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October 15, 2010

Louise L. Roseman, Director  
Division of Reserve Bank Operations  
and Payment Systems  
Board of Governors of the Federal Reserve System  
20th Street and Constitution Avenue, N.W.  
Washington, D.C. 20551-0001

***Via E-mail and FedEx***

Re: **Rules Relating to Debit Interchange Rates**

Dear Ms. Roseman:

We, along with several other law firms with whom we are working, represent a number of national supermarket and drug store chains who have sued Visa, MasterCard and/or American Express for violating the antitrust laws.<sup>1</sup> We are submitting this letter for consideration by the Federal Reserve Board ("FRB") as part of its rule-making procedures pursuant to the Dodd-Frank Wall Street Reform and Consumer Protection Act (the "Dodd-Frank Act"). This letter focuses on one aspect of the FRB's rule-making: whether the cost of rewards should be included in debit interchange rates. As we explain below, rewards costs should *not* be included in computing interchange debit rates. Our view reflects sound policy and is based on robust data and years of study of the card payments business by some of this country's leading economists and payments experts.

We would welcome the opportunity to meet with you and your staff to discuss any of the issues covered in this letter or any other issues relevant to the FRB's rule-making.

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<sup>1</sup> Kenny Nachwalter, P.A. represents The Kroger Co., Walgreen Co., Safeway Inc., Albertsons LLC, Ahold U.S.A., Inc., Delhaize America, Inc., Hy-Vee, Inc., The Great Atlantic & Pacific Tea Co. and H.E. Butt Grocery Co. Hanglely Aronchick Segal & Pudlin represents Rite Aid Corporation, BI-LO LLC, Bruno's Supermarkets, Inc. and Maxi Drug, Inc. d/b/a Brooks Pharmacy. Sperling & Slater PC represents Supervalu, Inc., Publix Super Markets, Inc., Meijer Stores Limited Partnership, Raley's Supermarkets and Wakefern Food Corporation.

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**I. Introduction**

Congress delegated to the FRB the authority to “prescribe regulations – regarding any interchange fee that an issuer may receive or charge with respect to an electronic debit transaction ... and to prevent circumvention of this subsection.”<sup>2</sup> We and our economists have spent several years analyzing payments systems, including debit cards. Our analysis indicates that present debit interchange rates are already above competitive levels, and including card issuer rewards (which serve no purpose in clearing, authorizing and settling debit transactions) as an element of recoverable cost in debit interchange pricing policy would accelerate and expand these anticompetitive outcomes – thus further distancing the electronic payment system from the efficient and socially optimal outcome.

To explain our position, Section II reviews important competitive issues in electronic payment systems, including the relationship between rewards and the spiraling, anticompetitive interchange fees for credit cards. We think an understanding of the anticompetitive effects that rewards costs have had in the credit card markets is essential to an understanding of why rewards costs should not be included in calculating debit interchange rates. We turn specifically to debit cards in Section III, where we describe how the debit card markets are evolving in a manner similar to the development of the credit card markets. In Section IV, we discuss how interchange fees can be competitively set and monitored, and address why the cost of rewards should not be considered in setting or adjusting interchange fees on debit card transactions. We conclude in Section V with a summary of our position.

**II. Competitive Issues in Electronic Payment Systems**

Electronic payment systems developed from the paper-based national credit card networks, including Visa, MasterCard, American Express and Discover. Early development of efficient credit card networks faced economic externality issues.<sup>3</sup> In the infancy of a credit card network, the demand for and value of a credit card to a consumer depends on the extent of acceptance by merchants, and the demand for and value of acceptance to

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<sup>2</sup> Dodd-Frank Act § 920(a)(1).

<sup>3</sup> An economic externality is “a cost or benefit that is caused by one economic agent but borne by another.” William F. Samuelson & Stephen G. Marks, *Management Economics* 424 (6th ed. 2010).

merchants depends on the extent of card usage by consumers. Industries with such so-called "two-sided" externalities have become known as "two-sided" markets.<sup>4</sup>

The economic significance of the double externality is that the efficient set of prices – one price to the cardholder and another to the merchant – must consider these external effects, which is summarized by the phrase "balancing both sides."<sup>5</sup> It is this balancing effort which networks have historically claimed economically justifies the imposition of "interchange" fees on merchants in the credit card industry.<sup>6</sup>

An interchange fee is a fee imposed on a merchant by the payment network that is transferred to the bank that issued the payment card. The "price" paid by the merchant for the services of the payment network includes the interchange fee, a fee to the network, and a fee to the "acquiring" bank or party (the entity dealing with the merchant). Comparable fees exist in debit networks. The Dodd-Frank Act regulates only the interchange fee.

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<sup>4</sup> The typical examples of such markets include newspapers (the value to advertisers depends upon the number of readers, and the value to readers depends in part on the quantity and quality of the advertisements), and computer operating systems (the value of an operating system to software application developers depends on the number of users, and the value to users depends on the number of applications). There is a large economic literature concerning such markets. *See, e.g.,* Richard Schmalensee, *Payment Systems & Interchange Fees*, J. Indus. Econ. 103 (June 2002); Jean-Charles Rochet & Jean Tirole, *Cooperation Among Competitors: Some Economics of Payment Card Associations*, RAND J. Econ. 549 (Winter 2002); Richard Schmalensee, *Interchange Fees: A Review of the Literature*, Payment Cards Econ. Rev. 25 (Winter 2003); Jean-Charles Rochet, *The Theory of Interchange Fees: A Synthesis of Recent Contributions*, Rev. Network Econ. 97 (June 2003).

<sup>5</sup> The intuitive result is that the less elastic side of the market is charged a higher price relative to marginal cost.

<sup>6</sup> The "two-sided" nature of the credit card markets was obvious in their infancy. However, as these markets matured, it is no longer apparent that a significant externality remains for merchants from increased card usage. Once a credit card network obtains sufficient scale to justify a merchant incurring any fixed start-up costs such as buying the requisite software, there is no additional external benefit to the merchant if some of its customers switch from other payment means to credit cards.

The evolution of credit card markets provides lessons concerning possible competitive problems facing debit card markets. With an interchange payment to the issuing banks, the banks have an incentive to motivate cardholders to increase usage of the credit card payment system. Issuers provide this incentive to cardholders by offering "rewards" for card use. The rewards give cardholders a benefit from card use compared to using an alternative means of payment. This motivates the cardholders to favor the card offering their preferred rewards.<sup>7</sup> In addition to increasing card use, the rewards increase the likelihood that cardholders will switch stores if a merchant does not accept the card. That is, as a cardholder's rewards increase, that cardholder will likely shop less at a merchant not accepting the card, which increases the potential business a merchant stands to lose by discontinuing acceptance of a particular card in the face of higher interchange fees. This card loyalty in turn increases the level to which the payment network and issuing banks can increase the interchange fee before merchants can consider discontinuing card acceptance. Thus, as rewards come into the system and expand, the interchange level at which the "merchant rejection point" is reached rises, and the card issuers and the network can profitably increase the interchange fee. As the interchange fee rises with attendant profits to issuers, the issuers are motivated to encourage additional credit card usage through additional increases in rewards.<sup>8</sup> The result is an ensuing spiraling of the equilibrium interchange fee to supra-competitive levels.<sup>9</sup> The rewards create an artificial consumer loyalty to the credit card offering the rewards which underlies the upward spiral of interchange fees.

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<sup>7</sup> Rewards accumulate in relatively small amounts, *e.g.*, one airline mile per dollar expenditure. But the rewards have little or no value until a significant number of the rewards are accumulated. This motivates card users to specialize their card usage rather than spreading rewards over many cards.

<sup>8</sup> According to one study, 45% of interchange fees are used for rewards programs. See Fumiko Hayashi, *Do US Consumers Really Benefit from Payment Card Rewards?*, Econ. Rev. Fed. Reserve Bank of Kansas City at 42-43 (First Quarter 2009) (citing a 2006 study by Diamond Management Consultants).

<sup>9</sup> One can think of an initial profit maximizing interchange fee as one that will extract any increase in merchant profits from the value of cards (absent rewards) to card users. As competition among issuers results in some of the interchange being passed-on as rewards, the network will be able to impose a higher interchange fee without the merchant rejecting the card.

Thus, as a payment network matures, the network finds that it can increase the interchange fee and rewards without losing merchant acceptance. This is what has happened in the credit card markets, with effective interchange fees steadily increasing throughout the 2000s. Faced with higher interchange fees that increase merchants' marginal costs, and faced with restraints at the point of sale that impede merchants' ability to pass-on those higher costs directly to reward card users, merchants raise their retail prices to *all* customers. The networks have prevented merchants from effectively "pricing" payment mechanisms at the point of sale by offering discounts or charges dependent on the level of the interchange fee associated with a particular card. The recently proposed settlement between the United States Department of Justice and Visa and MasterCard, and the Government's ongoing antitrust case against American Express, were responses to these competitive problems in the credit card markets.

Substantial economic inefficiencies result from this interchange-rewards spiral and the inability of merchants to convey the costs of various payment mechanisms to their customers. Exchange inefficiency occurs as some customers pay lower effective prices (the rewarded customers) than others.<sup>10</sup> Equity issues are raised as the favored customers tend to be the more-wealthy, with their rewards funded by the less-wealthy. Resource dissipation arises as issuers compete through excessive solicitations for new card users. Transactions costs are incurred in setting up and maintaining rewards programs. And inefficiency in payments mechanisms is fostered as customers select the payment means based on artificial price signals. Finally, some merchants refuse to accept this otherwise-efficient payment means because of the supra-competitive interchange fees.

### **III. The Evolving Debit Card Markets**

The evolution of the debit card system appears to be following that of the credit card markets. The fees charged to merchants by debit networks have grown in recent years even while the networks' costs of running those systems have fallen, indicating supra-competitive pricing of debit card services. For example, Exhibit 1 accompanying this letter shows the average interchange rate on PIN debit for four large networks, Interlink, Pulse, NYCE and Star from 1996 through 2010. Over that period, the PIN debit interchange fees have increased about five-fold.

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<sup>10</sup> The networks analogize rewards programs to "buyers' clubs" in which merchants and third parties devise mechanisms to offer discounts to more elastic buyers. This is incorrect. Rewards programs, in contrast to buyers' clubs, favor the less elastic buyers (the more well-to-do), the programs treat all merchants and all merchandise identically, and they are "tied-in" with the supply of credit network services rather than being selected competitively by merchants.

Beginning in 2002, the PIN debit marketplace has become increasingly concentrated among a few suppliers. Exhibit 2 shows the share of debit transactions of the largest supplier, Interlink/Visa. At present, Visa has the largest share among debit card providers with a 40% share. Consistent with this trend, Visa/Interlink had led the industry with debit price increase announcements – in particular, a more than doubling of price since 2002 as seen in Exhibit 1.<sup>11</sup>

The increases in PIN debit interchange fees are not explained by increases in the costs of processing and settling these transactions. Over the period of the price increases, there have been substantial technological advances in electronic processing of transactions and accompanying reductions in cost. Exhibit 3 shows the fall in the price indices of inputs related to the costs of debit payment services. In addition, the growth in the use of the PIN debit networks, as shown in Exhibit 4, will have generated significant economies of scale and corresponding cost reductions. Presuming that PIN debit interchange fees in the early 2000s at least equaled the costs of authorizing, processing and settling the transactions, the implication is clear that supra-competitive pricing of PIN debit has occurred in recent years.

Signature debit interchange fees have been and remain higher than PIN debit rates. Exhibit 5 shows the Visa and MasterCard signature debit rates. Prior to the settlement of the *Wal-Mart* antitrust case,<sup>12</sup> merchants accepting Visa and MasterCard credit cards were also required to accept those networks' signature debit cards, and the interchange fees on signature debit and credit cards were closely aligned. Post *Wal-Mart*, with the elimination of the tie-in of credit and debit acceptance and the ability of merchants to more credibly threaten non-acceptance of signature debit, signature debit rates are converging to the rising PIN debit rates.

#### **IV. Consideration of Debit Interchange Under the Dodd-Frank Act**

The Dodd-Frank Act requires 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

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<sup>11</sup> Federal Reserve economists noted in 2006 that "[i]n contrast with ATM pricing, ... interchange fees for PIN debit have increased recently. Interlink has been the market leader, dramatically raising its interchange fee in 2002. Most of the PIN debit networks since have raised their interchange fees, although more gradually in most instances." Fumiko Hayashi, Richard J. Sullivan, & Stuart E. Weiner, *A Guide to the ATM and Debit Card Industry*, Fed. Reserve Bank of Kansas City at 12 (2006).

<sup>12</sup> *In re Visa Check/MasterMoney Antitrust Litig.*, Case No. 96-cv-5238 (E.D.N.Y.) (Gleeson, J.).

reasonable and proportional to the cost incurred by the issuer with respect to the transaction."<sup>13</sup> The "cost" is defined as "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 ..."<sup>14</sup> The Dodd-Frank Act does not otherwise specify what specific costs should be included in the debit interchange fee or how those costs should be measured. Thus, the FRB faces the question of what issuer costs to include.

As noted above, rewards programs helped fuel the rapid rise of interchange fees in credit cards; and rewards programs are becoming increasingly common in debit systems.<sup>15</sup> The anticompetitive interchange-rewards spiral that has afflicted credit card systems is beginning to plague debit systems as well. And while the Dodd-Frank Act removes some of the merchant restrictions concerning the pricing of debit transactions, it does not prevent the networks from restricting the merchants' ability to price within a network according to the type of card and the level of the interchange-rewards fees.<sup>16</sup> Thus, with reward programs expanding, the market cannot accurately or efficiently keep interchange fees for debit in check.

The Dodd-Frank Act appears to allow an interchange fee, if any, through which the issuing banks recover traditional economic "marginal costs" for their role in the debit system. The issuing banks do engage in some electronic data processing, receiving transactions requests from the network, verifying the availability of funds, and transmitting such confirmation through the network to the merchant. As noted above, the input prices associated with providing these electronic services have fallen substantially over time, and the incremental costs have fallen still further as networks expand and realize economies of scale and scope. A consideration of these expenses would indicate that an interchange fee, if any, substantially below those observed from debit in the late 1990s or early 2000s would

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<sup>13</sup> Dodd-Frank Act § 920(a)(2).

<sup>14</sup> *Id.* § 920(a)(4)(B).

<sup>15</sup> According to Wells Fargo, approximately 14% of its debit cards in circulation are reward cards. See Wells Fargo, Debit Card Discussion with Federal Reserve Board at 3 (Sep. 1, 2010).

<sup>16</sup> The Dodd-Frank Act places "LIMITATION[S] ON RESTRICTIONS ON OFFERING DISCOUNTS," but allows that "in the case of a discount ... for payment by the use of debit cards, the discount ... [can] not differentiate on the basis of the issuer or the payment card network." Dodd-Frank Act § 920(b)(2).

– even under an unreasonably generous accommodation to the networks – be more than adequate to cover such costs.<sup>17</sup>

An issue central to a cost-based interchange rate is the nature and extent of rewards-based expenses and whether they should be included as a cost of processing, authorizing and settling debit transactions. They should not. The costs of rewards are quite different from the costs of processing, authorizing and settling debit transactions. Reward costs do not relate to the provision of debit-based electronic payment systems; they relate to the separate attempts by issuing banks to leverage their role in electronic settlement to fund programs that “lock-in” cardholders to particular card use because of the attendant rewards. The provision of rewards and the level of rewards provided are not part of the processing, authorizing and settling of debit transactions. The rewards are not essential to the functioning of a payment card network, but rather reflect a decision by the issuing bank as to how to position their products with cardholders. Rewards expenses are not determined by technology and other possible input costs but solely by the issuers’ decisions about their rewards programs.

As discussed above, an interchange-rewards spiral is an expected outcome absent the merchants’ ability to steer card users to low-fee, non-rewards debit cards. Unfortunately, the Dodd-Frank Act does not give merchants the tools they need to effectively steer customers to low-price cards. It allows the networks to continue to prohibit merchants from discounting low-cost cards within a given network, and from charging an explicit price (what the networks call “surcharging”) for use of a high-priced card.<sup>18</sup>

Under the Dodd-Frank Act, the networks can continue, and are expected to continue, to prevent merchants from effectively steering transactions to the lowest-cost payment mechanism with the features that customers desire.<sup>19</sup> Thus, if the costs of

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<sup>17</sup> The Dodd-Frank Act provides that the FRB should make allowance for “...costs incurred by the issuer in preventing fraud ...” *Id.* § 920(a)(5)(i). However, 2000-era PIN debit rates also accounted for fraud. Adjustments would be warranted only to the extent current fraud prevention costs exceed those in the 2000 era. We understand that signature debit may have more issues than PIN debit.

<sup>18</sup> It is a misnomer to call a merchant fee to customers who select a high-cost payment method a “surcharge.” Such a charge is economically no different than setting a higher price for items that cost a merchant more.

<sup>19</sup> The customers who value the rewards greater than the differential cost to the merchants would be able to “purchase” the valuable rewards by paying the charge (or foregoing the discount).

rewards are included as a recoverable "cost" under the Dodd-Frank Act, then the expected outcome is the same interchange fee-rewards spiral for debit card markets that has infected the credit card markets. It is not an over-statement to note that very little, if anything, will actually be accomplished by the Dodd-Frank Act to remove or mitigate an anticompetitive outcome of the networks' setting of debit rates if the FRB includes the cost of rewards in PIN debit or signature debit interchange fees. To encourage a more competitive outcome in debit markets, the FRB should not permit the debit networks to include rewards costs as an allowed cost.<sup>20</sup>

## V. Summary

Payments via movement of electronic signals provide potential for substantial savings compared to payments by check or cash. Moving electrons is much less expensive than moving paper. As the U.S. economy moves towards a modern electronic payment system, it is important that the inefficiencies encumbering the credit card system be avoided in the debit card system. The Dodd-Frank Act can go far in this regard.

We believe that an interchange rate, if any, that is "reasonable and proportional" to the cost incurred by the issuer with respect to transaction authorization, clearance and settlement can be fashioned based on interchange rates that were in place in the late 1990s, suitably adjusted downward for historic reductions in input prices and realized scale and scope economies.<sup>21</sup> Debit interchange rates going forward should be evaluated in the context of the authorization, clearance, and settlement costs associated with completing transactions through the payment system. These costs should not include the discretionary spending issuers undertake in the form of rewards systems that lock in their cardholder base. Indeed, to include such expenses in setting a debit interchange rate would likely lead to the interchange spiral that infected the credit card marketplace through the 1990s and

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<sup>20</sup> Debit card users could still have access to rewards by having issuing banks offer rewards for an additional fee or a marginal fee. This would ensure that the value of the rewards by the card users exceeded the costs. It would also end the inefficiency of customers who use cash, checks and non-rewards cards implicitly subsidizing reward-card users.

<sup>21</sup> The parties whom we represent have relevant data that can shed light on the actual realized trend in interchange fees on debit since 2000. We expect these data may prove helpful to the FRB in identifying relevant interchange trends and in potentially setting interchange rates going forward under our proposal. These data are commercially sensitive and confidential and thus we would discuss the specifics of these data in a private forum with the FRB.

2000s, and that has led to higher retail prices facing customers and numerous inefficiencies in the use of payment mechanisms.

Respectfully,



William J Blechman

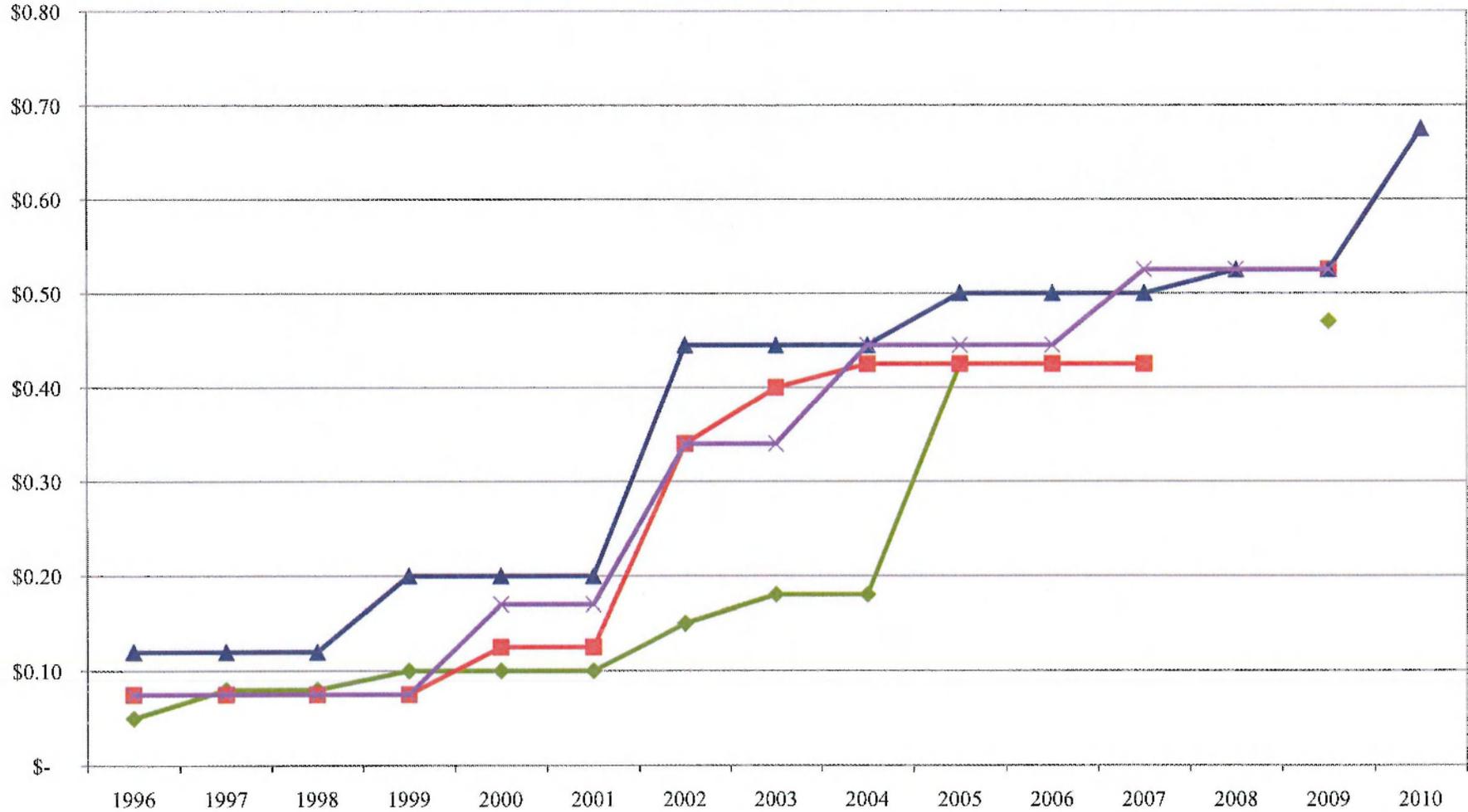
WJB:mb

Enclosures

393446.1

# Exhibit 1

**Exhibit 1**  
**Pin Debit Rates**  
**Dollars per Transaction on a \$50 Transaction**  
**1996 - 2010**



Source: See Exhibits 1-A and 1-A.1

◆ Pulse    ■ NYCE    ▲ Interlink    ✕ Star

Note: 2008 rates are not listed for Pulse and NYCE in the source. 2010 only includes Interlink rates.

**Exhibit 1-A**  
**Pin Debit Rates**  
**Based on a \$50 Transaction**  
**1996 - 2010**

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
	[A]	[B]													
<b>Star</b>	\$ 0.08	\$ 0.08	\$ 0.08	\$ 0.08	\$ 0.17	\$ 0.17	\$ 0.34	\$ 0.34	\$ 0.45	\$ 0.45	\$ 0.45	\$ 0.53	\$ 0.53	\$ 0.53	
<b>Interlink</b>	\$ 0.12	\$ 0.12	\$ 0.12	\$ 0.20	\$ 0.20	\$ 0.20	\$ 0.45	\$ 0.45	\$ 0.45	\$ 0.50	\$ 0.50	\$ 0.50	\$ 0.53	\$ 0.53	\$ 0.68
<b>NYCE</b>	\$ 0.08	\$ 0.08	\$ 0.08	\$ 0.08	\$ 0.13	\$ 0.13	\$ 0.34	\$ 0.40	\$ 0.43	\$ 0.43	\$ 0.43	\$ 0.43		\$ 0.53	
<b>Pulse</b>	\$ 0.05	\$ 0.08	\$ 0.08	\$ 0.10	\$ 0.10	\$ 0.10	\$ 0.15	\$ 0.18	\$ 0.18	\$ 0.43	\$ 0.43	\$ 0.43		\$ 0.47	

**Note:**

2008 rates are not listed for Pulse and NYCE in the source. 2010 only includes Interlink rates.

**Sources:**

[A] Data received from Dr. Fumiko Hayashi, Federal Reserve Bank of Kansas City, on June 22, 2009 - IF Trends 2.xlsx, tab 'PIN debit'

[B] Exhibit 1-A.1, Interlink Pin Debit Rates, 2010

**Exhibit 1-A.1**  
**Interlink Pin Debit Rates**  
**2010**

Transaction Amount	\$	50	[1]
Fixed		\$0.20	[2]
Variable		0.95%	[3]
Cents per Transaction	\$	0.68	[4]

**Sources:**

[1] Based on amount used in Hayashi, Fumiko, Sullivan, Richard J., & Stuart E. Weiner. A Guide to the ATM and Debit Card Industry 2006 Update, Figure 8, pg. 13,  
<http://www.kansascityfed.org/Publicat/PSR/BksJournArticles/ATMDebitUpdate.pdf>

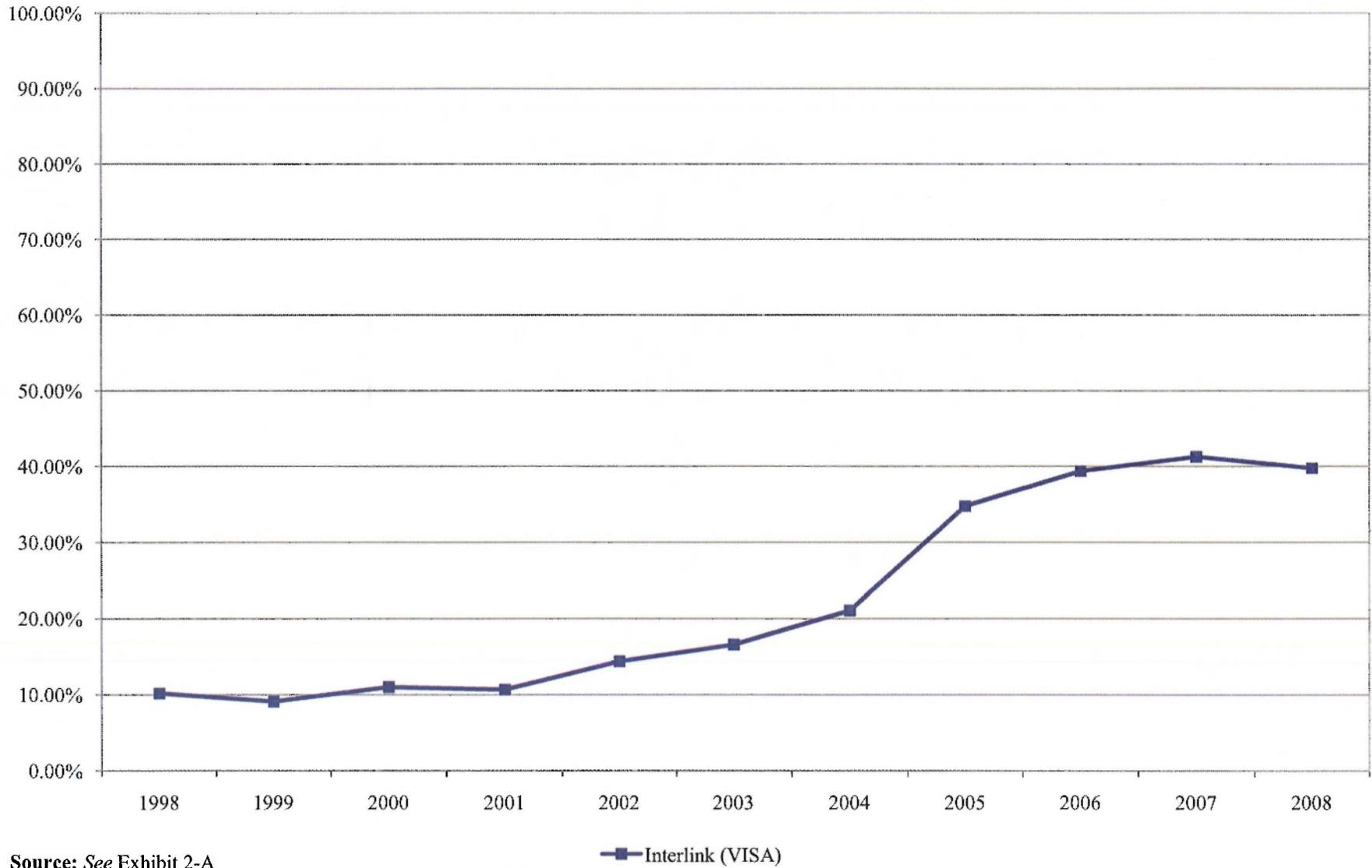
[2] & [3]

Interlink Interchange Reimbursement Fees, Rates Effective April 2010  
([http://usa.visa.com/merchants/operations/interchange\\_rates.html](http://usa.visa.com/merchants/operations/interchange_rates.html))

[4] = [2] + ([1] \* [3])

# Exhibit 2

**Exhibit 2**  
**Interlink (VISA) Share of Pin Debit**  
**1998 - 2008**



Source: See Exhibit 2-A

**Exhibit 2-A**  
**Interlink Share of PIN Debit**  
**1998 - 2008**

	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>
	[A]	[B]	[C]								
Interlink (VISA)	10.20%	9.10%	11.00%	10.70%	14.40%	16.60%	21.10%	34.80%	39.40%	41.30%	39.80% [1]

**Sources:**

[A], [1] Hayashi, Fumiko, Sullivan, Richard J., & Stuart E. Weiner. A Guide to the ATM and Debit Card Industry 2006 Update, Table 7, pg. 45,

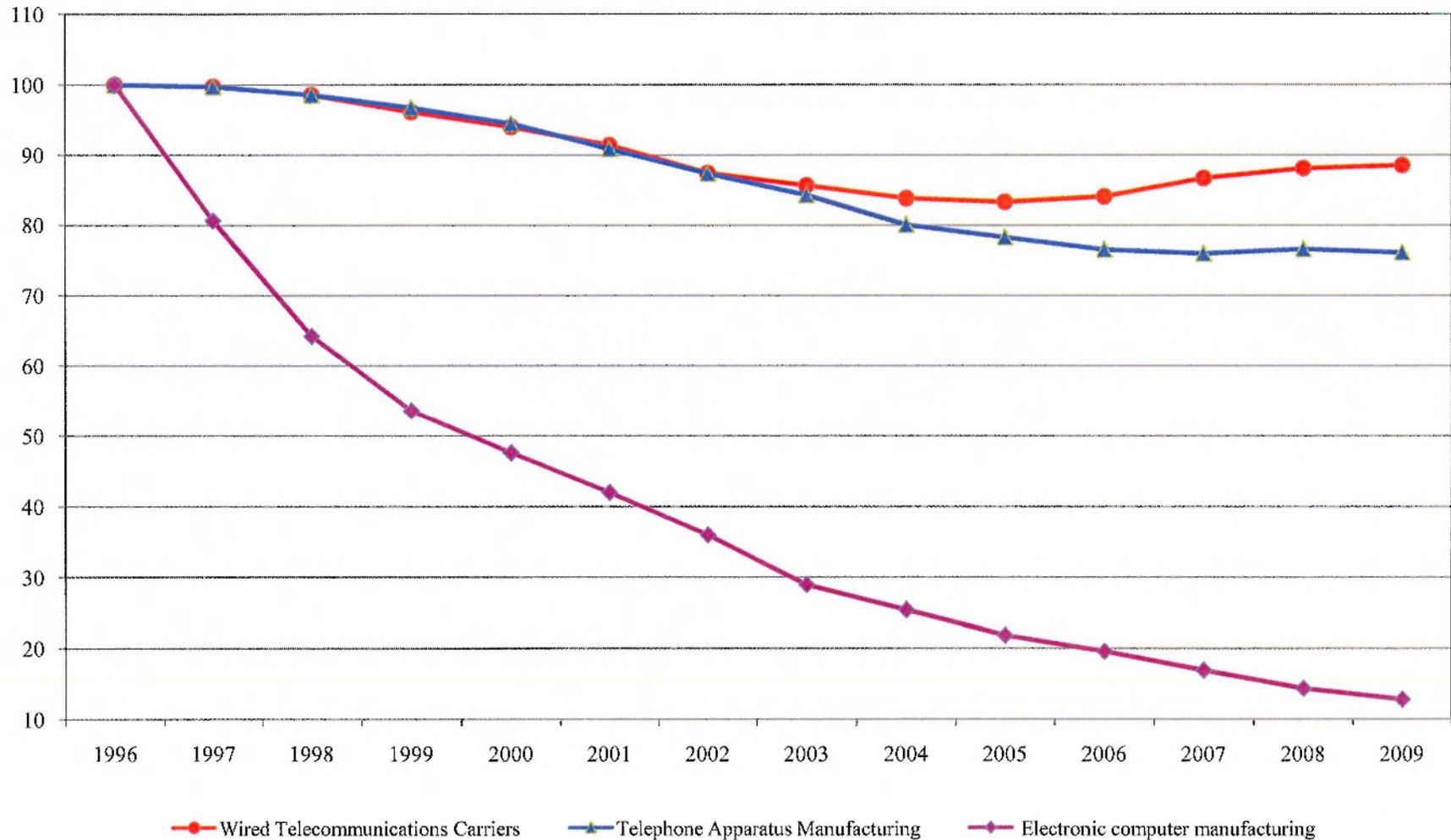
<http://www.kansascityfed.org/Publicat/PSR/BksJournArticles/ATMDebitUpdate.pdf>

[B], [1] 2008 Revised Edition EFT Data Book, V. 7, #40, September 27, 2007, pg. 7

[C], [1] 2009 EFT Data Book, V. 9, #45, October 23, 2008, pg. 5

# Exhibit 3

**Exhibit 3**  
**Producer Price Indices for Electronic Computer Manufacturing, Wired**  
**Telecommunications Carriers and Telephone Apparatus Manufacturing Industries**  
**1996 - 2009**



Source: See Exhibit 3-A

**Exhibit 3-A**  
**Producer Price Indices for Electronic Computer Manufacturing, Wired Telecommunications**  
**Carriers and Telephone Apparatus Manufacturing Industries**  
**1996 - 2009**

Base Year:	Wired Telecommunications Carriers		Telephone Apparatus Manufacturing		Electronic computer manufacturing		
	2003	1996	1985	1996	2004	1996	
	[A]	[B]	[C]	[D]	[E]	[F]	
1996	118.7	100.0	119.7	100.0	423.6	100.0	[1]
1997	118.4	99.7	119.4	99.7	341.7	80.7	[2]
1998	117.0	98.6	118.0	98.6	272.1	64.2	[2]
1999	114.1	96.1	115.8	96.7	227.0	53.6	[2]
2000	111.6	94.0	113.1	94.5	201.5	47.6	[2]
2001	108.5	91.4	108.8	90.9	177.8	42.0	[2]
2002	103.8	87.4	104.6	87.4	152.3	36.0	[2]
2003	101.7	85.7	100.9	84.3	122.5	28.9	[2]
2004	99.5	83.8	95.8	80.0	107.4	25.4	[2]
2005	98.9	83.3	93.7	78.3	92.4	21.8	[2]
2006	99.8	84.1	91.6	76.5	82.8	19.5	[2]
2007	102.9	86.7	90.9	75.9	71.4	16.9	[2]
2008	104.6	88.1	91.7	76.6	60.6	14.3	[2]
2009	105.1	88.5	91.1	76.1	54.2	12.8	[2]

**Note:**

Any difference due to rounding.

**Sources:**

[A] <http://www.bls.gov/data/> (Industry: Wired telecommunications carriers), last accessed October 8, 2010.

[B], [1] = 100

[B], [2] = [A], [2] / [A], [1] \* [B], [1]

[C] <http://www.bls.gov/data/> (Industry: Telephone apparatus manufacturing), last accessed October 8, 2010.

[D], [1] = 100

[D], [2] = [C], [2] / [C], [1] \* [D], [1]

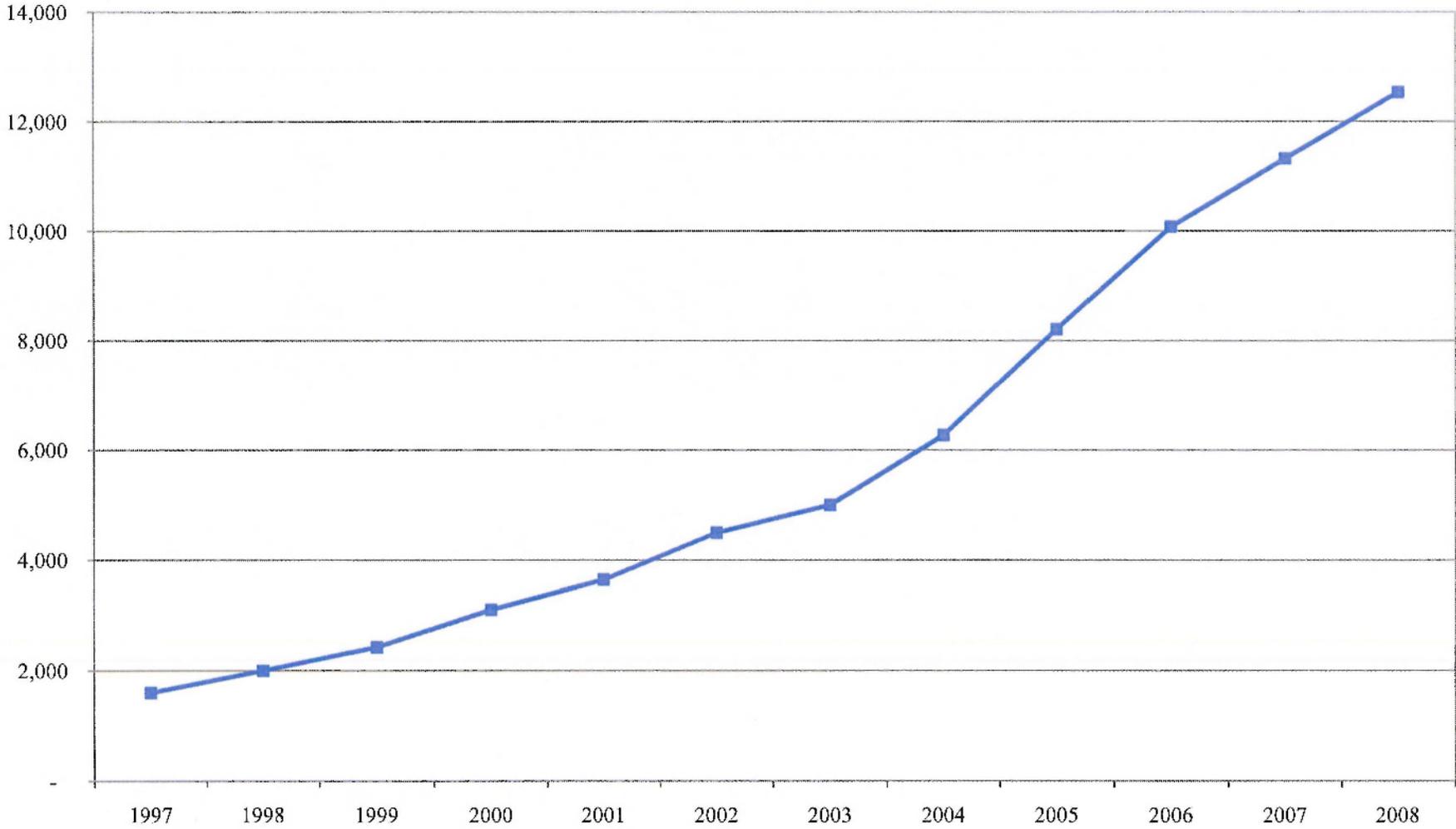
[E] <http://www.bls.gov/data/> (Industry: Electronic computer manufacturing), last accessed October 8, 2010.

[F], [1] = 100

[F], [2] = [E], [2] / [E], [1] \* [F], [1]

# Exhibit 4

**Exhibit 4**  
**PIN Based POS Transactions Volume**  
**1997 - 2008**  
**(in millions)**



Source: See Exhibit 4-A

—■ PIN Based POS Transactions Volume

**Exhibit 4-A**  
**PIN POS Debit Networks Volume**  
**1997 - 2008**  
**(millions)**

**PIN Based POS**  
**Transactions Volume**

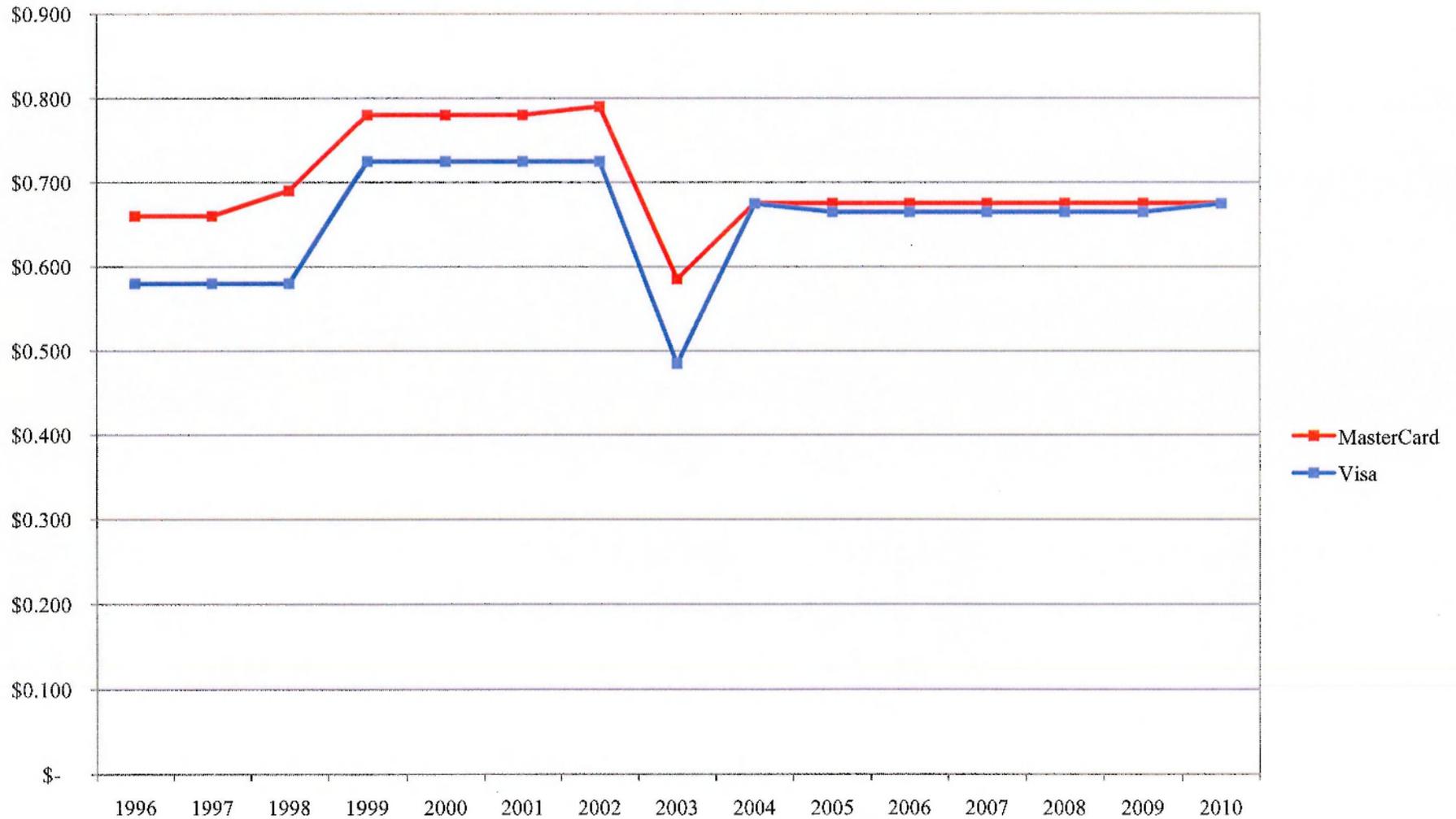
<b>1997</b>	1,600
<b>1998</b>	2,000
<b>1999</b>	2,428
<b>2000</b>	3,107
<b>2001</b>	3,648
<b>2002</b>	4,500
<b>2003</b>	5,006
<b>2004</b>	6,274
<b>2005</b>	8,210
<b>2006</b>	10,082
<b>2007</b>	11,327
<b>2008</b>	12,540

**Source:**

2009 EFT Data Book, V. 9, #45, pg. 5, October  
23, 2008

# Exhibit 5

**Exhibit 5  
Signature Debit  
Dollars per Transaction  
1996 - 2010**



**Source:** See Exhibits 5-A and 5-A.1

**Note:** Visa and MasterCard lowered their signature debit interchange rates in August 2003 as part of the settlements in the *Wal-Mart* class action. See Exhibit 5-A for more information.

**Exhibit 5-A**  
**Visa and MasterCard**  
**Signature Debit Rates - Dollars per Transaction**  
**Based on a \$50 Transaction**  
**1996 - 2010**

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
	[A]	[B]	[B]	[B]	[B]										
<b>MasterCard</b>	\$ 0.660	\$ 0.660	\$ 0.690	\$ 0.780	\$ 0.780	\$ 0.780	\$ 0.790	\$ 0.585	\$ 0.675	\$ 0.675	\$ 0.675	\$ 0.675	\$ 0.675	\$ 0.675	\$ 0.675
<b>Visa</b>	\$ 0.580	\$ 0.580	\$ 0.580	\$ 0.725	\$ 0.725	\$ 0.725	\$ 0.725	\$ 0.485	\$ 0.675	\$ 0.665	\$ 0.665	\$ 0.665	\$ 0.665	\$ 0.665	\$ 0.675

**Note:**

In August 2003, MasterCard and Visa settled the *Wal-Mart* class action, under which both networks agreed to lower their interchange rates on signature debit by 48 basis points and 46.7 basis points, respectively ([http://www.greensheet.com/gs\\_archive.php?issue\\_number=030601&story=10](http://www.greensheet.com/gs_archive.php?issue_number=030601&story=10), last accessed October 12, 2010). These restrictions ended on January 1, 2004 ("A Guide to the ATM and Debit Card Industry", p. 13).

**Sources:**

[A] Data received from Dr. Fumiko Hayashi, Federal Reserve Bank of Kansas City, on June 22, 2009 - IF Trends 2.xlsx, tab 'IF Retail'

[B] Exhibit 5-A.1, Visa and MasterCard, Signature Debit Rates, 2010

**Exhibit 5-A.1  
Visa and MasterCard  
Signature Debit Rates  
2010**

**MasterCard**

Transaction Amount	\$	50.00	[1]
Fixed	\$	0.15	[2]
Variable		1.05%	[3]
Cents per Transaction	\$	0.675	[4]

**Visa**

Transaction Amount	\$	50.00	[5]
Fixed	\$	0.20	[6]
Variable		0.95%	[7]
Cents per Transaction	\$	0.675	[8]

**Notes:**

Based on a comparison of the description used in "A Guide to the ATM and Debit Card Industry" and the rates from previous years listed in the same document, the rates used to represent Visa and MasterCard's signature debit rates are the "CPS/Retail Debit - All Other" and "Consumer Debit, Merit 3 - Base" categories, respectively.

**Sources:**

[1], [5] Based on amount used in Hayashi, Fumiko, Sullivan, Richard J., & Stuart E. Weiner. A Guide to the ATM and Debit Card Industry 2006 Update, [2], [3] MasterCard U.S. and Interregional Interchange Rate Programs, effective April 2010 ([http://www.mastercard.com/us/merchant/pdf/MasterCard\\_Interchange\\_Rates\\_and\\_Criteria.pdf](http://www.mastercard.com/us/merchant/pdf/MasterCard_Interchange_Rates_and_Criteria.pdf), last accessed October 12, 2010), p. 76  
[4] = [1] \* [3] + [2]  
[6], [7] Visa U.S.A. Interchange Reimbursement Fees, effective April 2010 (<http://usa.visa.com/download/merchants/april-2010-visa-usa-interchange-rate-sheet.pdf>, last accessed October 12, 2010)  
[8] = [5] \* [7] + [6]