

The Role of Interchange Fees on Debit and Credit Card Transactions in the Payments System

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When consumers use debit or credit cards to make purchases, merchants are assessed fees for processing the transactions, the largest of which is called an “interchange” fee. Rising interchange fees, along with the growing dominance of card transactions in the payments system, have brought increasing scrutiny from regulators on the appropriate level of interchange fees and the competitive aspects of card networks. A look at the trends, mechanics, and economic role of interchange fees indicates that the issue is more complicated than it may initially appear.

Each time a consumer makes a purchase using a credit or debit card, the merchant is assessed fees associated with processing the transaction. The largest of those fees is the “interchange” fee, which is set by the card network that processes the transaction and is ultimately paid to the bank that issued the card. The amount of that fee varies by transaction type, among other variables. The average interchange fee for debit transactions was about 44 cents per transaction, or 1.14 percent of the transaction amount, in 2009, according to a 2010 Federal Reserve Board survey.¹ By comparison, interchange fees for credit transactions may range from 1.5 percent to 2 percent of the transaction value, according to a separate 2009 study by Federal Reserve economists Prager et al.² According to this paper, the amount of interchange fees assessed by Visa and MasterCard for debit and credit card transactions ranged between \$35 billion and \$45 billion in 2007, perhaps double the level of 2002.

The total value of interchange fees has increased in recent years due largely to the growth of card payments and increasing interchange fee rates. This has led to a growing discussion within the retail payments community and among regulators about the administration of interchange fees. Some commentators argue that interchange fees paid by merchants are exorbitant, while others point to the potential economic benefits of interchange fees.

Most recently, the Dodd-Frank financial regulatory reform law, passed in July 2010, included regulatory actions related to interchange fees. This component, commonly referred to as the Durbin Amendment, provides the Federal Reserve Board with regulatory authority over debit interchange fees and certain other aspects of debit card payment networks. With respect to interchange fees, the scope of the Durbin Amendment is limited to debit cards (as well as certain types of prepaid cards), but there are

many commonalities between debit and credit card payments, as discussed below.

While remaining agnostic on the outcome of the Durbin Amendment and resultant rulemakings, this Economic Brief provides an overview of the mechanics, market structure, and economics of interchange fees.

The Background and Mechanics of Interchange Fees

This essay focuses on three main types of payment card transactions used by consumers: signature debit, PIN debit, and credit transactions. In both types of debit card transactions, the payment to the merchant is funded by the consumer's checking account. The difference, as the names imply, is that authentication of the transaction is performed by either a signature or a personal identification number (PIN) entered at the point-of-sale (POS). Additionally, signature debit typically offers greater consumer protection with respect to fraudulent transactions. In either type of debit transaction, payment is withdrawn from the cardholder's checking account within a few business days. With credit card transactions, the customer's signature serves as authorization, and payment is made to the merchant based on the cardholder's credit availability, with the card-issuing bank assuming some degree of risk for non-payment.

The first closed-loop charge card—a card that can be used only at specific merchants and requires full payment at the end of each month—was issued by Diners Club in 1950. Later that decade, Bank of America began issuing to its California customers a revolving balance credit card, a card that allows users to carry a balance at the end of a statement period. In the mid-1960s, Bank of America began to allow other banks to license its credit card to expand the card's availability to more consumers and to reach retailers outside the bank's geographic area. This arrangement ultimately led to the formation of the Visa "network." Early versions of what are now American Express, MasterCard, and Discover emerged in the 1950s, 1960s, and 1980s, respectively. These four re-

main the primary credit card networks in the United States today, with Visa and MasterCard maintaining the largest market share.

The 1960s saw the advent of automated teller machines (ATMs) and the establishment of local and regional ATM networks. The economics of this expanding network was based on cost reduction (primarily for labor associated with customer checking and savings accounts) rather than on revenue generation as in the credit card model. ATMs offered customers the ability to access their funds after traditional banking center hours by using their ATM cards and PINs.

The debit card concept began in the mid-1980s as banks expanded the functionality of the ATM card to serve as a payment guarantee at the POS, and therefore as an effective substitute for the paper check. Initially these cards were issued only to priority customers with extended histories and high account balances since transaction amounts were not immediately debited from the cardholders' bank accounts. The existing ATM network infrastructure was leveraged to support national PIN debit card transaction networks. These networks were expanded as more merchants installed the POS technology needed to read the ATM card's magnetic strip and accept the consumer's PIN.

In the 1990s, Visa and MasterCard partnered with numerous banks to issue branded signature debit cards. By leveraging their existing credit card networks to clear signature debit transactions, and by acquiring PIN debit networks, Visa and MasterCard now process both signature and PIN debit transactions. According to a Nilson Report, based on debit and credit card purchase volume in 2010, Visa maintained about 57 percent of the market, followed by MasterCard at 25 percent, American Express at 15 percent, and Discover at 3 percent. In other words, all credit and signature debit card transactions are routed through one of the four major card networks. PIN debit transactions are routed through regional or national electronic funds transfer networks such as Star, Pulse, Interlink, or Maestro. The latter two are owned by Visa and MasterCard, respectively.

For the majority of card transactions—those involving the Visa, MasterCard, and, in some cases, Discover networks—four parties are involved: the consumer and the merchant, as well as the bank that issued the credit card (the “issuer”) and the merchant’s bank (the “acquirer”). The latter is an institution that provides card payment processing services, for which it charges the merchant.³

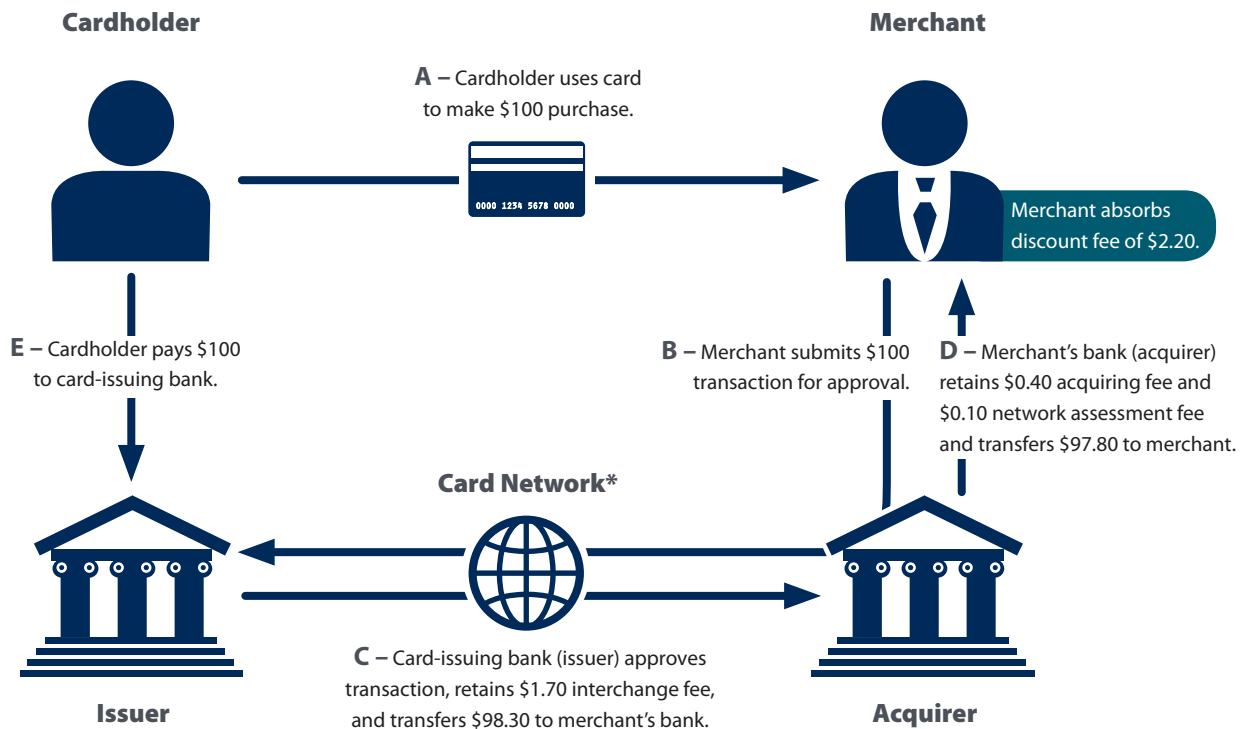
Figure 1 depicts the exchange of funds in a typical four-party card transaction.⁴ The figure depicts only the directional flow, not the timing, of the exchange of funds and fees among the parties. Merchants pay what is known as a merchant discount fee, which includes the interchange fee paid to the card-issuing bank, the network assessment fee paid to the card network, and the acquiring fee paid to the acquirer. While the merchant discount rate is composed of three separate fees, the interchange fee is the largest component. Logistically, while authorization of

transactions (based on the availability of funds or credit for debit and credit purchases, respectively) occurs in real time, financial settlement takes place within one or two days of the transaction date.⁵ For simplicity, Figure 1 represents one transaction. When a cardholder makes a purchase, the merchant submits the transaction to the acquirer, usually daily. The acquirer sends the transaction to the issuer for payment through the card network. The issuer subtracts the interchange fee and submits the net amount to the acquirer through the card network. The acquirer then pays the merchant the net of the transaction amount less the interchange fee. While the network assessment fee and acquiring fee are per-transaction fees, both are generally billed by the acquirer to the merchant on a monthly basis.

The Economics of Interchange Fees

The demand for card payment services is often described as a “two-sided” market: a payment card

Figure 1: Typical Card Transaction



Note: Fees in this example are typical but not average. Dollar amounts, except network assessment fee, are from a similar flow chart in “Rising Interchange Fees Have Increased Costs for Merchants, but Options for Reducing Fees Pose Challenges,” a Government Accountability Office report from November 2009.

* The card network assesses additional fees on the issuer and merchant.

has value only if both the consumer and merchant agree to use it. The provider of card payment services acts as a matchmaker between them.⁶

A potential problem with a two-sided market is that an inefficiently low number of transactions may take place. A transaction will occur only if each party involved benefits directly from it. However, a transaction may entail negative benefits for one or more parties even while yielding a net benefit to society, which would prevent a welfare-enhancing transaction from taking place.

A useful example is provided in Prager et al. Suppose the merchant experiences a benefit of \$2.25 for a card payment transaction while incurring costs of \$0.25, for a net benefit of \$2. Suppose also that the issuer and acquirer each experience a production cost of \$0.50 for the transaction. Assuming they do not derive any direct benefits from the transaction, they each experience a negative benefit. Finally, suppose the consumer's benefit is \$0.50 but the cost is \$0.75, for a net benefit of -\$0.25. The aggregate surplus for this transaction is a positive value of \$0.75, so the transaction would be efficient (that is, welfare enhancing). Yet only the merchant would be willing to participate.

A transfer of \$1.50 from the merchant divided among the other parties would guarantee the transaction would take place by producing a net benefit for each participant. Thus, interchange fees can serve as a way to transfer benefit between parties so economically efficient transactions take place.

Card transactions also create "network externalities," that is, when a good or service's value increases with greater usage. Card payments become more valuable to society when more merchants accept them and more consumers hold cards, yet each individual merchant and consumer considers only his own direct benefit when deciding to participate. This, too, may lead to an inefficiently low number of transactions taking place. In cases when there are positive externalities, economic theory indicates that subsidies can be used to align private and social costs and benefits. In theory, an efficient interchange fee can

induce the socially optimal number of payment card transactions. In practice, however, it is difficult to identify the socially optimal level of interchange fees. There are many types of card transactions, demand curves for card transactions are unobservable, and precise cost data for acquirers, issuers, merchants, and consumers are elusive. Prager et al. state some basic properties of socially optimal interchange fees: First, an efficient fee is not solely related to the cost of producing a card-based transaction, nor is it zero. Second, an efficient interchange fee may subsidize one side of the market at the expense of the other, even producing a negative price for one side of the market. For example, the revenues from interchange fees often are used to provide rewards programs to consumers.

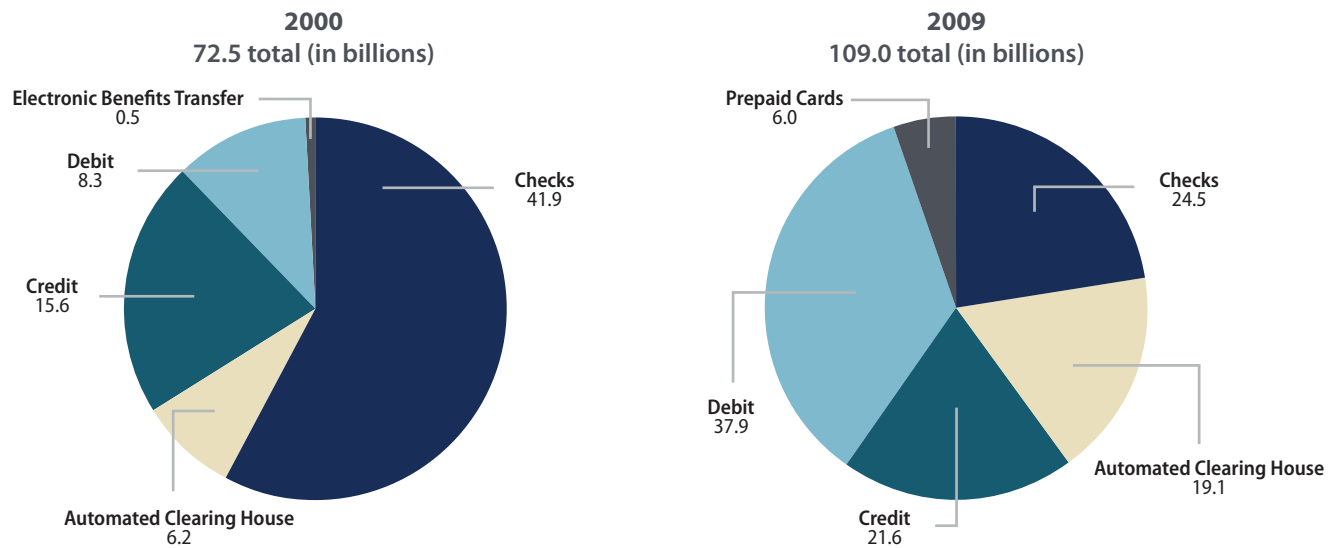
This economic rationale for interchange fees was presented by the networks when a 1979 court case, *National Bancard Corp. v. Visa U.S.A., Inc.*, questioned the fees' legitimacy; the use of fees was upheld in that case in 1984. Still, challengers have argued in subsequent, pending court cases that networks have exploited their collective monopoly power by charging unduly high interchange fees.

Interchange Trends in Recent Years

The trend toward card payments and away from checks has contributed to growing interchange fee revenue over time. This trend exists despite the fact that checks, too, have become substantially more electronic. (Nearly all checks are cleared electronically.) Data for noncash payments in 2000 and 2009, provided by the Federal Reserve's triennial payments studies, are shown in Figure 2.⁷

Electronic payments constituted more than three-quarters of all noncash transactions in 2009. Debit card payments, in particular, have grown more than any other form of noncash payment during the past decade, increasing from about 8 billion payments in 2000 to nearly 38 billion payments in 2009. Between 2006 and 2009, debit cards surpassed checks as the most popular form of noncash payment by consumers, with credit cards closely behind checks. Debit cards are accepted at 8 million merchant locations in the United States.

Figure 2: Number of Noncash Transactions in the United States



Sources: Federal Reserve System payments studies published in 2004 and 2010. The prepaid cards category did not exist when the 2000 data were published in the 2004 study. The electronic benefits transfer category was included in the prepaid cards category in the 2009 data published in 2010. Data for 2000 combine offline debit and online debit transactions into a single “debit” category. That distinction was not made in the 2009 data.

Though today some networks publish their interchange fee schedules, data on interchange fees have been kept private historically, so it is difficult to measure precisely how much they have increased over time. However, a 2009 study by the Government Accountability Office (GAO) provided an estimate of credit card interchange fee changes for Visa and MasterCard from 1991 to 2009.⁸ See Table 1.

In addition, interchange fee schedules have become more complex. From the consumer’s perspective, generally there are no up-front costs associated with the different payment types, though there are a few obvious functional differences when using signature

debit, PIN debit, or credit.⁹ For merchants, however, beyond the fixed costs, such as terminal purchases, the costs associated with acceptance of different payment types can vary considerably. Interchange fees can be variable based on a flat per-transaction fee, a percentage of the transaction amount, or a combination of the two. Interchange fees also can differ by the type of transaction (signature debit, PIN debit, or credit), merchant type, merchant sales volume, and credit card program (for example, rewards or premium programs versus “basic” cards). Additionally, some of the largest merchants are able to negotiate their fees directly with card networks. The GAO reports that Visa and MasterCard each had

Table 1: Changes in Visa and MasterCard Domestic Credit Card Interchange Fee Rates

	Visa	MasterCard
Range of interchange rates in 1991	1.25% to 1.91%	1.3% to 2.08%
Range of interchange rates in 2009	0.95% to 2.95%	0.9% to 3.25%
Percentage of rates that increased	43%	45%
Percentage of rates that stayed the same	45%	45%
Percentage of rates that decreased	12%	10%

Source: “Rising Interchange Fees Have Increased Costs for Merchants, but Options for Reducing Fees Pose Challenges.” Government Accountability Office report from November 2009.

four standard domestic credit card interchange fee rate categories in 1991. By 2009, Visa had 60 different categories and MasterCard had 243.

Even though the merchant's acquirer pays the interchange fees and issuers receive the proceeds, fee schedules are set by the card networks. Networks also set operating rules that apply to issuers and acquirers, and merchants are required to comply or risk losing access to that network. For example, merchants historically have been held to "honor-all-cards" rules, which state that a merchant who accepts, for example, one type of Visa signature debit card may not refuse to accept other types of Visa signature debit cards. That is, merchants cannot discriminate based on the issuing bank or different types of card rewards programs, even though interchange fees may vary by these criteria. Networks reportedly have restricted merchants from using incentives to "steer" customers toward less expensive payment methods. As a result, merchants generally do not price differentiate based on the payment type a consumer elects to use; the effect on the merchant could be differing revenues for the same good or service.

In 2008 the Department of Justice (DOJ) began investigating the anti-steering policies of Visa, MasterCard, and American Express with respect to credit cards. The DOJ announced a settlement in October 2010 with Visa and MasterCard in which those networks agreed, among other things, to allow merchants to express a preference for or provide an immediate incentive to use a particular credit card network, low-cost card within that network, or other form of payment.¹⁰ At that time the DOJ did not reach a settlement with American Express, and Discover was not subject to the lawsuit.

The Durbin Amendment

The "Debit Interchange and Routing" provisions of the Dodd-Frank legislation require the Federal Reserve Board to establish standards for determining whether a debit card interchange fee received by a card issuer is "reasonable and proportional" to the cost incurred by the issuer for the transaction. The standards would apply to issuers that, together with their

affiliates, have assets of \$10 billion or more, with certain types of cards exempted.

In addition to rules regarding restrictions on debit interchange fees, the Board is required to prescribe rules to give merchants more network options for routing debit card transactions. First, the Board must prescribe rules that prohibit issuers and payment card networks from restricting the number of networks on which an electronic debit transaction may be processed to one such network, or two or more affiliated networks. Second, the Board must prescribe rules prohibiting issuers and networks from inhibiting the ability of any merchant who accepts debit cards from directing the routing of electronic debit transactions over any network that may process such transactions.

The Board submitted a corresponding rule proposal for public comment on December 16, 2010. Two alternative interchange fee standards were proposed: one with an issuer-specific component, with a safe harbor (initially set at 7 cents per transaction) and a cap (initially set at 12 cents per transaction); and the other a stand-alone cap (initially set at 12 cents per transaction).¹¹ The safe harbor would allow networks to set interchange fees up to that amount even if actual processing costs were lower. The Board stated that the maximum allowable interchange fee under both options would be more than 70 percent lower than the 2009 average interchange fee of 44 cents per debit transaction. Under both alternatives, networks would be unable to circumvent or evade the interchange fee regulation by providing net compensation to an issuer.

In response to the Durbin Amendment, one issuer has taken legal action against the Federal Reserve Board, primarily arguing that the regulation establishes an uneven playing field between small and large banks and inhibits the ability of issuers to fully recover their costs and realize a reasonable return on their debit card program investments.

Several other nations have taken action to influence or limit interchange fees through agreements with competition authorities and central banks, but

Australia was the first to use a regulatory, cost-based approach resulting in explicit caps on interchange fees. These reforms were undertaken after a government study indicated that price signals appeared distorted and could be improved if interchange fees were more reflective of cost and if restrictions on the ability of merchants to surcharge based on the form of payment were lifted. The rationale cited was that better price signals would lead to better consumer choices, resulting in a more efficient payments system. In 2003 the Reserve Bank of Australia (RBA) required Visa and MasterCard to reduce their credit card interchange fees and lift the no-surcharge and honor-all-card requirements on merchants. The result was a decline in the average credit card interchange fee from 0.95 percent to 0.50 percent of the transaction. Measurable outcomes of these actions are a reduction in merchant costs for card acceptance with a corresponding increase in surcharge revenue, reduced cardholder rewards, and higher credit card fees. The net effect on retail prices continues to be debated.

Currently the debit card environment in Australia is much different than in the United States. First, in 2006 the RBA capped signature debit interchange fees at \$0.12 AUD. Second, the flow of PIN debit card interchange fees is the reverse of the United States, meaning that the card-issuing bank pays the acquiring bank interchange fees. The interchange fees on Australia's national PIN debit network (EFTPOS) are currently \$0.05 AUD per transaction. Merchants are not required to use the EFTPOS network, but those who do must accept any debit card issued by an Australian bank. EFTPOS recently announced a major change in the flow of debit interchange fees: effective October 1, 2011, acquirers will begin paying issuers, reversing the historical direction. Interchange fees will remain at \$0.05 AUD per transaction, subject to a \$0.12 AUD cap for purchases of \$15 or more that do not involve cash back at the POS, and zero for transactions less than \$15 AUD.¹²

Conclusion

The issue of interchange fees is more complicated than it may seem at first glance. There are many subtleties relating to fee schedules, competitive

considerations, and market structures of issuers, networks, and merchants. These complexities are compounded by the historical lack of transparency of the methodology used by card networks to determine interchange fees. The Federal Reserve Board received more than 11,000 comments on its December 2010 rule proposal, Federal Reserve Chairman Ben Bernanke told Congress in March 2011. Because of the volume of comments and the complexity of the issue, he said, the Federal Reserve did not meet its deadline of April 21, 2011, for a final rule concerning interchange fees.

Card payments and interchange fees are complex and nuanced, and those complexities and nuances run deep. A brief summary like this is only an introduction. Readers who want to learn more should refer to the references provided. ■

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Endnotes

- ¹ For additional detail, refer to the Board's December 16, 2010, rule proposal concerning interchange fees at <http://www.federalreserve.gov/newsevents/press/bcreg/20101216a.htm>.
- ² See Prager et al. "Interchange Fees and Payment Card Networks: Economics, Industry Developments, and Policy Issues," Federal Reserve Board of Governors Finance and Economics Discussion Series, no. 2009-23, May 13, 2009.
- ³ For transactions using networks by American Express and sometimes Discover, the network itself acts as both issuer and acquirer, so typically just three parties are involved. However, both American Express and Discover have expanded their card programs in recent years, so there are some exceptions.
- ⁴ In a three-party system the network acts as both issuer and acquirer, so there is no explicit interchange fee. Merchants are assessed a fee directly by the network.
- ⁵ Typically, the merchant submits a batch of card transactions, usually daily, to its acquirer. The acquirer sends the batch through the card network to card-issuing banks for payment. Card-issuing banks deduct their interchange fees from the transaction amounts and submit the net amounts back to the acquiring bank through the card network. The acquiring bank

then pays the merchant the net of the transaction amounts less the interchange fees.

⁶ There are many examples of two-sided networks with heterogeneous demanders: newspapers (readers and advertisers), video game platforms (gamers and developers) and travel reservation systems (travelers and hotels or airlines), for example.

⁷ See “The 2010 Federal Reserve Payments Study: Noncash Payment Trends in the United States: 2006–2009.” Federal Reserve System, updated April 5, 2011, and analogous report from 2000–2003, published December 15, 2004.

⁸ See “Rising Interchange Fees Have Increased Costs for Merchants, but Options for Reducing Fees Pose Challenges.” Government Accountability Office Report to Congressional Addresses, November 2009.

⁹ An example of a functional difference is settlement time. For PIN debit transactions, the amount is often withdrawn from the consumer’s account immediately. Signature debit transactions often entail a hold on the consumer’s account, with the full amount posted and withdrawn from the consumer’s account after roughly one day. Credit card transactions also are settled after roughly one day. Another example is that based on the type of credit card issued the consumer may be required to pay off the entire credit card balance at the end of the billing cycle (in effect receiving an interest free loan for purchases made during that billing cycle) or in the case of a revolving balance credit card, the consumer is allowed to carry a balance and is charged interest on the balance.

¹⁰ For additional information see, the Department of Justice’s October 4, 2010, press release regarding the settlement at <http://www.justice.gov/opa/pr/2010/October/10-at-1115.html>.

¹¹ For additional detail, see the Board’s rule proposal cited in endnote 1 above.

¹² See March 8, 2011, press release by EFTPOS Payments Australia Limited at http://www.eftpospayments.com.au/mediareleases/MEDIA%20RELEASE_EPAL%20announces%20new%20EFT-POS%20fee%20model_08Mar11.pdf

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