers and payment card networks); (VI) the extent to which interchange transaction fees have in the past reduced or increased incentives for parties involved in electronic debit transactions to reduce fraud on such transactions; and (VII) such other factors as the Board considers appropriate.

Bank of America has asked me to consider whether and how the costs that issuers incur for fraud prevention activities should be incorporated into the regulated interchange rate or as an adjustment to that rate.⁵⁵ I begin by explaining my opinion that the language of the Dodd-Frank Act makes it unwise to offer specific recommendations at this time about how the Board should accommodate costs of fraud prevention activities in the interchange rate. I then offer some general economic principles that I advise the Board to consider.

⁵⁵ My discussion here addresses only those fraud prevention costs that are not identified through the Board’s analysis as cost “related to the transaction.”

A. Discerning the Intent of the Act.

The language in the Act appears to provide for an allowance for appropriate fraud-related costs incurred by individual issuers. It is unclear whether this would require permitting issuer-specific adjustments to a network or industry-wide debit interchange fee.

The Act seems to permit the Board to evaluate each issuer's activities against a set of "fraud-related standards established by the Board." An allowance to the base interchange fee then would be made for issuers that demonstrate they have complied with the fraud-related standards. Since compliance would be issuer-specific, again this appears to permit an issuer-specific decision about whether to permit an adjustment for fraud-related costs.

Under the Act, the Board may be able to establish standards for effective fraud prevention activities, and then judge an individual issuer's fraud prevention activities against those standards. This would extend the Board's responsibility beyond an analysis of the cost and volume information provided by issuers into the need to judge the effectiveness of past, and perhaps even future, investments by issuers in preventing fraud. In my opinion, it would not be in the interest of economic efficiency for the Board to take on the type of responsibility typically associated with state utility regulators. Instead, the Board's role should be limited to providing oversight and broad regulatory guidance regarding the fraud prevention activities in which issuers should engage.

B. Economic Principles

In lieu of detailed recommendations about how an individual issuer's fraud prevention costs should be incorporated into the debit interchange fee set by the Board, I describe important

economic principles that should guide the Board's implementation in order to motivate participants in the debit system appropriate to achieve economic efficiency.

1. Limit the Board's responsibility for identifying "best practices" for fraud prevention and its need to evaluate whether individual issuers pursued optimal fraud prevention strategies

It is unlikely that a regulator, such as the Board, or any individual issuer for that matter can obtain the type of detailed information needed to determine the methods by which issuers can best prevent debit card fraud. Indeed, there is likely great uncertainty, and strong and reasonable differences of opinion, among issuers as to which specific initiatives are likely to prove effective. In general, the best method for finding and implementing the solutions to such problems is to utilize competition and markets. Issuers benefit from the flexibility that market solutions provide, because they can quickly adjust to changes in the perceived effectiveness of different approaches to deterring fraud.

It would be very costly for the Board to monitor, analyze and evaluate activities in the marketplace to prescribe specific standards that issuers must follow in order for their fraud prevention costs to affect the debit interchange fee. There are three types of costs: (a) the direct regulatory costs incurred by the Board to implement the regulations; (2) the direct costs incurred by the industry – issuers, merchants, networks, etc. – to properly provide the Board with data, information and advice needed for the Board to perform its regulatory function; and (3) the more indirect, and difficult to quantify, costs from the incentives that imperfect regulation, or indeed all price cap regulation, creates. The third category of costs is likely to be great, particularly given the variety of ways in which innovation can arise.

Thus, I recommend that the Board be very cautious in taking on obligations for ongoing decision making about “best practices” in fraud prevention activities and in setting financial incentives to motivate issuers to favor investment in Board-approved approaches. I discuss further below the importance in any regulations issued by the Board of taking into account that regulations can be costly and can create unintended consequences, with the cost and negative consequences directly related to the extent to which regulations are intended to interfere with market forces.

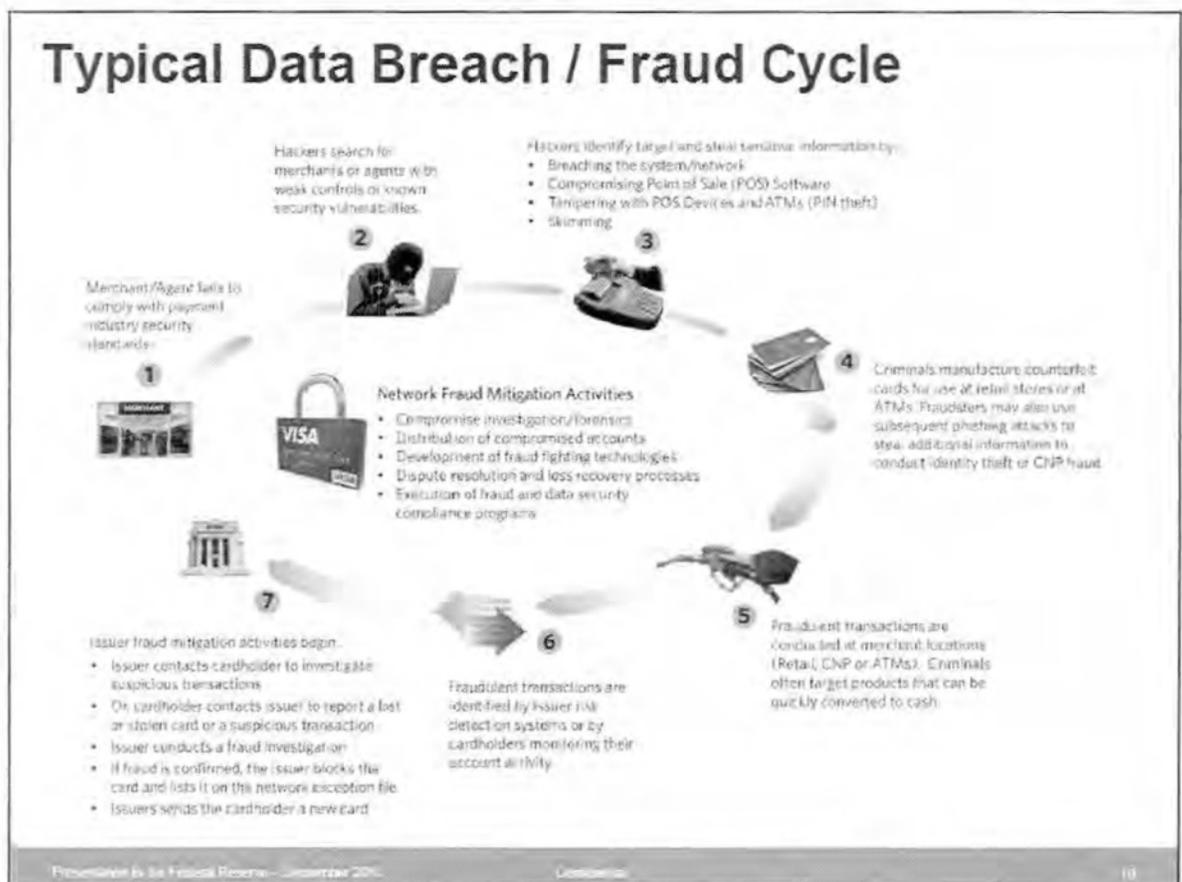
2. Recognize that issuers are best situated to judge efficient fraud prevention methods

I noted above that the Board should be cautious in prescribing the specific fraud prevention activities in which issuers should engage. The same principles argue for allowing issuers freedom to identify and pursue the fraud prevention activities that they think most likely to effectively reduce fraud. Issuers have understanding of (a) how fraud occurs; (b) systems and approaches that have been effective in the past in reducing fraud; and (c) how parties intent on committing fraud will adapt as new prevention methods are introduced. They also have strong incentives to prevent fraud given that the fraud costs are borne by them and their partners in debit transactions – merchants, debit networks and consumers. Replacing their expertise with a regulator’s judgment would be misguided.

3. Recognize that relevant fraud-protection activities benefit merchants

Issuers have incentives to undertake debit-related activities that prevent fraud that is not directly related to a specific transaction with a particular merchant (such as preventing the theft of cardholder PINs). Visa explained to the Board in September 2010 the dynamics of a “Typical

Data Breach/Fraud Cycle,” in which conditions for fraud are created when the “merchant/agent fails to comply with payment industry security standards,” which then enables hackers and criminals to conduct fraudulent transactions.⁵⁶ Issuers and networks undertake a variety of mitigation activities, including “[d]evelopment of fraud fighting technologies.” Issuers and networks internalize the benefits of such activities, and will invest in them if they reduce fraud-related costs enough to justify the expense.



⁵⁶ Visa Presentation to the Federal Reserve on Fraud Prevention, September 2, 2010. According to BAC, “Losses associated with compromised data have grown to over \$4 out of every \$5 lost with this payment form, with 1/3rd of these losses taken by the merchant.” See Bank of America Discussion with the Federal Reserve, September 17, 2010.

The type of fraud prevention activities with which the Board should concern itself are those undertaken by issuers and/or issuer networks that reduce the amount of debit card fraud that occurs in connection with debit card transactions. Merchants benefit from investments by issuers that either reduce the volume of fraudulent transactions, or that reduce the inconvenience experienced by cardholders when their card is used fraudulently or when the issuer and merchant unnecessarily restrict the cardholder's usage because of perceived potential fraudulent activity on the card (denying transactions). It is this second category of costs that should be taken into account by the Board in adjusting interchange rates.

In two-sided markets, such as for debit cards, the impact of fraud and fraud-protection activities on the merchant side of the market also affects the cardholder side of the market and vice versa. If merchants deny a transaction because the issuer's fraud-detection algorithm wrongly identifies the card as compromised, then the cardholder may refuse to complete the transaction with another payment method and the merchant may lose the sale. Even if the cardholder chooses to pay with cash or a credit card, the merchant has incurred additional time to complete the transaction, including the initial denial of the card, potentially another attempt to process the debit transaction, discussion with the cardholder about alternative payment methods, completing the transaction using an alternative payment method and restocking if the consumer decides not to purchase.

Thus, issuer activities to deter fraud, and to do so in the least intrusive way, benefit both cardholders and merchants. While specific expenditures may seem to be of little if any direct benefit to the merchant, any activities that improve the cardholder experience with debit also benefit the merchants. Indeed, since experiences at one merchant may affect cardholder usage at

other merchants (i.e., network effects), these costs likely are most appropriately internalized at the network level.

4. Match the regulation to the level at which parties exercise control

Incentives to prevent fraud work only if they motivate activities by parties with control over the transaction. When a network imposes an Honor all Cards (“HAC”) policy, merchants are unable to distinguish between issuers in the network. Under such conditions, it is efficient to create incentives for fraud reduction at the network level. Normally, market forces result in the efficient outcome; merchants will be more willing to accept (or to pay higher fees to accept) cards routed over networks with better fraud protection. With price regulation, these incentives are somewhat reduced (networks and issuers with better fraud controls may not be able to price to capture this value added). The goal for the Board should be to provide the proper incentives by rewarding parties best positioned to control fraud – which would be the networks.

5. Avoid creating incentives for participants to “game the system”

Any regulation that imposes specific criteria for reimbursement of qualified expenditures will create incentives for market participants to take advantage of the rules by tailoring their expenditures to qualify. This generates two important inefficiencies. First, it leads issuers to favor qualified expenditures rather than those that may be more productive. Second, it provides incentives for parties to try to characterize a given expenditure as qualifying, even if it is not. Thus, narrowly formulated standards for identifying fraud prevention activities that qualify for “an adjustment” to the base interchange fee potentially will lead the parties to focus on form

rather than substance in investing in such activities. For this and the other reasons explained above, such specific regulation likely is unwise.

6. Avoid forcing issuers to disclose trade secrets and competitive advantage

It would be harmful to the competitive process if issuers were forced to fully disclose processes that they unilaterally develop to reduce their own fraud costs through fraud prevention. Issuers will have less incentive to undertake such activities if the Board required issuers to fully describe methods that they develop for fraud prevention, the costs they incurred doing so, whether those methods were successful and, if not, why the method failed in order to qualify for an adjustment to the interchange rate to compensate for such costs.

Fraud prevention innovations are a form of intellectual property. If they must be disclosed and shared with others, it reduces incentives for innovation because it denies the innovator the opportunity to seek a competitive advantage (say, by reducing the likelihood that the issuer's cardholders have their debit cards wrongly denied than is true for other issuers).

7. Rely on competition

The Dodd-Frank Act permits the interchange rate level found appropriate by the Board from its consideration of costs "with respect to the transaction" to be adjusted in order to take into account issuers' costs for fraud prevention activities, if the Board finds those activities to be consistent with fraud prevention standards that the Board approves. It is a complex, and likely impossible, task to make this determination on a detailed issuer-specific basis or based on judgments about what costs are necessary and justified, either *ex ante* or *ex post*, without endangering efficient operation of the debit system.

For this reason, absent additional clarification by the Board of the intent of the Dodd-Frank Act in permitting an “adjustment” for issuers’ fraud prevention costs, I conclude that the required adjustment (for any costs not deemed transaction specific) should be incorporated into the proportionality factor applied to the “cost with respect to the transaction,” as I discussed above. This can be done best in the context of the “light-handed” regulation approach I describe below that allows flexibility in the interchange rate, rather than rigid price controls. This would allow networks to achieve better fraud control to obtain a return on their investment without specifying the precise methods they must use. Competition between issuers will lead them to engage in efforts to prevent fraud, along with other efforts to make the debit system attractive to all those who benefit, including merchants.

VI. THE MECHANISM FOR REGULATING FEES

An important issue for the Board to consider in implementing the provisions of the Dodd-Frank Act is the mechanism through which debit fees should be regulated. Currently, networks impose a variety of different interchange rates depending on the merchant’s industry, whether the merchant undertakes certain fraud-protection activities, transaction size, etc.⁵⁷ The interchange rate schedules reflect the variety of considerations that networks factor into selection of the appropriate rate for maximizing debit volume that I describe above.

From my reading of the Dodd-Frank Act, one of the decisions that the Board must make is whether regulation of interchange rates should be “heavy” and set the specific rate (in basis

⁵⁷ See Visa and MasterCard Debit Interchange rates at: <http://usa.visa.com/download/merchants/october-2010-visa-usa-interchange-rate-sheet.pdf>; <http://usa.visa.com/download/merchants/april-2010-interlink-interchange-rate-sheet.pdf>; http://www.mastercard.com/us/merchants/pdf/MasterCard_Interchange_Rates_and_Criteria.pdf.

points or dollars) that each issuer can charge, or whether regulation should be “light” and provide a set of principles, benchmarks or guidelines (based on the Board’s consideration of the incremental costs of a transaction and an appropriate proportionality factor) that then can be used to monitor whether the fees that are set satisfy the goals of the Dodd-Frank Act and related statutes. The light-handed approach would allow industry participants to choose rates that satisfy the Board’s framework. I strongly recommend the latter. I discussed above reasons why regulators should be extremely cautious when imposing specific price caps through “heavy” regulation. In my view, the Board should interpret the Dodd-Frank Act’s provision that “[t]he Board *may* prescribe regulations...regarding any interchange transaction fee that an issuer may receive or charge with respect to an electronic debit transaction”⁵⁸ as encouraging it to adopt a guidance and oversight function without dictating the interchange rate for specific transactions and imposing rigid Board-determined price caps that endanger the benefits to consumers from robust network and issuer competition and the resulting innovation that have resulted in increasingly attractive debit products.

If the Board determines that it should provide a set of principles, or perhaps a more complete framework, for permissible interchange rates, it must provide guidance in two areas:

- (1) The level at which costs will be measured and the proportionality factor will be set;
- and
- (2) The operational level at which fees will be regulated and/or monitored.

⁵¹ Emphasis added.

In general, each of these determinations should take into account the importance of preserving the incentives of networks, acquirers and issuers to minimize costs and the role of networks in providing incentives to issuers and acquirers to induce them to provide the optimal levels of service to merchants and consumers.

With regard to the first issue, monitoring or regulating interchange fees based on individual issuer or individual network levels of costs would reduce the incentives of those entities to reduce costs. A better approach would be to target the level of fees to industry-wide estimates of costs and then allow networks and/or issuers that can take actions to reduce costs to benefit from doing so. If, instead, the levels of fees were tied to individual issuer costs, then more efficient issuers would be disadvantaged relative to those that are less efficient. The same would apply at a broader level if fees were set based on individual network level estimates of costs.

The second issue is the operational level at which fees should be regulated. Here, the goal should be to allow incentives to operate even though the overall level of prices is being “regulated.” In general, this is best accomplished by permitting price incentives to function as broadly as possible while maintaining the ability to keep prices at or within the regulated levels. One solution that accomplishes this is to monitor the level of fees at the network level and then permit flexibility in setting individual interchange fees as long as the network meets the overall fee target. This would allow networks to provide better terms for merchants, acquirers and issuers that provide benefits to other participants in the system (by, for example, providing better fraud control or better services on other margins). Networks also would be free to set a fee

structure targeted to expand the usage of debit and encourage its continued adoption relative to less efficient alternatives such as checks.

Under one form of light-handed regulation, the Board would determine a debit interchange target rate at the network level that would be a “safe harbor” for avoiding any greater intervention in the network’s freedom to determine its interchange rate schedule. If the target rate were \$X, then the network would be free to set a rate of \$2X for some types of debit transactions (perhaps those that have greater risk of fraud, such as “card not present”), while setting a rate of \$X/2 for others. As long as the weighted average rate for the network as a whole was \$X, no further scrutiny by the Board would occur. If, however, the weighted average rate for the network as a whole substantially exceeded \$X, then the Board would have the ability to require the network to explain the deviation. After its investigation, the Board might determine that the deviation was efficient (it encouraged issuers to undertake additional activities that benefited cardholders and merchants), or incidental (resulting from unanticipated changes in volume in different interchange rate categories). Investigation of *ex post* deviations from the Board-set safe harbor rate might lead the Board to revise the target rate upward if it becomes clear that the additional services being provide justify a higher rate as “reasonable and proportional.”

The network average rate safe-harbor approach has two primary advantages. First, it avoids micromanaging the networks freedom to set an interchange rate schedule that incorporates important consideration about the relative interchange rates for different categories of commerce. Second, it gives networks assurance that, if they conduct their business to avoid exceeding that rate, they will not be found to have violated the provisions of the Dodd-Frank Act

or the principles and rules promulgated by the Board to implement the Act. At the same time it provides networks and issuers the flexibility to make efficient enhancements to their debit products that justify higher fees.

While price controls always reduce efficiency to some extent, allowing flexibility at the network level and allowing more efficient networks, issuers and acquirers the ability to benefit from their cost-reducing activities provides the greatest potential to minimize the cost in lost efficiency from price controls. A structure that evaluates and/or limits the average level of fees at the network level based on industry-wide measures of the costs associated with the transaction and an appropriate proportionality factor provides the best opportunity to accomplish this.

VII. COSTS OF REGULATION

Historically, the debit networks set the interchange fee by considering the variety of factors that balance the incentives of merchants to accept debit cards and the incentives for cardholders to adopt and use those cards. The Dodd-Frank Act replaces this with a regulatory system that requires the Board to collect, interpret, evaluate and synthesize data obtained from issuers and other parties in setting interchange rates. I explained above that cardholders and merchants will be harmed if the Board fails to consider all relevant costs “incurred by the issuer with respect to the transaction.” This requires measuring incremental costs and allowing for other costs through the proportionality factor. I also explained that the Board’s flexibility under the Act to consider “functional similarity” of checks and debit argues for applying a proportionality factor above one to transactions-related costs in setting the interchange fee. As I now explain, the Board also should consider and should attempt to minimize the cost of

regulation – both the explicit costs incurred by the parties as well as the harm to competition that could result from the regulatory process.

The Dodd-Frank Act's provisions for regulation of debit interchange rates constitute two additional sections of the Electronic Fund Transfer Act ("EFT Act"), which became law in 1978. The EFT Act acknowledges that regulations can be costly, and it requires that any regulation of electronic funds transfers, including debit, must be evaluated using cost-benefit analysis.

According to the EFT Act, regulators must

prepare an analysis of economic impact which considers the costs and benefits to financial institutions, consumers, and other users of electronic fund transfers, including the extent to which additional documentation, reports, records, or other paper work would be required, and the effects upon competition in the provision of electronic banking services among large and small financial institutions and the availability of such services to different classes of consumers, particularly low income consumers.⁵⁹

The requirement for cost-benefit analysis of the impact on all participants in electronic funds transfers promotes economic efficiency. The considerations identified in this provision of the EFT Act – the costs and benefits to various parties to an electronic fund transfer – should be applied in evaluating proposed price caps on debit interchange rates.

First, the Act requires regulators to "prepare an analysis of *economic impact* which considers the *costs and benefits to financial institutions, consumers, and other users of electronic fund transfers.*"⁶⁰ The cost-benefit analysis applied to proposed debit interchange rates should take into account costs and benefits for all parties potentially affected by the level of debit interchange. This is consistent with the analysis I provided above, which explained why

⁵⁹ Electronic Funds Transfer Act, Section 904-2.

⁶⁰ Electronic Funds Transfer Act, Section 904-2 (emphasis added).

economically efficient regulation of debit interchange rates must consider how the price and quality of debit and other services offered to cardholders, and issuers' incentives to innovate, will be affected if the regulated rate is below the efficient level.

The EFT Act also requires regulators to consider “the effects upon competition in the provision of electronic banking services *among large and small financial institutions* and the *availability of such services to different classes of consumers, particularly low income consumers.*”⁶¹ These concerns also are relevant here. First, by expressly exempting small financial institutions from the Dodd-Frank requirements for regulation of debit interchange rates, the Act acknowledges that there is potential to harm certain issuers, and in particular small institutions, through regulation. This concern should apply more broadly, and not just to the consideration of potential harm to explicitly exempted institutions and types of cards.

Second, the EFT Act acknowledges that regulation could harm some type of consumers, and it explicitly identifies “low income consumers” as potentially disadvantaged. This is a particular concern in evaluating the impact of proposed regulation of debit interchange, given that lower-income consumers disproportionately use debit cards as a payment mechanism. Forced reduction in debit interchange rates by the Board could result in higher costs and less availability of debit cards for all consumers. This could disproportionately increase the cost and reduce the availability of debit cards for low-income users, who may be less profitable for a financial institution to serve (because they maintain smaller checking account balances and are

⁶¹ Electronic Funds Transfer Act, Section 904-2 (emphasis added).

less likely to purchase other products and services from the financial institution than are higher income debit cardholders).

Finally, in order to regulate debit interchange rates, the Board will need to collect detailed information from issuers and other parties in order to evaluate the relevant measure of cost and the appropriate proportionality factor. The most direct impact of this requirement is that issuers will incur the immediate, direct costs to collect and provide the required information to the Board. The Board's rate-setting process also will require it to obtain information from merchant acquirers and perhaps merchants and thereby impose compliance costs on these parties as well.

Additional, and harder to quantify, impacts of the information collection and dissemination requirements of the Dodd-Frank Act is on incentives for issuers to reduce transactions costs and on competition among issuers. Collection and publication of data on costs can harm competition, even if data are made public only after aggregation. An individual issuer can compare its own costs to those of the industry as a whole, with the amount of information it gains from the public data dependent in part on its own contribution to the average. Large issuers, in particular, may be able to influence the industry average, and so will have less incentive to reduce their own costs, or to reduce those costs in a way that influences the information on which the Board bases its determination of the maximum debit interchange rate, because doing so will have an impact on the allowable interchange rate.