

Board of Governors of the Federal Reserve System



2017 Interchange Fee Revenue, Covered Issuer Costs, and Covered Issuer and Merchant Fraud Losses Related to Debit Card Transactions

March 21, 2019

Highlights

Card Use

- In 2017, payment card networks processed 68.5 billion debit and general-use prepaid card transactions valued at \$2.62 trillion in the United States. Dual-message networks, which have traditionally processed mainly signature-authenticated transactions, accounted for 64.9 and 65.1 percent of the total by volume and value, respectively. Single-message networks, which typically process PIN-authenticated transactions, accounted for the rest.
- Total transaction volume grew 5.6 percent from 2016 to 2017, slower than the 7.0 percent growth recorded from 2015 to 2016.
- Compared with dual-message networks, single-message networks experienced faster transaction volume growth. From 2016 to 2017, dual-message and single-message networks experienced growth rates in volume of 4.7 and 7.2 percent, respectively. While dual-message network volume grew faster between 2009 and 2014, for the past three years, single-message network volume growth has surpassed that of dual-message networks.
- Card-not-present transactions accounted for 18.9 percent of transaction volume in 2017, but card-not-present volume grew much faster from 2016 to 2017 than card-present volume, with the card-not-present growth rate of 22.6 percent almost ten times the card-present growth rate of 2.3 percent. As in previous years, the average transaction value of card-not-present transactions, \$62.98 in 2017, was nearly double that of card-present transactions (\$32.47 in 2017).
- Issuers that are exempt from the interchange fee standard in Regulation II continued to experience slightly slower transaction volume growth from 2016 to 2017 than covered issuers, with growth rates of 5.1 percent for exempt issuers and 5.9 percent for covered issuers.
- The growth in the volume of prepaid card transactions from 2016 to 2017 was 11.4 percent, faster than the average annual growth of 9.3 percent over the previous two years.

Interchange Fees, Network Fees, and Incentives

- In 2017, interchange fees across all debit and general-use prepaid cards (exempt and covered) totaled \$20.73 billion, an increase of 5.9 percent since 2016.
- The average interchange fee for covered transactions on both types of networks, in addition to the average interchange fee for exempt transactions on dual-message networks, has not changed materially since Regulation II took effect in the fourth quarter of 2011. These fees stood at \$0.23 and \$0.52, respectively, in 2017. By contrast, the average interchange fee for exempt transactions on single-message networks has been falling gradually since Regulation II took effect, from \$0.31 in the fourth quarter of 2011 to \$0.25 in 2017.
- Network fees totaled \$7.03 billion in 2017. Acquirers paid 63 percent of these fees; issuers paid the rest. In recent years, the percentage paid by acquirers has increased slightly while the percentage paid by issuers has correspondingly decreased.
- The average network fee per transaction was \$0.103 in 2017, which has not changed substantially since 2011.
- Payments and incentives offered by networks grew 4.9 percent since 2016, totaling \$1.61 billion in 2017. Issuers received 58 percent of payments and incentives in 2017; acquirers and merchants received the rest.

Fraud

- Across all debit and general-use prepaid card transactions for covered issuers, fraud losses to all parties as a share of the transaction value were 11.2 basis points, or \$11.20 per \$10,000 in transaction value, up from 10.3 basis points in 2015.
- In 2017, merchants absorbed 53 percent of losses from fraudulent transactions at covered issuers, up from 39 percent in 2015, with issuers absorbing 42 percent, down from 58 percent in 2015.

Issuer Costs

- The average per-transaction authorization, clearing, and settlement (ACS) cost, excluding issuer fraud losses, across issuers covered by the interchange fee standard in Regulation II fell to 3.6 cents in 2017. This is a cumulative decline of 54 percent since data collection began in 2009.
- The base interchange fee standard in Regulation II of 21 cents plus 5 basis points times the value of a transaction exceeded the average per-transaction ACS cost, including issuer fraud losses, for 76.0 percent of covered issuers and 99.7 percent of covered transactions in 2017. This is a substantial increase in the percentage of covered issuers and a slight increase in the percentage of covered transactions compared with 2015.

Background

The Electronic Fund Transfer Act requires the Federal Reserve Board to biennially publish data on costs incurred, and interchange fees charged or received, by debit card issuers and payment card networks.¹ The Board conducted its first data collection in 2010, collecting data from payment card networks and issuers for calendar year 2009. The information from the first data collection assisted the Board in developing Regulation II and was included in a report published in 2011.² Three subsequent reports summarized data collected since the initial data collection. The most recent report, released in 2016, contained information through calendar year 2015.³ The present report is the fifth in the series and contains data through calendar year 2017.

Regulation II establishes an interchange fee standard under which, for an electronic debit transaction, issuers with consolidated assets of \$10 billion or more may not receive or charge an interchange fee greater than 21 cents plus 5 basis points times the value of that transaction.⁴ An issuer that is subject to the standard may be eligible to receive an additional 1 cent adjustment to the interchange fee it charges or receives if the issuer meets certain fraud-prevention standards. Electronic debit transactions made using debit cards issued pursuant to government-administered payment programs and certain reloadable general-use prepaid cards are exempt from the interchange fee standard.⁵

The Board's Data Collection Process

The Board conducts two surveys to collect information about the debit card industry, both of which are mandatory under Regulation II. The Payment Card Network (PCN) survey is conducted every year and surveys payment card networks that process debit card transactions. The Debit Card Issuer (DCI) survey is conducted every two years and surveys issuers that are subject to the interchange fee standard in Regulation II.

The surveys ask respondents to report information on all debit card transactions that they process in a given calendar year. Under Regulation II, debit cards are cards, or other payment codes or devices, that are issued or approved for use through a payment card network to debit a transaction, savings, or other asset account and that can be used at multiple unaffiliated merchants.⁶ The surveys distinguish between general-use prepaid cards and other debit cards. General-use prepaid cards are debit cards that are issued on a prepaid basis for a specified amount, whether or not that amount may be increased or reloaded, in exchange for payment.⁷ Although Regulation II defines prepaid cards to be a subset of debit cards, for ease of exposition, this report uses terminology that distinguishes between prepaid cards and

¹ 15 U.S.C. 1693o-2(a)(3)(B) (2014).

² See 76 Fed. Reg. 43394 (Jul. 20, 2011).

³ The reports, survey instruments, and historical data are available on the Board's public website at www.federalreserve.gov/paymentsystems/regii-data-collections.htm.

⁴ One basis point is equal to one one-hundredth of one percent.

⁵ A reloadable general-use prepaid card must meet certain conditions to be exempt from the interchange fee standard, such as not being marketed or labeled as a gift card or gift certificate.

⁶ The surveys exclude cards that can access only automated teller machine (ATM) networks and cannot be used as a form of payment.

⁷ General-use prepaid cards contrast with private-label prepaid cards, which can be used only at an individual merchant or a group of affiliated merchants. Because Regulation II does not cover cards, including prepaid cards, that can only be used at an individual merchant or a group of affiliated merchants, the surveys do not collect information on such cards.

other debit cards. In particular, the report uses the term “debit cards” to mean cards excluding prepaid cards. It further uses the term “prepaid cards” to mean general-use prepaid cards that are covered by the definition of debit card in Regulation II.

The surveys also distinguish between dual-message and single-message networks. A dual-message network typically uses separate messages to authorize and clear a transaction. Traditionally, these networks have processed signature-authenticated transactions. Increasingly, however, some transactions over these networks may not require signature authentication or may involve other methods of cardholder authentication, such as entry of a personal identification number (PIN) or biometric authentication. A single-message network typically uses a single message to authorize and clear a transaction. These networks normally process PIN-authenticated transactions, although increasingly some transactions, such as small-value purchases, may not require PIN authentication. The distinction between single-message and dual-message networks continues to become less clear from a functional perspective over time, as methods of cardholder authentication change and both types of networks develop new functionalities.⁸ This report continues to categorize networks as single-message or dual-message because this categorization serves to distinguish networks into groupings that are widely used by the industry.

Payment Card Network Survey

The Board conducted the most-recent PCN surveys in early 2017 and 2018, collecting data for calendar years 2016 and 2017, respectively. All 13 card networks that processed debit card transactions in 2016 and 2017 completed the survey for each of those years.⁹ In addition to using data from these latest PCN surveys for this report, the Board used the data to calculate the information it published in mid-2017 and mid-2018 on the average interchange fees received by issuers across different networks.¹⁰

As in previous years, the PCN surveys for calendar years 2016 and 2017 asked respondents to report information separately for issuers covered by the interchange fee standard (covered issuers) and issuers exempt from the interchange fee standard (exempt issuers). They further asked respondents to distinguish between prepaid card transactions that were covered by or exempt from the interchange fee standard. Since the collection of data for calendar year 2013, the PCN surveys have asked respondents to distinguish exempt prepaid transactions initiated with cards issued by exempt issuers from those initiated with cards issued by covered issuers. This distinction allows transactions reported in the PCN surveys to be categorized as either exempt or covered.¹¹

⁸ For example, in some instances, a dual-message network may use a single message to authorize and clear a given transaction. Similarly, in some instances, a network that typically uses single messages to authorize and clear transactions may use separate messages to authorize and clear a given transaction.

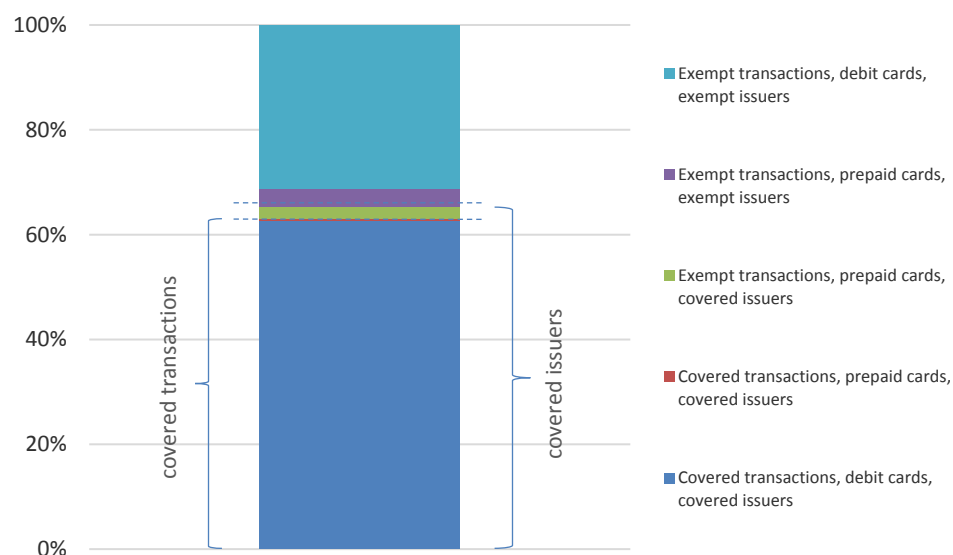
⁹ The survey instructed network companies that had both dual-message and single-message networks to provide separate responses for each network. Similarly, if a network company processed both single-message and dual-message transactions over a single network, the survey instructed the network company to provide separate responses for each type of transaction performed over the network. Based on these reporting conventions, there were 18 total responses to the PCN survey for calendar year 2017.

¹⁰ Information on average interchange fees is available on the Board’s website at www.federalreserve.gov/paymentsystems/regii-average-interchange-fee.htm.

¹¹ In data collections before 2013, it was only possible to distinguish between covered and exempt issuers; that is, transactions initiated with cards issued by issuers who were covered by the interchange fee standard versus transactions initiated with cards issued by issuers who were exempt from the standard. However, some transactions initiated with cards issued by issuers who are covered by the standard may actually be exempt, if the card is an exempt prepaid card.

As exhibit 1 illustrates, the difference between the transaction volume of covered issuers, which includes transactions initiated with exempt prepaid cards issued by covered issuers, and the volume of covered transactions, which excludes those transactions, was less than 3 percent of total transaction volume in 2017, as has been the case in previous data collections. Depending on the context, this report alternatively decomposes the data by transaction status under Regulation II (that is, exempt versus covered transactions) or by issuer status (that is, exempt versus covered issuers).

Exhibit 1: Composition of transaction volume in 2017



Debit Card Issuer Survey

The Board conducted the latest DCI survey in 2018, asking covered issuers to report data for calendar year 2017. As in previous data collections, respondents ranged from the largest debit card issuers in the country to issuers with sizable assets but very small debit card programs.¹² The DCI survey asked for information related to the volume and value of debit and prepaid card transactions; authorization, clearing, and settlement costs as well as other costs associated with a particular debit card transaction; the incidence of and losses related to debit and prepaid card fraud; fraud-prevention and data security costs; and interchange fee revenue. The DCI survey instructed respondents to provide the requested

¹² The Board distributed surveys to holding companies of covered financial institutions. These financial institutions included bank and thrift holding companies with consolidated assets of at least \$10 billion; independent commercial banks, thrifts, and credit unions with assets of at least \$10 billion; and U.S. branches and agencies of foreign banking organizations with worldwide assets of at least \$10 billion. Assets were computed using the Consolidated Financial Statements for Bank Holding Companies (FR Y-9C; OMB No. 7100-0128), the Consolidated Reports of Condition and Income (Call Reports) for independent commercial banks (FFIEC 031 & 041; OMB No. 7100-0036) and for U.S. branches and agencies of foreign banks (FFIEC 002; OMB No. 7100-0032), the Thrift Financial Reports (OTS 1313; OMB No. 1550-0023) for thrift holding companies and thrift institutions, and the Credit Union Reports of Condition and Income (NCUA 5300/5300S; OMB No. 3133-0004) for credit unions. The ownership structure of banking organizations was established using the Federal Financial Institutions Examination Council's National Information Center structure database. Participation was mandatory for institutions that had debit card programs in 2017. Institutions that indicated that they did not have a debit card program in 2017 were not required to complete a survey. These institutions were typically either foreign banking organizations or other financial institutions with large nonbank affiliates that do not provide retail banking services.

information separately for debit card transactions processed over dual-message networks, debit card transactions processed over single-message networks, and prepaid card transactions for issuers with prepaid card programs.¹³

A total of 115 covered issuers responded to the 2017 DCI survey, compared with 129 respondents in 2015. This change reflects a number of factors, including mergers and acquisitions involving covered debit card issuers, the reported cessation of debit card activity by certain issuers with small debit card programs, and changes in covered issuers' reporting practices.¹⁴

Exhibit 2: Composition of covered issuers and transaction volume/value of covered issuers in 2017

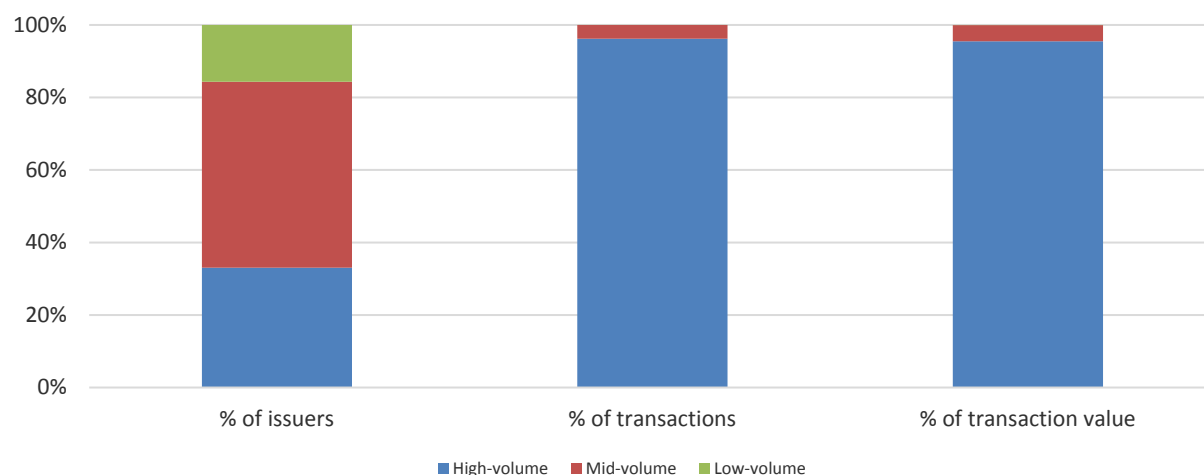


Exhibit 2 illustrates the composition of responses: 33 percent of the respondents processed more than 100 million debit card transactions in 2017 (high-volume issuers), while 16 percent processed fewer than 1 million debit card transactions in 2017 (low-volume issuers). The remaining 51 percent of respondents processed between 1 million and 100 million transactions in 2017 (mid-volume issuers). Compared with previous data collections, the respondents comprised a greater percentage of high-volume issuers and a lower percentage of low-volume issuers. In particular, relative to 2015, three more issuers were classified as high-volume, reflecting general increases in transaction volumes that caused some issuers to shift from the mid-volume category to the high-volume category. At the same time, compared with 2015, six fewer issuers were classified as mid-volume, and eleven fewer issuers were classified as low-volume, reflecting the previous low-volume respondents who reported that they no longer had debit card programs in 2017. As in previous data collections, high-volume issuers accounted for the vast majority of transaction volume and value. In 2017, high-volume issuers accounted for 96.21 percent of transaction volume, mid-volume issuers accounted for 3.78 percent of transaction volume, and low-volume issuers accounted for 0.01 percent of transaction volume.

¹³ Unlike the PCN survey, the DCI survey does not distinguish between general-use prepaid cards that were covered by the interchange fee standard and those that were exempt.

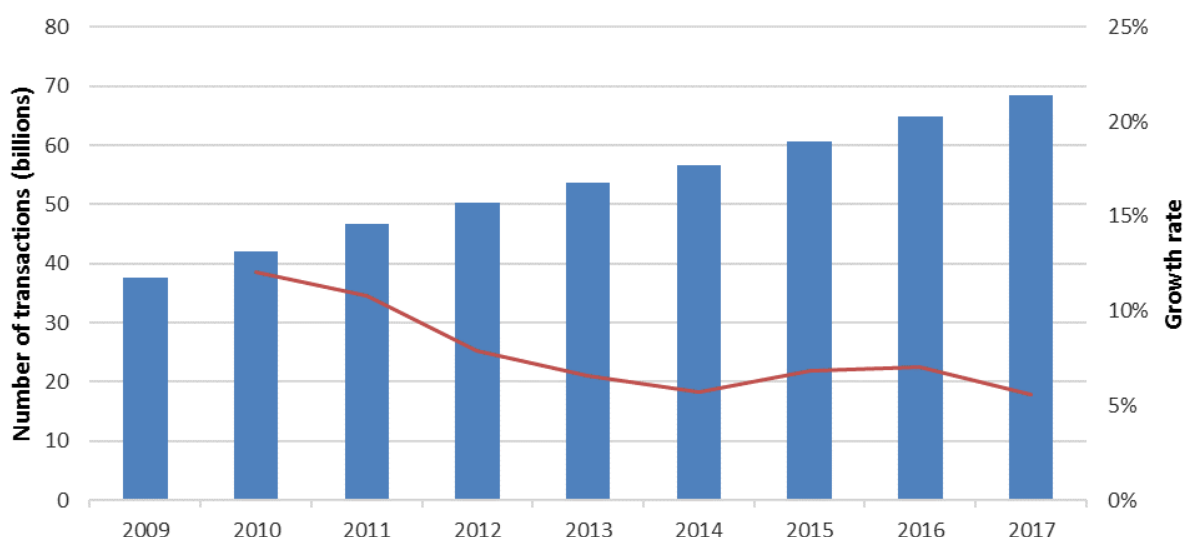
¹⁴ The Board allows affiliated depository institutions to submit separate or combined responses to the DCI survey. When affiliated depository institutions file separate surveys, this report treats those surveys as distinct responses. As a result, combined reporting for depository institutions that previously reported separately alters the number of responses for this report.

Discussion

Card Use

The PCN surveys have provided information about total card usage on a yearly basis since 2009.¹⁵ For the past eight years, the volume of total card usage has grown steadily from 37.6 billion transactions in 2009 to 68.5 billion transactions in 2017, with an average growth of 3.86 billion transactions per year (see exhibit 3). The total value of purchase transactions also exhibited growth, increasing from \$1.43 trillion in 2009 to \$2.62 trillion in 2017, with average growth of \$0.15 trillion per year.¹⁶

Exhibit 3: Volume and growth rate of purchase transactions over time



NOTE: The left vertical axis is associated with the bars representing the volume of transactions in each year. The right vertical axis is associated with the line that represents the growth in volume of transactions since the previous year. The number of transactions in 2010 is an interpolation from 2009 and 2011 values because survey data were not collected for 2010.

A small fraction of purchase transactions resulted in chargebacks and returns.¹⁷ In 2017, chargebacks were 0.03 percent of transactions, and returns about 0.80 percent of transactions. Together,

¹⁵ Both the PCN survey and the DCI survey ask respondents for data pertaining to the number and value of settled purchase transactions on debit cards. Settled purchase transactions include transactions that are later charged back or returned and exclude ATM transactions, funds loads to card accounts for prepaid cards, and any card activity in which value was not transferred between a cardholder and a merchant, such as denials, errors, or authorizations that did not clear or were not presented for settlement. A comparison of data from the two surveys suggests a high level of consistency across network and issuer responses. Because the DCI survey only includes covered issuers, the figures in this section come from PCN survey data.

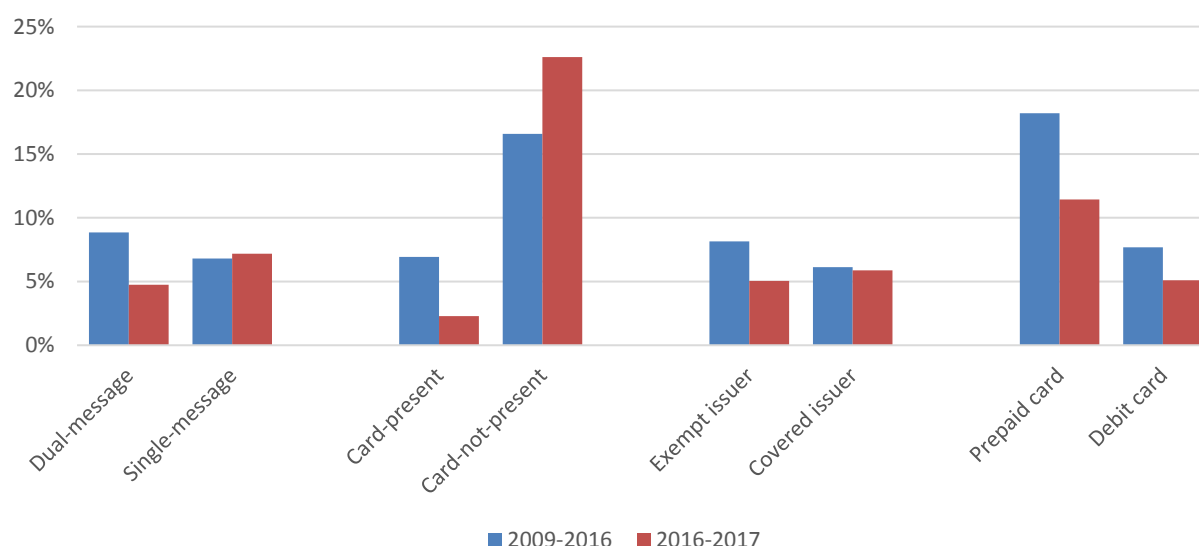
¹⁶ In a recent release, the Federal Reserve Payments Study reported higher total and growth rates in the number and value of debit card payments than reported here for 2017. The reported totals differ because that study covers a broader set of payments, including three-party network transactions not covered by Regulation II. That study also reports totals as “net, authorized and settled transactions,” which not only include net purchase transactions as defined in this report, but also include chargebacks, returns and adjustments, and cash back amounts. See “Federal Reserve Payments Study: 2018 Annual Supplement,” available at <https://www.federalreserve.gov/newsevents/pressreleases/files/2018-payment-systems-study-annual-supplement-20181220.pdf>.

¹⁷ In a purchase transaction, value is transferred from the cardholder to the merchant in exchange for goods or services. In a chargeback transaction, the issuer reverses a purchase transaction (because of, for example, customer disputes, fraud,

chargebacks and returns totaled 0.57 billion transactions (\$0.03 trillion in value); purchase transactions net of chargebacks and returns totaled 67.9 billion transactions (\$2.59 trillion in value).

Exhibit 4 examines growth rates in transactions by category from 2016 to 2017 (in red) compared with those from 2009 to 2016 (in blue). The average annual growth rate in the volume of transactions processed over dual-message networks has fallen considerably from 8.8 percent per year from 2009 to 2016 to 4.7 percent from 2016 to 2017. At the same time, the average annual growth rate in the volume of transactions processed over single-message networks has increased slightly from 6.8 percent per year from 2009 to 2016 to 7.2 percent from 2016 to 2017.

Exhibit 4: Average annual growth rate in transaction volume, by transaction category



NOTE: Exempt/covered issuer breakdown was first collected in 2011; the 2009-2016 growth rate for exempt/covered issuers thus corresponds to the growth rate from 2011 to 2016.

As shown by the second set of bars in exhibit 4, growth in card-not-present transaction volume accelerated, increasing from an average annual growth rate of 16.6 percent per year from 2009 to 2016 to 22.6 percent from 2016 to 2017.¹⁸ In contrast, growth in card-present transaction volume, at 2.3 percent from 2016 to 2017, was much lower. Moreover, growth in card-present transactions from 2016 to 2017 fell sharply compared with the average annual growth rate of 6.9 percent per year from 2009 to 2016.

As shown by the third set of bars in exhibit 4, growth in transaction volume processed by exempt issuers has slowed, from an average annual growth rate of 8.1 percent from 2011 to 2016 to 5.1 percent from 2016 to 2017. At the same time, the growth rate in volume processed by covered issuers decreased from an average annual growth rate of 6.1 percent per year from 2011 to 2016 to 5.9 percent from 2016

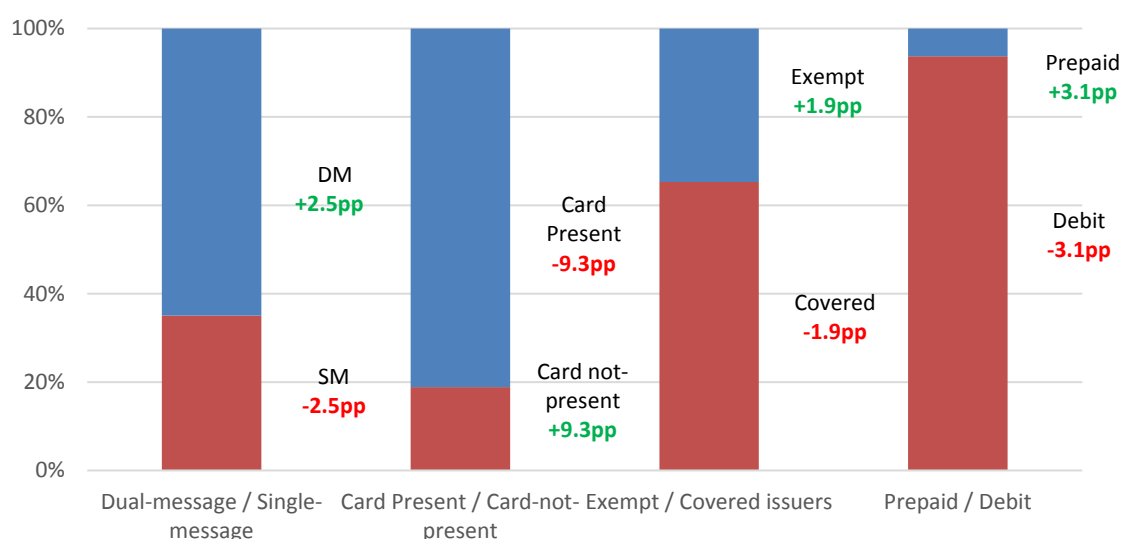
processing errors, authorization issues, or nonfulfillment of copy requests), in whole or in part, and value is transferred from the merchant to the cardholder. In a return transaction, the merchant reverses a purchase transaction (because of, for example, the return of goods by the cardholder), in whole or in part, and value is transferred from the merchant to the cardholder.

¹⁸ Card-not-present transactions include Internet, telephone, and mail-order transactions.

to 2017. As shown by the final set of bars in exhibit 4, average annual growth in volume of prepaid card transactions has slowed from 18.2 percent per year from 2009 to 2016 to 11.4 percent from 2016 to 2017. Average annual growth in volume of nonprepaid debit card transactions also slowed, from 7.7 percent per year from 2009 to 2016 to 5.1 percent from 2016 to 2017.

Exhibit 5 looks at the composition of transactions for the same categories and notes changes in these compositions in percentage points since data collection began. In 2017, transactions processed over dual-message networks accounted for 64.9 percent of debit card transaction volume, with transactions processed over single-message networks accounting for the remaining 35.1 percent. The proportion of transactions processed over dual-message networks has increased 2.5 percentage points since 2009. The share of card-not-present transactions out of total transaction volume has steadily increased since surveys began, reaching 18.9 percent in 2017, up 9.3 percentage points since 2009. The share of transactions processed by exempt issuers has increased to 34.7 percent in 2017, up 1.9 percentage points since 2011. Finally, the share of transactions processed by prepaid cards rose to 6.3 percent in 2017, up 3.1 percentage points since 2009.

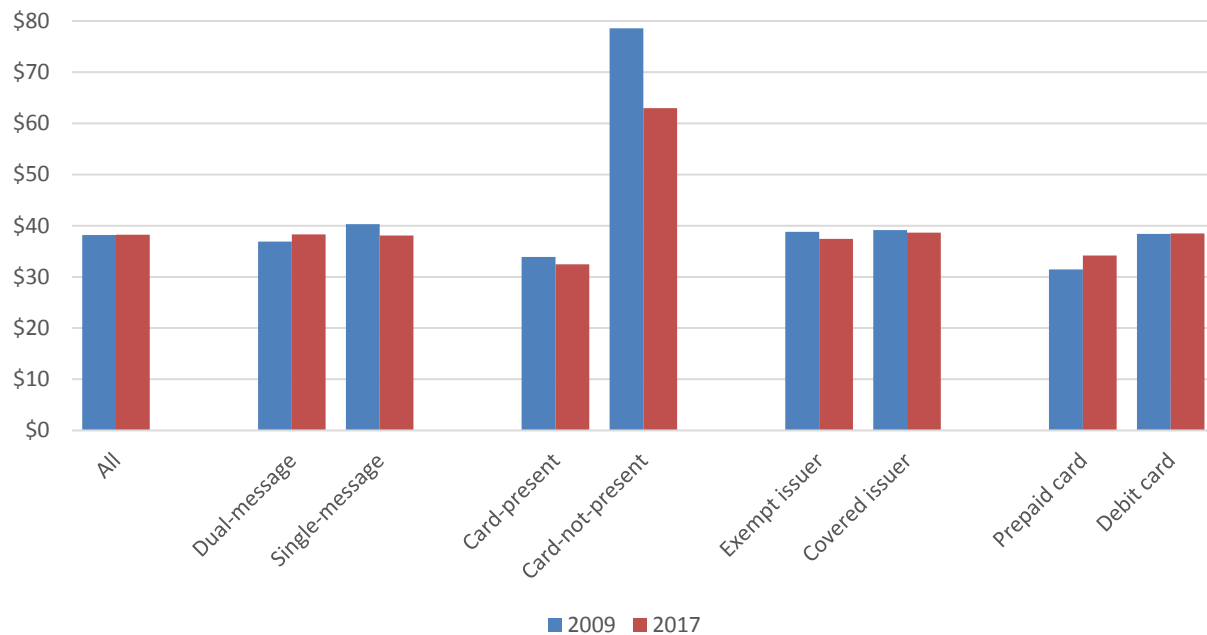
Exhibit 5: Composition of total transaction volume in 2017, by transaction category



NOTE: Values reported alongside the columns are per-category changes relative to 2009, except in the case of exempt or covered issuers, for which the change is relative to 2011; pp is percentage points. DM is dual-message; SM is single-message.

As shown in exhibit 6, the average transaction value did not differ greatly in 2017 among transaction categories, with one exception: card-not-present transactions, whose average value at \$62.98 was nearly double that for card-present transactions, with an average value of \$32.47. Average transaction values also have not changed much from 2009 to 2017 for most transaction categories, again with the exception of card-not-present transactions. The average transaction value for this transaction type has fallen by nearly \$16 from 2009 to 2017, with half of the decline occurring in the last two years alone.

Exhibit 6: Average transaction value, by transaction category



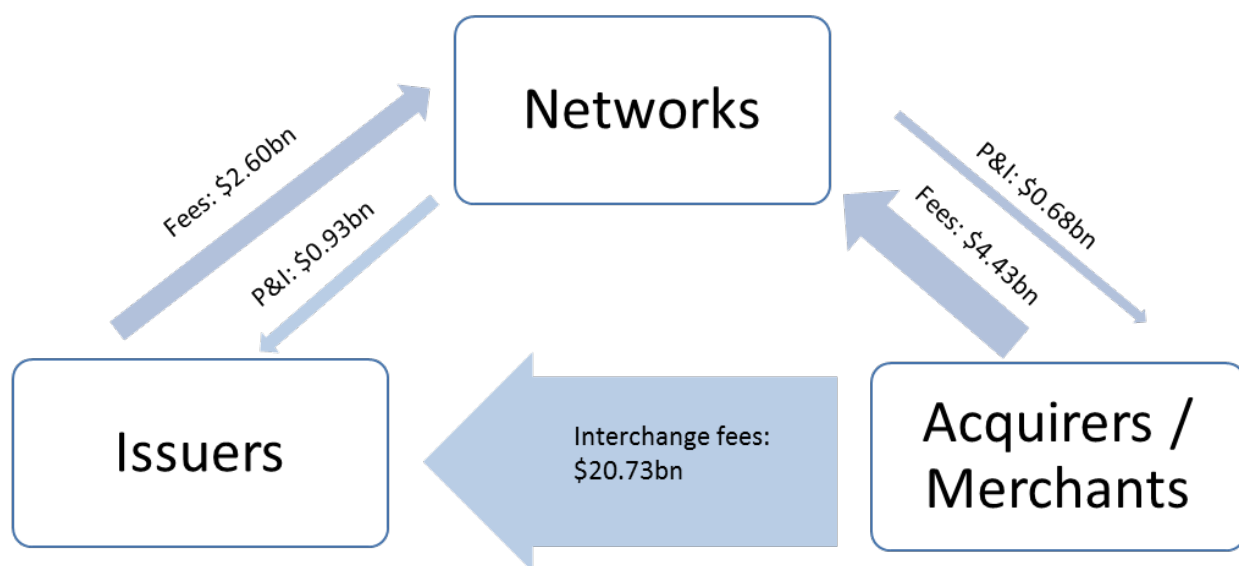
NOTE: Exempt/covered issuer breakdown was not available in 2009; 2011 figures are reported instead.

Interchange Fees, Network Fees, and Incentives

The PCN survey requests information about interchange fees, certain network fees, and payments and incentives that are set, charged, or paid by payment card networks.¹⁹ Transfers vary from network to network; thus, the totals and averages reported in this section serve only as a general characterization of network practices. Moreover, payments and incentives are usually bilateral arrangements between a network on one side and a merchant, acquirer, or issuer on the other. The figures reported in this section, calculated from network-reported totals, do not reflect the heterogeneity of these bilateral arrangements.

Exhibit 7 shows the main fees, as well as payments and incentives, exchanged among networks, issuers, and acquirers/merchants. The total value of interchange fees transferred from acquirers to issuers is by far the largest: \$20.73 billion in 2017. Network fees paid by issuers and acquirers in 2017 were \$2.60 billion and \$4.43 billion, respectively. In each case, these network fees were considerably higher than the payments and incentives paid by the networks to issuers and acquirers/merchants: \$0.93 billion and \$0.68 billion, respectively.

Exhibit 7: Fees and payments/incentives among networks, issuers, and acquirers in 2017

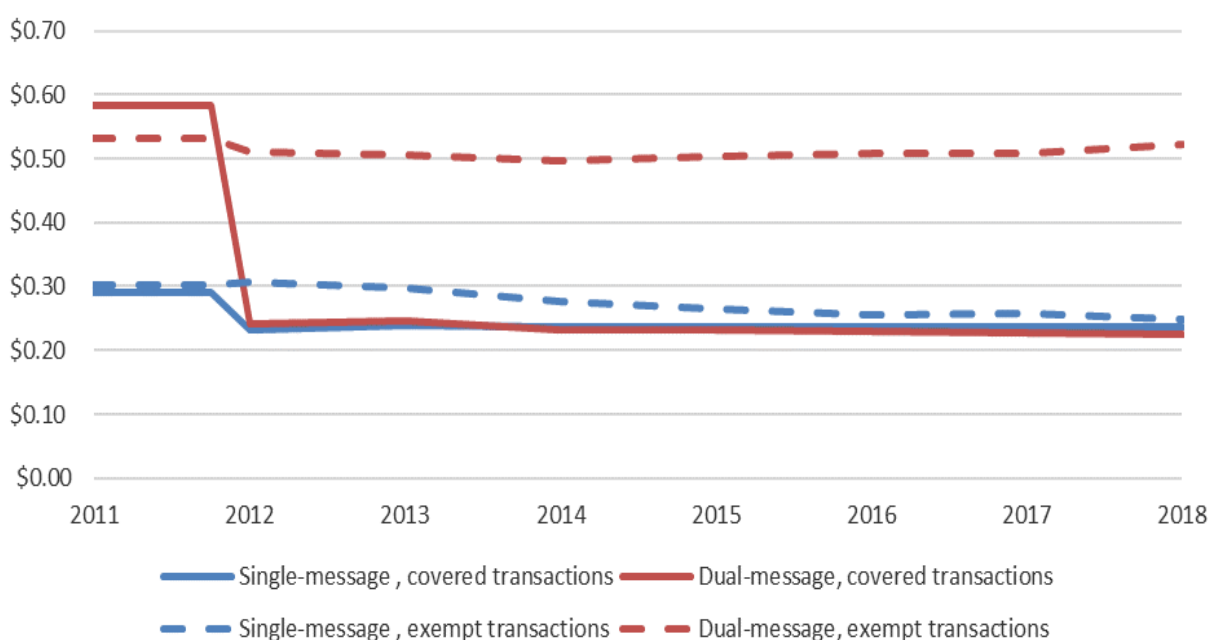


NOTE: P&I is payments and incentives; bn is billions. The arrows represent the source and recipient of fees, payments, and incentives, rather than the actual path the money takes.

¹⁹ Interchange fees are those fees set by the network, charged to acquirers, and received by issuers as part of a debit card transaction. The acquirer typically passes these fees on to the merchants so interchange fees can be thought of as a cost to merchants and as revenue to debit card issuers. Network processing fees are total fees charged by payment card networks for services that are required for the network processing of transactions and do not include any fees for optional services related to transaction processing that may be provided by a payment card network or an affiliate of a payment card network, or any network fees that are not directly linked to the processing of transactions, such as membership or license fees.

Exhibit 8 illustrates the evolution of average interchange fees over time, depending on the card network type and whether transactions were subject to the interchange fee standard. The average interchange fee per covered transaction in 2017 for transactions processed over dual-message networks, at around \$0.22, was slightly less than the average interchange fee for covered transactions processed over single-message networks, at nearly \$0.24. In both cases, the values were slightly less than the maximum that an issuer could receive on an average covered transaction.²⁰ For transactions processed over dual-message networks, the average interchange fee per exempt transaction was considerably higher than that for covered transactions (\$0.52 versus \$0.22), whereas for transactions processed over single-message networks the average interchange fee per exempt transaction was only slightly higher than that for covered transactions (\$0.25 versus \$0.24). Most of these values have not changed materially since Regulation II took effect. The only exception is a downward trend for the average interchange fee for exempt transactions processed over single-message networks; this value declined further to \$0.25 in 2017 after falling from \$0.31 to \$0.26 from 2011 to 2016.

Exhibit 8: Average interchange fees over time, by network type and transaction status

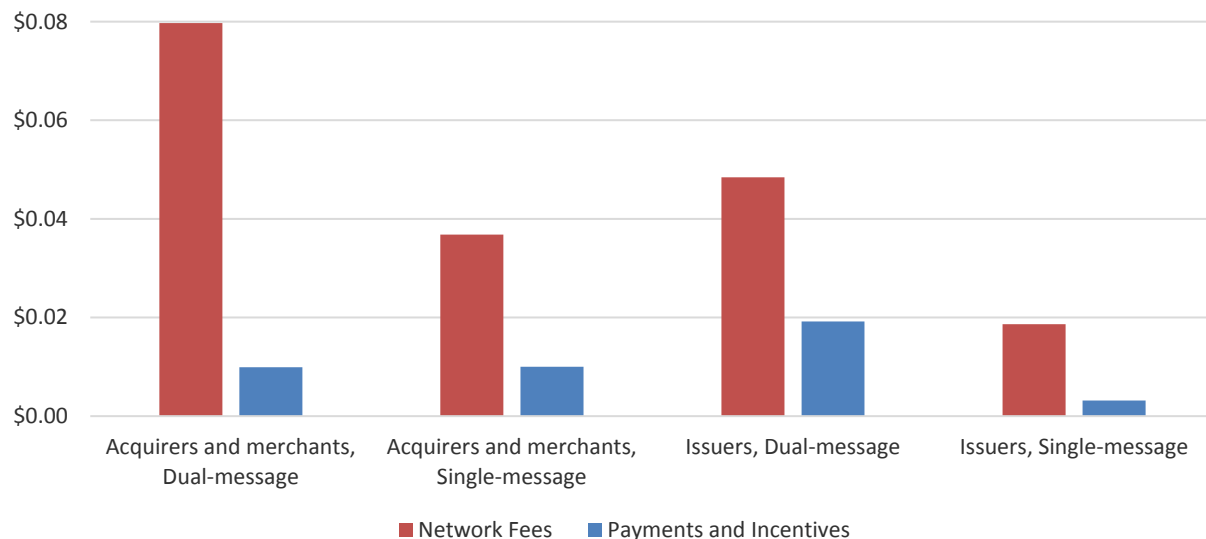


NOTE: Values for each period are represented by a data point at the end of the period: end of year for 2011:Q4, 2012, 2013, 2014, 2015, 2016, and 2017 data, and end of Q3 for Q1 to Q3 2011 data. Figures for 2013-2017 represent a covered/exempt transaction breakout; for previous years, they represent a covered/exempt issuer breakout.

²⁰ The interchange fee standard, plus the 1 cent fraud-prevention adjustment, was \$0.2394 for an average covered transaction (\$38.77) in 2017. The average interchange fee for covered transactions in 2017 was \$0.224 for dual-message networks and \$0.236 for single-message networks.

The fees charged by networks and paid by acquirers and issuers are illustrated in exhibit 9, along with the payments and incentives paid by networks and received by acquirers/merchants and issuers. Overall, both acquirers and issuers paid more in 2017 in network fees than acquirers/merchants or issuers received from the networks in payments and incentives. Network fees paid by acquirers were higher, on a per-transaction basis, than those paid by issuers for both dual-message and single-message networks. Network fees charged by dual-message networks were more than twice as high as fees charged by single-message networks for both acquirers and issuers. Acquirers/merchants received in 2017 payments and incentives from single-message networks that were roughly 27 percent of the network fees that they paid compared with 17 percent for issuers. In contrast, issuers received payments and incentives from dual-message networks that represented a much higher percentage (40 percent) of their network fees than the percentage of network fees for acquirers/merchants (12 percent).

Exhibit 9: Per-transaction network fees and payments/incentives in 2017, by network type and payor/recipient

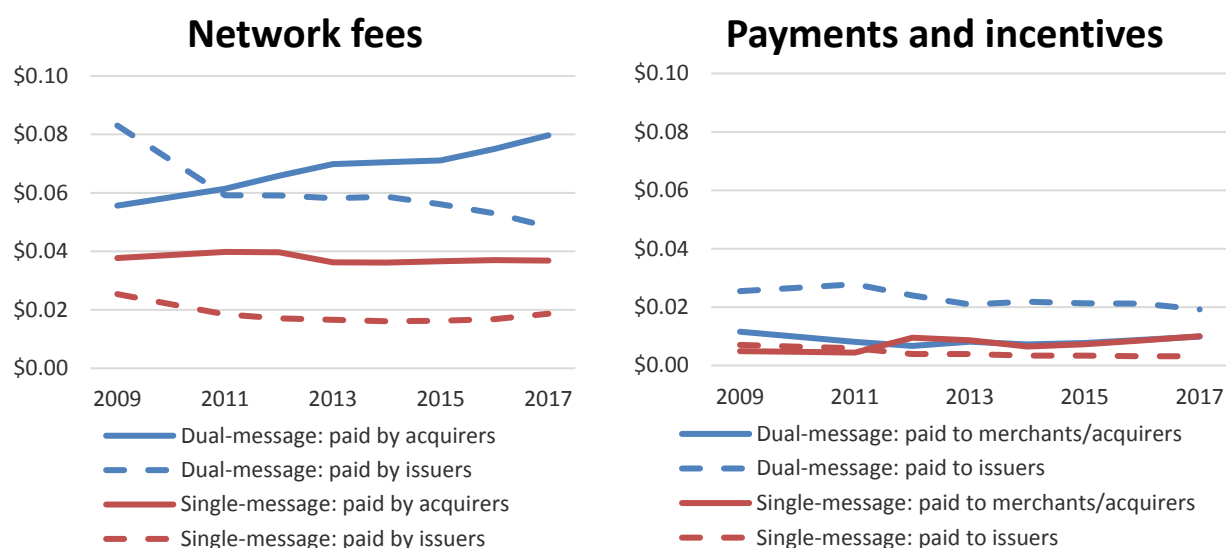


NOTE: Although payments and incentives are received by both acquirers and merchants, network fees are paid by acquirers and are not directly paid by merchants.

Exhibit 10 shows trends in network fees and payments and incentives. Since 2009, average per-transaction network fees paid by issuers to both dual-message and single-message networks have fallen, although they rose slightly for the latter from 2015 to 2017. By contrast, average per-transaction network fees paid by acquirers to single-message networks have not changed much since 2009, while average per-transaction network fees paid by acquirers to dual-message networks have risen.

In 2009, dual-message networks paid more than twice as much on a per-transaction basis as single-message networks in payments and incentives to acquirers and merchants. By 2013, however, the level of per-transaction payments and incentives to merchants and acquirers was almost equal between the two types of networks, and that has remained the case since then. Per-transaction payments and incentives paid to issuers by both single-message and dual-message networks fell from 2009 to 2013 but have remained fairly steady since then. Per-transaction payments and incentives paid to issuers by dual-message networks continue to be more than five times those paid to issuers by single-message networks.

Exhibit 10: Per-transaction network fees and payments/incentives for issuers and merchants/acquirers over time, by network type and payor/recipient



NOTE: Fees are shown on the same scale, for purposes of comparison.

Exhibit 11 looks further at network fees, as well as payments and incentives, between networks and issuers, and shows how they differed between covered and exempt issuers in 2017. Covered issuers received payments and incentives that equaled 68 percent of the network fees that they paid to dual-message networks and 20 percent of the network fees for single-message networks. By contrast, exempt issuers received payments and incentives that equaled only 29 and 16 percent of the network fees that they paid to dual-message and single-message networks, respectively.

Exhibit 11: Per-transaction network fees and payments/incentives for issuers in 2017, by network type and issuer status

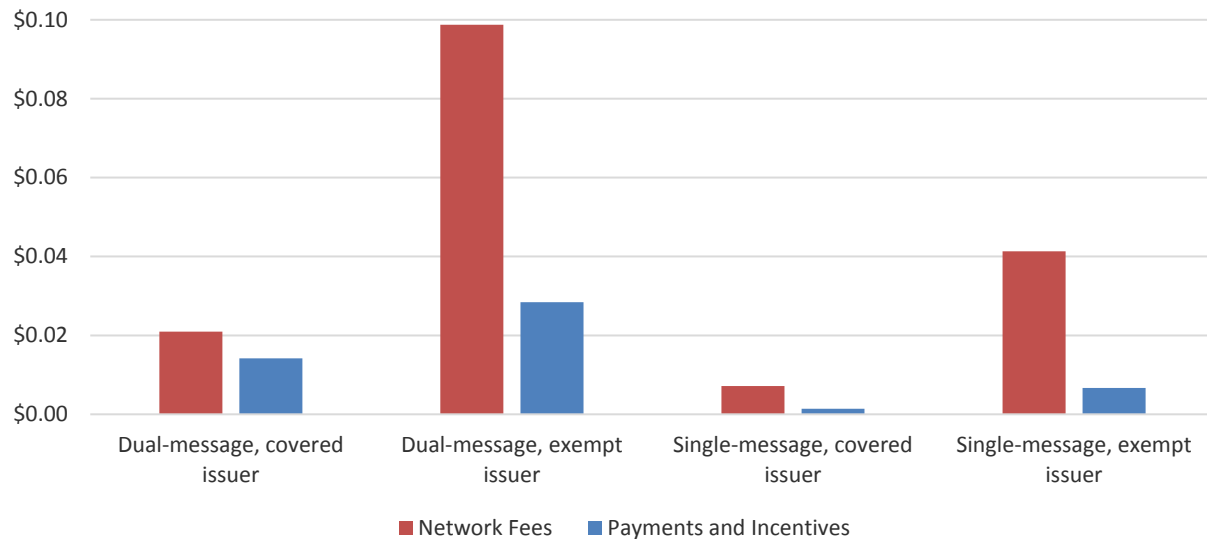
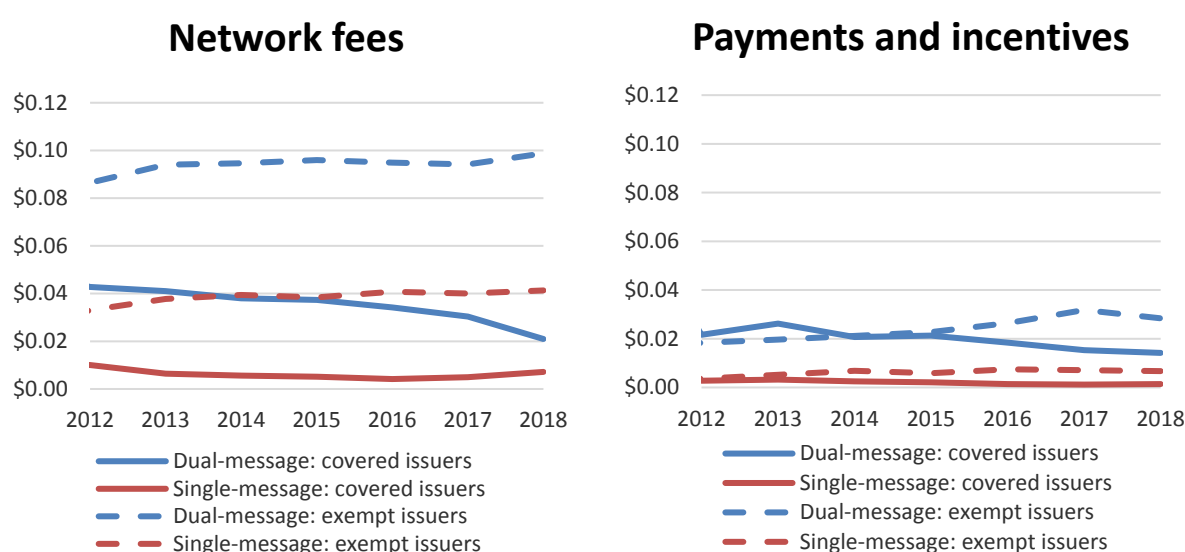


Exhibit 12 examines how network fees, as well as payments and incentives, for covered and exempt issuers have changed since 2011. Since the introduction of Regulation II, the average network fee per transaction paid by covered issuers to dual-message networks has been falling. For single-message networks, the average network fee per transaction paid by covered issuers has decreased overall since 2011, although it increased slightly from 2016 to 2017. For both types of networks, the average network fee per transaction paid by exempt issuers has been roughly flat in recent years with a slight increase from 2016 to 2017 in the average network fee for dual-message networks. Since the introduction of Regulation II, payments and incentives paid to exempt issuers have increased for both types of networks, while payments and incentives paid to covered issuers have fallen for both types of networks.

Exhibit 12: Per-transaction network fees and payments/incentives for issuers over time, by network type and issuer status



Fraud

The fraud data presented in this section are from the DCI survey and, therefore, only apply to issuers covered by the interchange fee standard.²¹ Because these issuers constitute a particular segment of the total population of debit card issuers, their fraud experience may not be representative of debit card issuers as a whole. As a result, estimates of aggregate fraud that might be derived from these data could differ from those based on information that reflects a broader set of issuers.²²

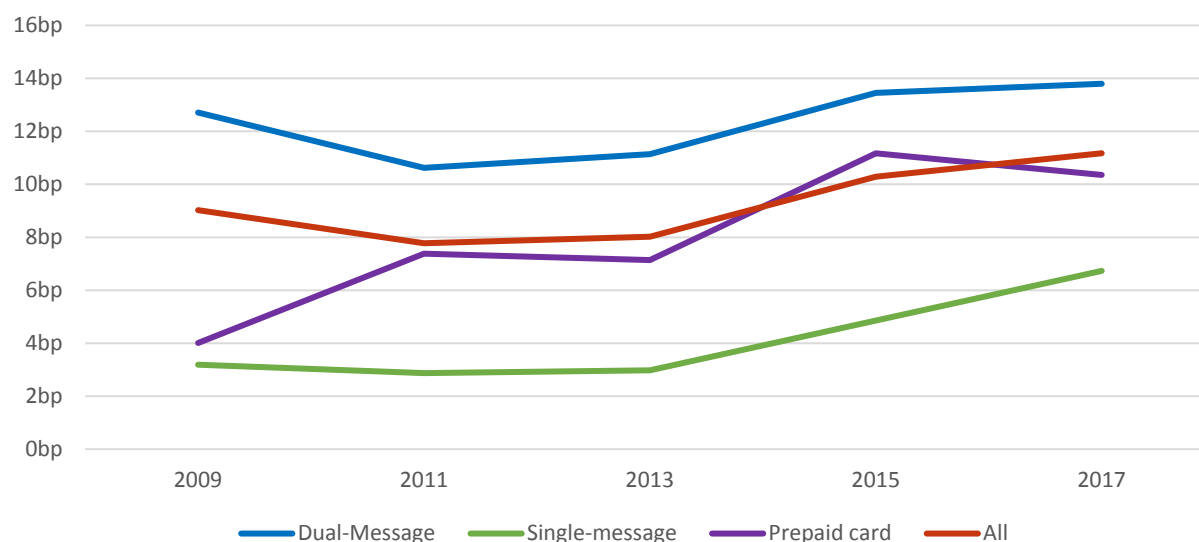
²¹ Respondents were instructed to exclude the incidence of and losses from fraudulent ATM withdrawals.

²² The Federal Reserve Payments Study produces estimates of aggregate volumes and values of fraudulent transactions and aggregate fraud rates for various payment instruments, including debit cards, through surveys of a stratified sample of depository institutions, as well as surveys of card networks and processors. The most recent estimates from this study are presented in "Changes in U.S. Payments Fraud from 2012 to 2016: Evidence from the Federal Reserve Payments Study," available at <https://www.federalreserve.gov/publications/files/changes-in-us-payments-fraud-from-2012-to-2016-20181016.pdf>.

Over the past few years, the U.S. payment card industry has begun issuing cards and deploying point-of-sale terminals that incorporate EMV chip technology for payment cards.²³ Traditional magnetic stripe technology continues to be used for many card transactions when a card is not chip-enabled or a merchant’s terminal does not support chip-card transactions. The widespread deployment of EMV chip cards has the potential to decrease the incidence of counterfeit card fraud. The overall effect on fraud, in both the short and long term, will depend on how fraud patterns and fraud mitigation methods change as counterfeit card fraud becomes more difficult. The deployment of EMV chip technology was in preliminary stages during the 2015 data collection period, incentivized by a liability shift in the rules of many card networks that went into effect in the fall of 2015. By the 2017 data collection period, this deployment had made enough progress that, in 2017, the value of chip-based card payments comprised more than half of the value of all in-person general-purpose card payments for the first time, according to the Federal Reserve Payments Study.²⁴

Exhibit 13 illustrates that fraud losses to all parties as a share of transaction value increased from 2015 to 2017 for both dual-message and single-message debit transactions, but decreased slightly for prepaid card transactions. Fraud losses as a share of transaction value continue to be lowest for single-message debit, with losses in the dual-message debit category more than twice as high – 6.7 and 13.8 basis points, respectively.

Exhibit 13: Fraud losses as a share of transaction value, by transaction category



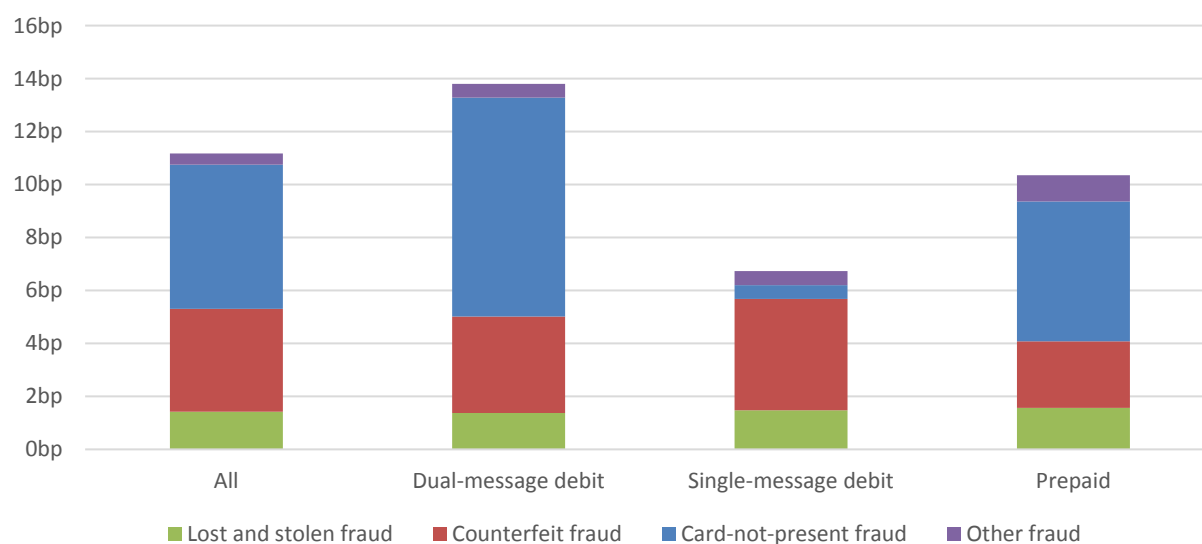
NOTE: bp is basis points.

²³ EMV is a technical standard for microchip-based payment cards. The term EMV stands for “Europay, Mastercard, and Visa,” the three companies that created the standard. EMVCo, a consortium of financial companies, currently manages the standard.

²⁴ See “The Federal Reserve Payments Study: 2018 Annual Supplement,” available at <https://www.federalreserve.gov/newsevents/pressreleases/files/2018-payment-systems-study-annual-supplement-20181220.pdf>.

Exhibit 14 illustrates the breakdown, by fraud type, of 2017 fraud losses to all parties expressed as a share of transaction value. Lost and stolen fraud losses constituted a very similar percentage of the transaction value across transaction types, ranging between 1.4 and 1.6 basis points. For dual-message debit transactions, the majority of fraud losses stemmed from card-not-present fraud.²⁵ Card-not-present fraud losses constituted more than twice the share of counterfeit fraud losses for dual-message debit transactions, at 8.3 and 3.6 basis points, respectively. A similar split was reported for prepaid card transactions, at 5.3 and 2.5 basis points, respectively. By contrast, the majority of fraud losses for single-message debit transactions reflected counterfeit fraud. In absolute terms, the level of fraud losses due to counterfeit fraud was lowest for prepaid transactions (2.5 basis points) and highest for single-message transactions (4.2 basis points), with fraud levels for dual-message debit transactions in between (3.6 basis points). For single-message debit transactions, card-not-present fraud was very low at 0.5 basis points. This low level of fraud was partly driven by the fact that single-message transactions still rarely take place online, where most card-not-present fraud originates, and partly because, overall, fraud losses as a share of transaction value were substantially lower for single-message transactions than for dual-message transactions.

Exhibit 14: Level and composition of fraud losses as a share of transaction value in 2017, by transaction category



NOTE: bp is basis points.

²⁵ The Federal Reserve Payments Study provides additional fraud statistics on card-present and card-not-present transactions. See “Changes in U.S. Payments Fraud from 2012 to 2016: Evidence from the Federal Reserve Payments Study,” available at <https://www.federalreserve.gov/publications/files/changes-in-us-payments-fraud-from-2012-to-2016-20181016.pdf>.

Overall fraud losses depend on the total number of transactions, the fraud incidence (the share of transactions that are fraudulent), and the fraud loss per fraudulent transaction. The following two exhibits reveal trends in each of these latter two measures by transaction category. Exhibit 15 shows that overall fraud incidence rose from 5.6 basis points in 2015 to 7.2 basis points in 2017. Fraud incidence increased substantially from 2015 to 2017 for each transaction category, most notably for prepaid transactions. Rising fraud incidence in all categories is consistent with trends in earlier years of data collection.

Exhibit 15: Incidence of fraudulent transactions as a percentage of total transactions, by transaction category

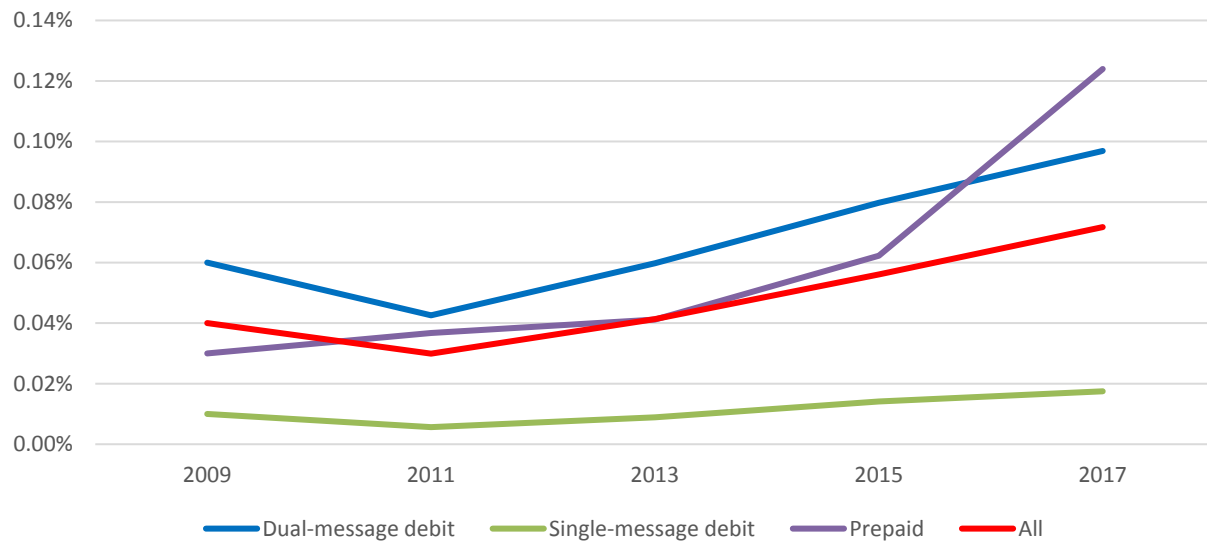
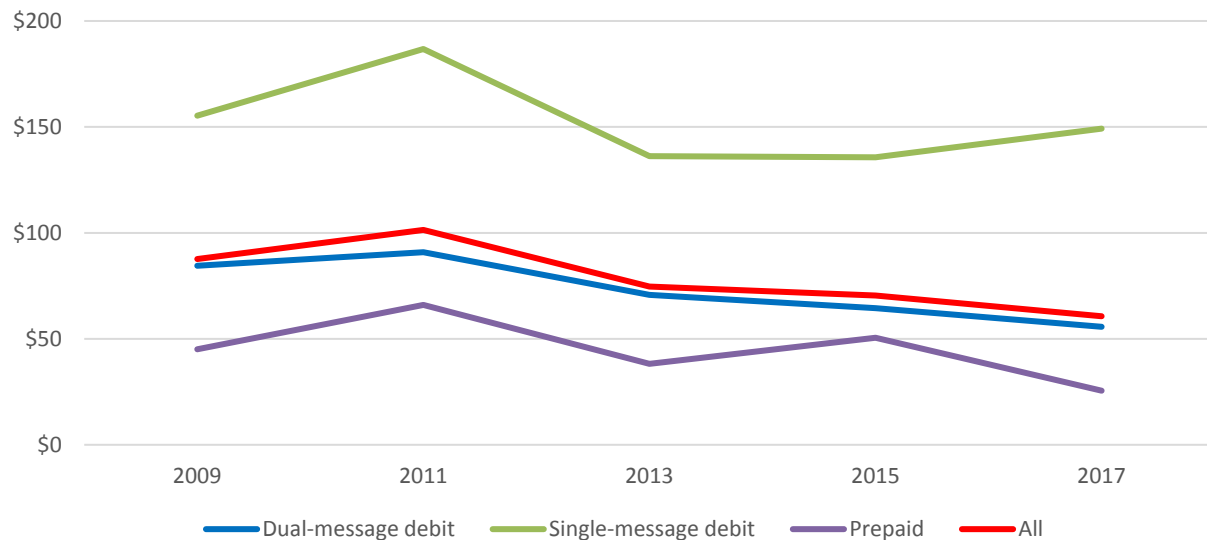


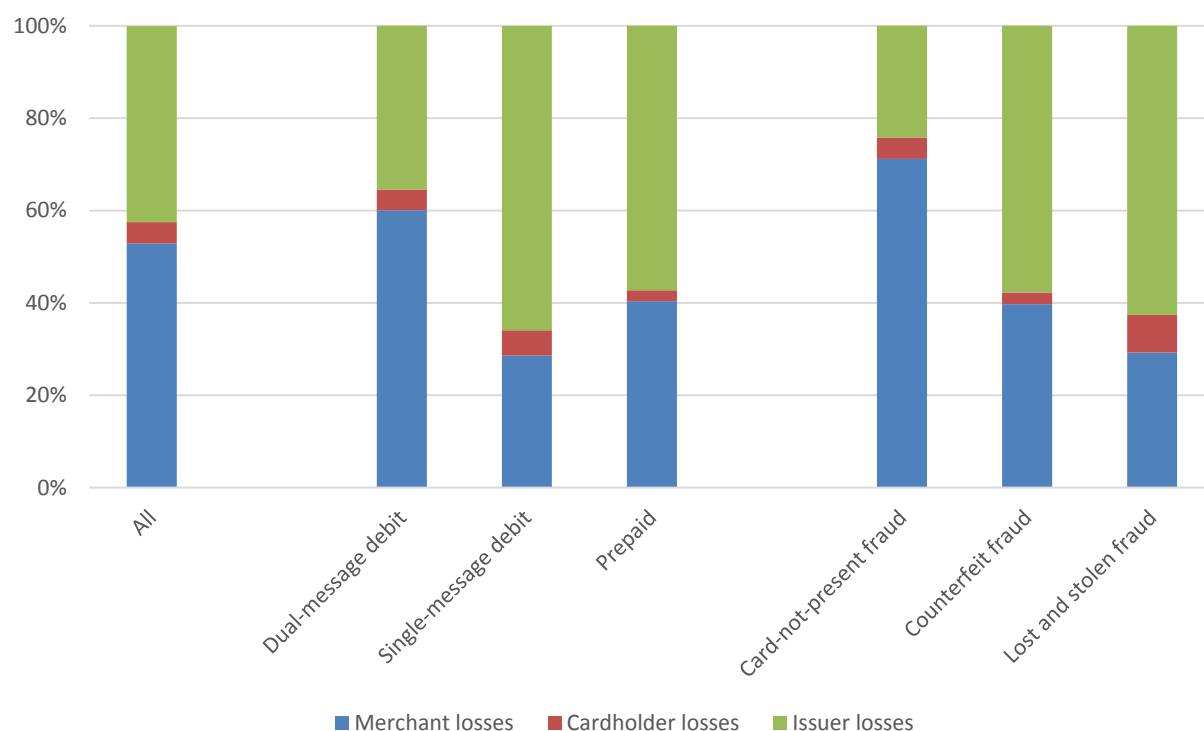
Exhibit 16 shows that the average loss per fraudulent transaction decreased from 2015 to 2017 for all transactions combined and for dual-message debit card transactions, in a continuation of trends that began in 2011. By contrast, the average loss per fraudulent transaction for single-message debit card transactions increased slightly in 2017, following two years of stable losses from 2013 and 2015. For prepaid cards, the average loss per fraudulent transaction halved from 2015 to 2017, and in 2017 was 44 percent lower than it was in 2009.

Exhibit 16: Average loss per fraudulent transaction, by transaction category



As in previous years, in 2017 the vast majority of fraud losses were absorbed by issuers and merchants, with cardholders absorbing only 5 percent of fraud losses.²⁶ The proportion of losses absorbed by issuers and merchants changed significantly from 2015 to 2017: It decreased for issuers from 58 percent to 42 percent, while it increased for merchants from 39 percent to 53 percent. This shift reflects a number of factors, including an increase in losses from card-not-present fraud, which typically fall more heavily on merchants, as well as merchants bearing more of the losses for both dual-message and single-message transactions. As illustrated in exhibit 17, the percentage of losses covered by merchants versus issuers varied greatly across categories of transactions and types of fraud. At one extreme, merchants covered 29 percent of losses incurred on single-message debit transactions, with issuers covering 66 percent. At the other extreme, merchants covered 71 percent of card-not-present fraud losses, whereas issuers covered 24 percent. By contrast, cardholder losses were consistently low across all categories of transactions and types of fraud.

Exhibit 17: Composition of fraud losses in 2017, by transaction category and fraud type

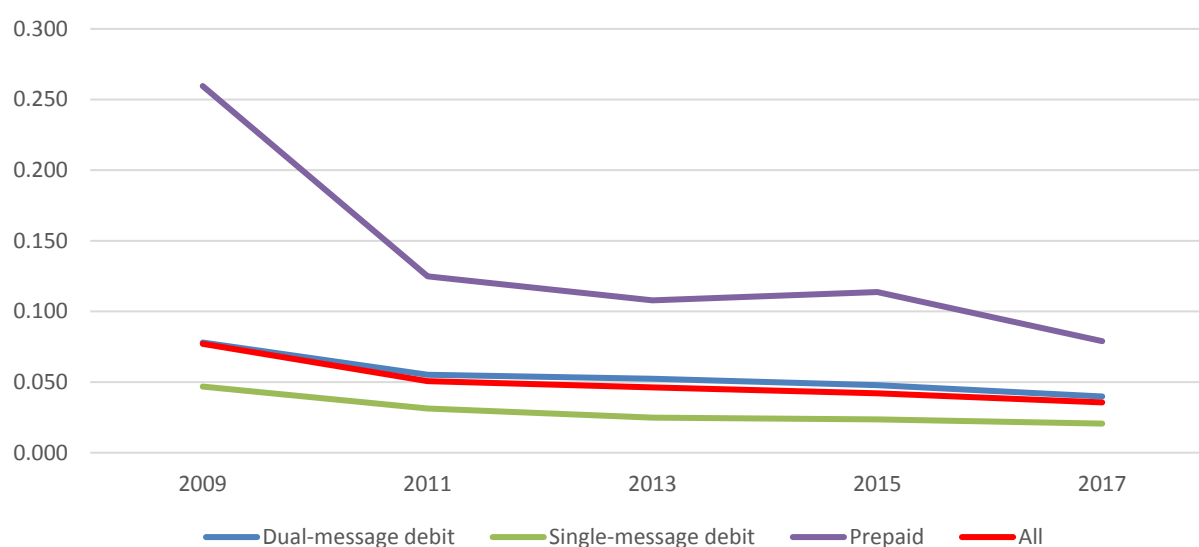


²⁶ The vast majority of fraud losses were absorbed by issuers, merchants, and cardholders. The data presented on merchant fraud losses assume that acquirers pass on to merchants all of the fraud losses that issuers charge back to acquirers. Data were not collected on fraud losses absorbed by networks, which are assumed to be negligible.

Issuer Costs

As illustrated in exhibit 18, the average per-transaction ACS cost, excluding issuer fraud losses, for all transactions has gradually decreased since 2009, falling to \$0.036 in 2017.²⁷ The average per-transaction ACS cost has declined each year in the data for dual-message debit transactions and single-message debit transactions and has declined every year except 2015 for prepaid transactions. In 2017, the average cost of processing a prepaid card transaction (\$0.079) was nearly twice as high as the average cost of processing a dual-message debit transaction (\$0.040) and nearly four times as high as the average cost of processing a single-message debit transaction (\$0.021). This relationship, with prepaid card transactions being the most costly and single-message debit transactions being the least costly, has not changed since 2009.

Exhibit 18: Average ACS costs per transaction, excluding issuer fraud losses, by transaction category



²⁷ Unless otherwise noted, the average ACS cost in this section is calculated on a transaction-weighted basis. The average cost per transaction reflects data from all covered issuers who reported their total ACS costs in the DCI survey. Only a subset of those issuers reported a breakdown of their ACS costs across cost categories. (Table 13 shows both sets of averages.) These cost categories include transaction-monitoring costs, in-house costs, third-party processing fees, network processing fees, and fraud losses. Fraud losses, which generally result from an issuer's authorization, clearance, or settlement of a particular transaction that later turns out to be fraudulent, are addressed in the previous section of this report and are not included in the issuer ACS costs reported here unless noted otherwise. Issuers were instructed not to include costs related to corporate overhead, account relationships, rewards programs, non-sufficient funds handling, non-sufficient funds losses, cardholder inquiries, card production and delivery, fraud-prevention costs that are not incurred as part of authorization, costs associated with funds loads (or deposits), or costs of account set-up and maintenance. Issuers were instructed to include costs for purchase transactions, chargebacks, and other nonroutine transactions.

Exhibit 19 shows how the distribution of ACS costs across covered issuers has evolved from 2011 to 2017. Since 2013, consistent with the decrease in the average per-transaction ACS cost, excluding issuer fraud losses, the 25th, the 50th, and the 75th percentiles of the distribution have decreased. In addition, the distribution has become more concentrated, as can be seen in the closing gap between the percentiles, from \$0.35 in 2013 to \$0.14 in 2017. Changes in the shape of the issuer cost distribution are partly due to entry, exit, and mergers among debit card issuers, particularly covered issuers with relatively small debit card programs.

Exhibit 19: Percentiles of average per-transaction ACS costs, excluding issuer fraud losses, across issuers

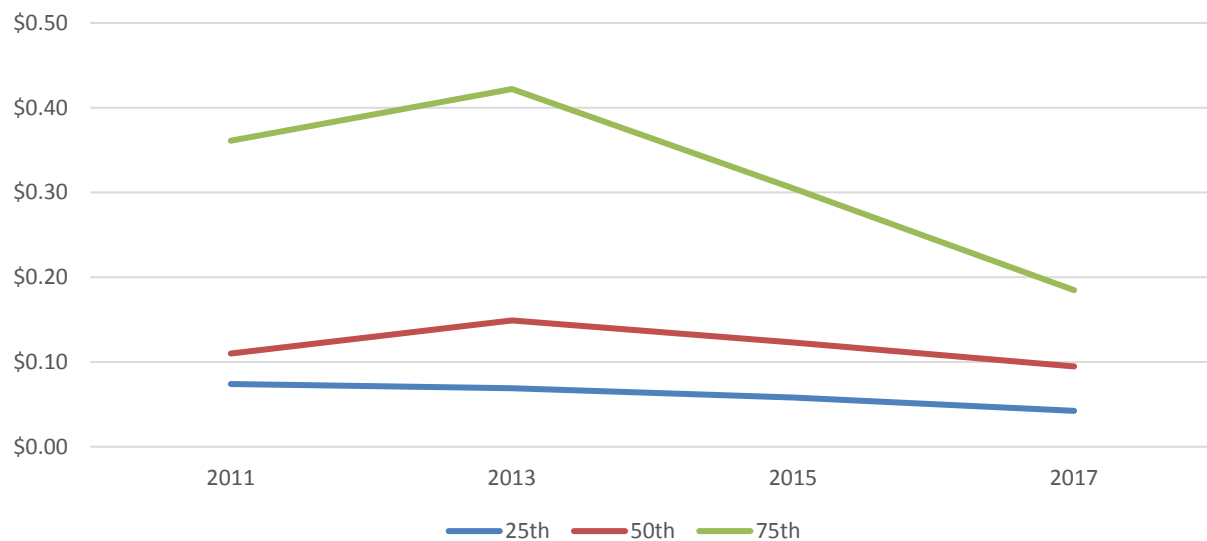
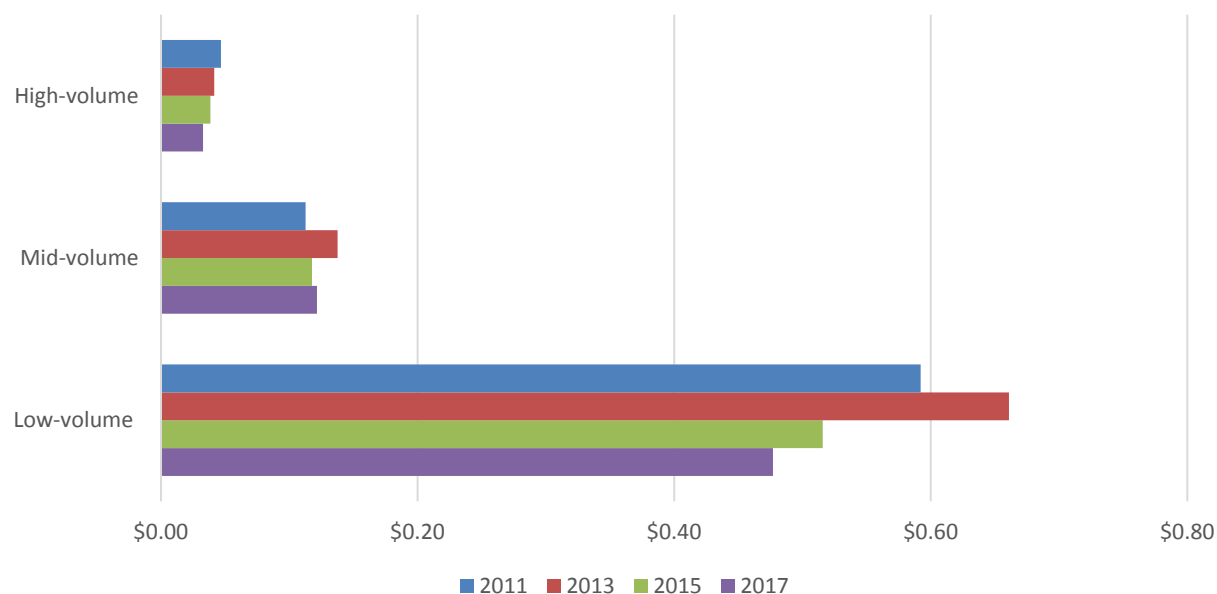


Exhibit 20 illustrates that high-volume issuers have substantially lower per-transaction costs compared with low-volume and mid-volume issuers.²⁸ These relationships have been consistent over time. In 2017, the average ACS cost for mid-volume issuers (\$0.122) was nearly 4 times higher than the cost for high-volume issuers (\$0.033), whereas the cost for low-volume issuers (\$0.477) was more than 14 times higher than the cost for high-volume issuers. Although average per-transaction ACS costs, excluding issuer fraud losses, have decreased overall from 2011 to 2017 for both high-volume and low-volume issuers, the average ACS cost has been fairly steady for mid-volume issuers over this period.²⁹

Exhibit 20: Average ACS costs per transaction, excluding issuer fraud losses, by issuer size

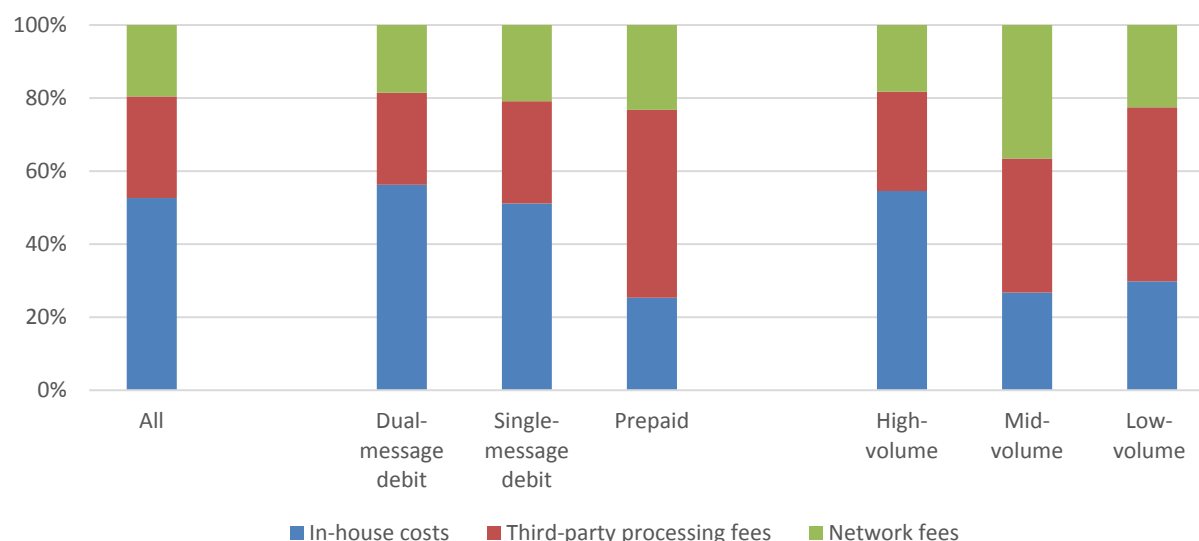


²⁸ As in the earlier discussion of the composition of covered issuers by transaction volume, high-volume issuers are defined as those that process more than 100 million debit card transactions and mid-volume and low-volume issuers are respectively defined as those that process between 1 million and 100 million debit card transactions and fewer than 1 million debit card transactions.

²⁹ Breakdown by issuer volume is not available for 2009 data.

Exhibit 21 illustrates the breakdown of 2017 ACS costs among three categories distinguished by the survey: in-house costs, third-party processing fees, and network fees.³⁰ Overall, in-house costs constituted more than half of total ACS costs, at 53 percent, while third-party processing fees and network fees constituted 28 percent and 20 percent, respectively. The split, especially between in-house costs and third-party processing fees, varied across transaction categories and issuer sizes. Across transaction categories, in-house costs constituted a higher percentage of total costs for dual-message and single-message debit transactions than for prepaid card transactions. For prepaid cards, third-party processing fees constituted 51 percent of ACS costs, compared with 27 percent for other debit cards. Across issuer sizes, in-house costs constituted a higher percentage of total costs for high-volume issuers than for mid-volume and low-volume issuers. These patterns have not changed markedly since the data collection began.³¹

Exhibit 21: Composition of average ACS costs, excluding issuer fraud losses, in 2017, by transaction category and issuer size



NOTE: Breakdown excludes costs of transaction monitoring, which were not allocated to in-house costs and third-party processing fees.

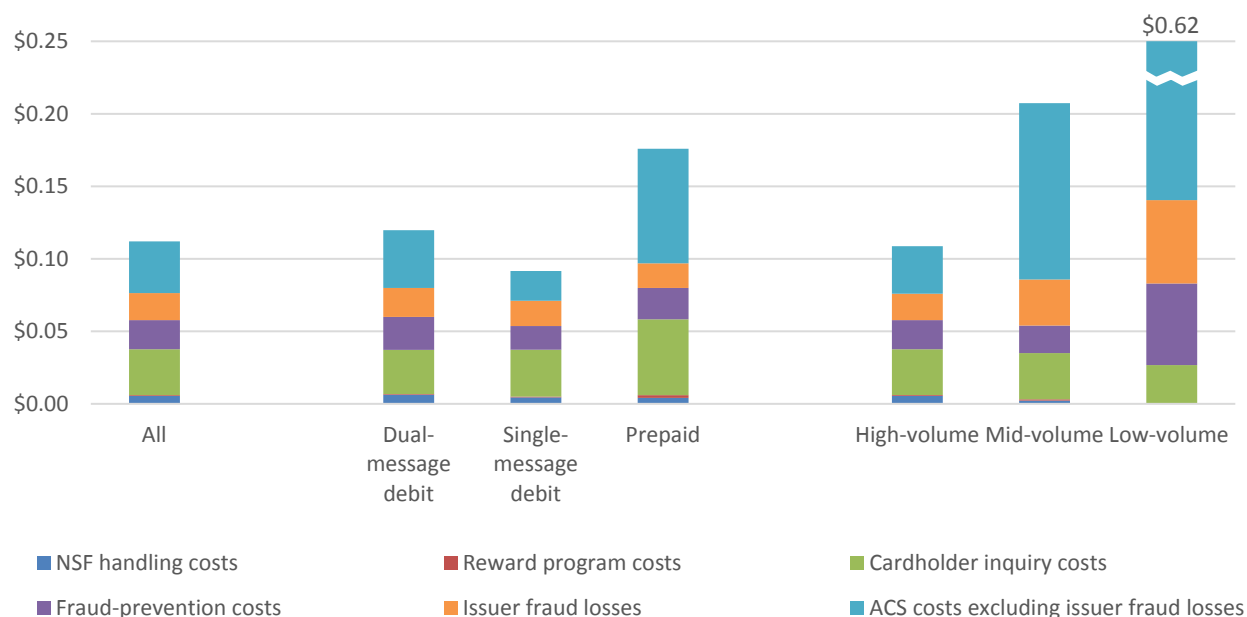
³⁰ In-house costs are ACS costs that are not outsourced to third parties and include costs incurred by the card issuer or its affiliated processor (that is, a processor in the same holding company). Third-party processing fees are fees paid to external service providers for services related to the authorization, clearance, and settlement of debit card transactions that are performed by those service providers on behalf of the debit card issuer. Service providers may include payment card networks or affiliates of payment card networks to the extent that such parties provide optional services related to transaction processing. They do not include other fees charged by a payment card network or an affiliated processor for services that are required for the network processing of transactions.

The 2017 DCI survey did not request that transaction-monitoring costs be broken out into in-house costs and third-party processing fees. As a result, the breakdown of costs into in-house costs, third-party processing fees, and network fees does not include transaction-monitoring costs.

³¹ The breakdown by issuer size has only been collected since 2011; all other data has been collected since 2009.

Exhibit 22 illustrates how the average per-transaction ACS cost, excluding issuer fraud losses, compared with other costs borne by issuers that are directly related to their debit card activities. Per-transaction ACS costs, which averaged \$0.036 in 2017, constituted 32 percent of overall debit card costs, including issuer fraud losses, for an average issuer. At the same time, ACS costs were the most variable of the cost categories, as seen across transaction types and issuer volume tiers. By comparison, non-sufficient funds handling, reward program, cardholder inquiry, and fraud-prevention costs did not vary substantially by transaction category or issuer size.³²

Exhibit 22: Average issuer costs per transaction in 2017, by transaction category and issuer size³³



³² Costs associated with cardholder inquiries include costs associated with cardholder communication with a debit card issuer related to specific debit card transactions, such as inquiries about transactions details, errors, and potential fraudulent activity. These communications do not include inquiries that are not related to specific debit card transactions, such as inquiries related to account balances, rewards programs, credit card transactions, and ATM transactions. Rewards and other incentives costs are incentive payments given to cardholders as a result of particular debit card transactions. Costs associated with non-sufficient funds handling are the costs of handling events in which an account does not have enough funds to settle an authorized debit card transaction between the time of authorization of that transaction and the settlement of that transaction.

Fraud-prevention and data security costs are costs related to activities aimed at identifying and preventing debit card fraud; costs related to the monitoring of the incidence of, reimbursements received for, and losses incurred from debit card fraud; costs related to responding to suspected and realized debit card fraud in order to prevent or limit losses; costs incurred in securing the data processing and communications infrastructure of debit card operations; and costs incurred in the development or improvement of fraud-prevention technologies.

³³ A substantial portion of low-volume issuers did not submit data on non-ACS costs. Thus, figures for this group of issuers should be analyzed with caution.

Exhibit 23 illustrates how average per-transaction issuer costs changed over time, by type of cost. Overall, the per-transaction cost has consistently decreased from \$0.17 in 2011 to \$0.11 in 2017. From 2015 to 2017, the average per-transaction costs for every type of cost either stayed the same or decreased. Reward program and cardholder inquiry costs remained stable from 2015 to 2017, while NSF handling, fraud-prevention, and ACS costs, excluding issuer fraud losses, fell from 2015 from 2017, as did issuer fraud losses. The largest decline was seen in ACS cost, excluding issuer fraud losses, which dropped from \$0.042 in 2015 to \$0.036 in 2017.

Exhibit 23: Issuer costs per transaction, by type of cost

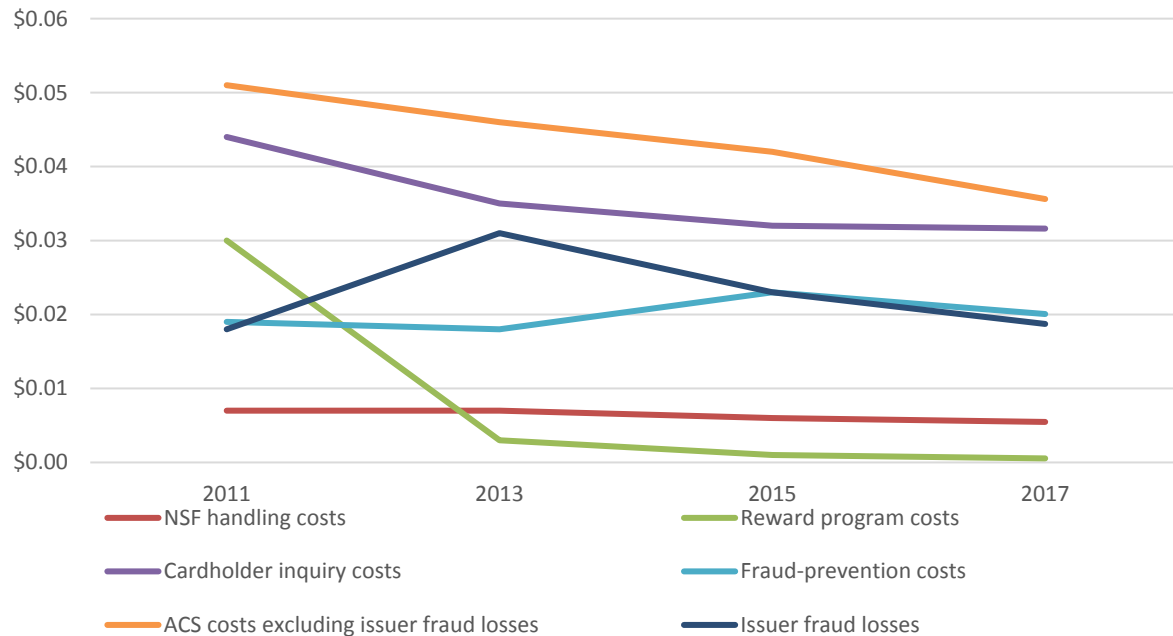
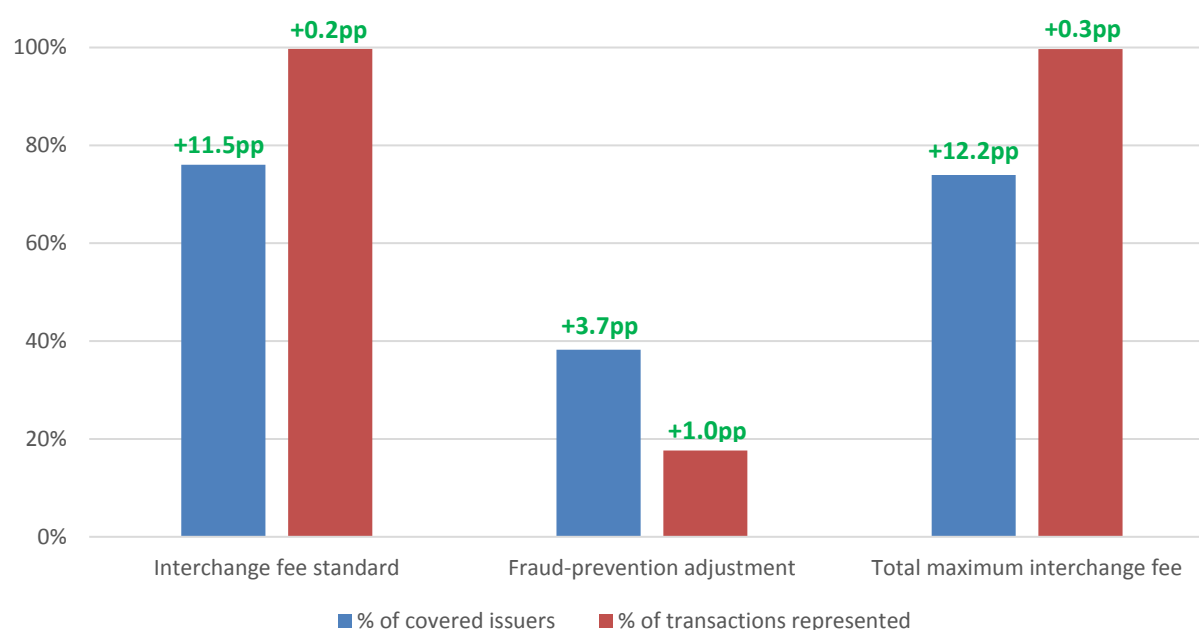


Exhibit 24 shows the percentage of covered issuers for which the sum of ACS cost and issuer fraud losses was less than or equal to the interchange fee permitted by the interchange fee standard. The percentage of issuers with per-transaction ACS cost, including issuer fraud losses, less than or equal to the permissible amount was 76.0 percent in 2017, up from 64.5 per cent in 2015. In 2017, the percentage of transactions associated with these issuers was 99.7 percent of transactions, up from 99.5 percent in 2015. The difference between the percentage of issuers under the maximum and percentage of transactions under the maximum exists because issuers under the maximum tended to be high-volume issuers, whereas issuers above the maximum tended to be low-volume issuers. The seemingly large increase in the percentage of issuers under the maximum was largely driven by the decline in the total number of issuers, especially low-volume issuers; the number of issuers with costs less than the interchange fee standard was nearly unchanged from 2015.

Exhibit 24: Percentage of covered issuers and transactions with ACS costs, including issuer fraud losses, and fraud-prevention costs in 2017 below the maximums permitted by Regulation II



NOTE: Values reported above the columns represent changes relative to 2015; pp is percentage points.

As exhibit 24 further shows, the percentages of both covered issuers and covered transactions with per-transaction fraud-prevention costs below the 1 cent permitted by the fraud-prevention adjustment were substantially lower. In 2017, 38.2 percent of covered issuers representing 17.6 percent of covered transactions had fraud-prevention costs less than or equal to 1 cent, increases of 3.7 percentage points and 1.0 percentage points, respectively, from the values for 2015.³⁴ The differences between these measures and those for the interchange fee standard reflect the heterogeneity in fraud-prevention costs across covered issuers and the substantial fraud-prevention costs of many high-volume issuers.

³⁴ This calculation assumes all covered issuers are eligible for the fraud-prevention adjustment.

When combined ACS costs, issuer fraud losses, and fraud-prevention costs are compared with the total amount allowed by the interchange fee standard plus the fraud-prevention adjustment, 74.0 percent of covered issuers, representing 99.7 percent of covered transactions, had combined costs lower than the total permissible interchange fee in 2017, increases of 12.2 percent and 0.3 percentage points, respectively, from the values in 2015.

Tables

Table 1: Purchase transactions

	2017		
	<i>Number (billions)</i>	<i>Value (\$ billions)</i>	<i>Average (\$)</i>
All transactions	68.48	2,617.64	38.23
Non-prepaid debit card	64.18	2,470.79	38.50
Prepaid card	4.30	146.86	34.18
<i>Dual-message networks</i>	<i>44.47</i>	<i>1,703.34</i>	<i>38.30</i>
Non-prepaid debit card	41.52	1,601.31	38.57
Prepaid card	2.95	102.03	34.54
<i>Single-message networks</i>	<i>24.01</i>	<i>914.31</i>	<i>38.08</i>
Non-prepaid debit card	22.66	869.48	38.36
Prepaid card	1.34	44.83	33.38

Table 2: Card-present and card-not-present transactions

	2017		
	<i>Number (billions)</i>	<i>Value (\$ billions)</i>	<i>Average (\$)</i>
All transactions¹	68.48	2,617.64	38.23
Card-present	55.56	1,804.22	32.47
Card-not-present	12.91	813.43	62.98
<i>Dual-message networks¹</i>	<i>44.47</i>	<i>1,703.34</i>	<i>38.30</i>
Card-present	32.55	932.91	28.66
Card-not-present	11.92	770.43	64.64
<i>Single-message networks¹</i>	<i>24.01</i>	<i>914.31</i>	<i>38.08</i>
Card-present	23.01	871.31	37.86
Card-not-present	1.00	43.00	43.16

¹ Prepaid card transactions are included under all transactions and under both dual-message and single-message networks.

Table 3: Covered and exempt debit card transactions

	2017		
	<i>Number (billions)</i>	<i>Value (\$ billions)</i>	<i>Average (\$)</i>
All transactions	68.48	2617.64	38.23
Covered transactions	43.22	1675.57	38.77
Non-prepaid	42.84	1649.33	38.50
Prepaid	0.37	9.79	70.33
Exempt transactions	25.26	942.07	37.29
Non-prepaid	21.34	805.01	37.73
Prepaid	3.92	137.06	34.93
Covered issuer	1.48	51.76	34.90
Exempt issuer	2.44	85.30	34.96
<i>Dual-message networks</i>	<i>44.47</i>	<i>1703.34</i>	<i>38.30</i>
Covered transactions	27.77	1080.20	38.90
Non-prepaid	20.49	1054.67	39.04
Prepaid	0.28	7.27	25.53
Exempt transactions	16.70	623.14	37.31
Non-prepaid	14.03	587.63	37.65
Prepaid	2.67	35.50	35.50
Covered issuer	1.00	35.36	35.39
Exempt issuer	1.67	59.40	35.57
<i>Single-message networks</i>	<i>24.01</i>	<i>914.31</i>	<i>38.08</i>
Covered transactions	15.45	595.37	38.54
Non-prepaid	15.36	566.83	38.60
Prepaid	0.09	2.52	28.54
Exempt transactions	8.56	318.94	37.27
Non-prepaid	7.30	276.63	37.87
Prepaid	1.25	42.31	33.72
Covered issuer	0.48	16.40	33.90
Exempt issuer	0.77	25.90	33.62

Table 4: Interchange fee revenue

	2017		
	<i>Interchange fee revenue (\$ billions)</i>	<i>Fee per transaction (\$)¹</i>	<i>Fee as % of transaction value¹</i>
All transactions	20.73	0.30	0.79%
Non-prepaid debit card	18.79	0.29	0.76%
Prepaid card	1.94	0.45	1.32%
<i>Dual-message networks</i>	<i>14.96</i>	<i>0.34</i>	<i>0.88%</i>
Non-prepaid debit card	13.39	0.32	0.84%
Prepaid card	1.57	0.53	1.54%
<i>Single-message networks</i>	<i>5.77</i>	<i>0.24</i>	<i>0.63%</i>
Non-prepaid debit card	5.41	0.24	0.62%
Prepaid card	0.37	0.27	0.82%

¹ Interchange fee revenue is divided by the number or value of purchase transactions.

Table 5: Interchange fee revenue from covered and exempt debit card transactions

	2017		
	<i>Interchange fee revenue (\$ billions)</i>	<i>Fee per transaction (\$)¹</i>	<i>Fee as % of transaction value¹</i>
All transactions	20.73	0.30	0.79%
Covered transactions	9.88	0.23	0.59%
Non-prepaid	9.80	0.23	0.59%
Prepaid	0.08	0.21	0.31%
Exempt transactions	10.85	0.43	1.15%
Non-prepaid	8.99	0.42	1.12%
Prepaid	1.86	0.47	1.36%
Covered issuer	0.69	0.46	1.33%
Exempt issuer	1.17	0.48	1.37%
<i>Dual-message networks</i>	<i>14.96</i>	<i>0.34</i>	<i>0.88%</i>
Covered transactions	6.23	0.22	0.58%
Non-prepaid	6.17	0.22	0.58%
Prepaid	0.06	0.21	0.82%
Exempt transactions	8.73	0.52	1.40%
Non-prepaid	7.21	0.51	1.37%
Prepaid	1.52	0.57	1.60%
Covered issuer	0.57	0.57	1.62%
Exempt issuer	0.94	0.56	1.59%
<i>Single-message networks</i>	<i>5.77</i>	<i>0.24</i>	<i>0.63%</i>
Covered transactions	3.65	0.24	0.61%
Non-prepaid	3.63	0.24	0.61%
Prepaid	0.02	0.23	0.82%
Exempt transactions	2.12	0.25	0.67%
Non-prepaid	1.78	0.24	0.64%
Prepaid	0.35	0.28	0.82%
Covered issuer	0.12	0.24	0.70%
Exempt issuer	0.23	0.30	0.89%

¹ Interchange fee revenue is divided by the number or value of purchase transactions.

Table 6: Payments and incentives paid by networks

	2017		
	<i>Payments and incentives (\$ billions)</i>	<i>Payment per transaction (\$)¹</i>	<i>Payment as % of transaction value¹</i>
All recipients	1.61	0.024	0.06%
Paid to merchants/acquirers	0.68	0.010	0.03%
Paid to issuers	0.93	0.014	0.04%
<i>Dual-message networks</i>	<i>1.30</i>	<i>0.029</i>	<i>0.08%</i>
Paid to merchants/acquirers	0.44	0.010	0.03%
Paid to issuers	0.85	0.019	0.05%
<i>Single-message networks</i>	<i>0.32</i>	<i>0.013</i>	<i>0.03%</i>
Paid to merchants/acquirers	0.24	0.010	0.03%
Paid to issuers	0.08	0.003	0.01%

¹ Payments and incentives are divided by the number or value of purchase transactions.

Table 7: Payments and incentives paid to issuers by networks

	2017		
	<i>Payments and incentives (\$ billions)</i>	<i>Payment per transaction (\$)¹</i>	<i>Payment as % of transaction value¹</i>
All issuers	0.93	0.014	0.036%
Covered issuers	0.43	0.010	0.025%
Exempt issuers	0.50	0.021	0.056%
<i>Dual-message networks</i>	<i>0.85</i>	<i>0.019</i>	<i>0.050%</i>
Covered issuers	0.41	0.014	0.037%
Exempt issuers	0.45	0.028	0.076%
<i>Single-message networks</i>	<i>0.08</i>	<i>0.003</i>	<i>0.008%</i>
Covered issuers	0.02	0.001	0.004%
Exempt issuers	0.05	0.007	0.018%

¹ Payments and incentives are divided by the number or value of purchase transactions.

Table 8: Network fees

	2017		
	<i>Network fee payments (\$ billions)</i>	<i>Fee per transaction (\$)¹</i>	<i>Fee as % of transaction value¹</i>
All recipients	7.03	0.103	0.27%
Paid by acquirers	4.43	0.065	0.17%
Paid by issuers	2.60	0.038	0.10%
<i>Dual-message networks</i>	<i>5.70</i>	<i>0.128</i>	<i>0.33%</i>
Paid by acquirers	3.54	0.080	0.21%
Paid by issuers	2.15	0.048	0.13%
<i>Single-message networks</i>	<i>1.33</i>	<i>0.055</i>	<i>0.15%</i>
Paid by acquirers	0.88	0.037	0.10%
Paid by issuers	0.45	0.019	0.05%

¹ Network fees are divided by the number or value of purchase transactions.

Table 9: Network fees paid by issuers

	2017		
	<i>Network fee payments (\$ billions)</i>	<i>Fee per transaction (\$)¹</i>	<i>Fee as % of transaction value¹</i>
All issuers	2.60	0.038	0.10%
Covered issuers	0.72	0.016	0.04%
Exempt issuers	1.88	0.079	0.21%
<i>Dual-message networks</i>	<i>2.15</i>	<i>0.048</i>	<i>0.13%</i>
Covered issuers	0.60	0.021	0.05%
Exempt issuers	1.55	0.099	0.26%
<i>Single-message networks</i>	<i>0.45</i>	<i>0.019</i>	<i>0.05%</i>
Covered issuers	0.11	0.007	0.02%
Exempt issuers	0.33	0.041	0.11%

¹ Network fees are divided by the number or value of purchase transactions.

Table 10: Fraudulent debit card activity reported by covered issuers

	2017	
	<i>Fraud as % of purchase transactions¹</i>	<i>Average loss per fraudulent transaction (\$)²</i>
All transactions	0.072%	61
Card-not-present fraud	0.044%	48
Counterfeit fraud	0.019%	81
Lost and stolen fraud	0.008%	67
Other fraud	0.001%	171
<i>Dual-message debit transactions³</i>	<i>0.097%</i>	<i>56</i>
Card-not-present fraud	0.065%	50
Counterfeit fraud	0.022%	64
Lost and stolen fraud	0.009%	60
Other fraud	0.001%	184
<i>Single-message debit transactions⁴</i>	<i>0.017%</i>	<i>149</i>
Card-not-present fraud	0.003%	93
Counterfeit fraud	0.008%	192
Lost and stolen fraud	0.006%	106
Other fraud	0.001%	180
<i>Prepaid transactions</i>	<i>0.123%</i>	<i>26</i>
Card-not-present fraud	0.041%	28
Counterfeit fraud	0.059%	21
Lost and stolen fraud	0.016%	21
Other fraud	0.007%	42

¹ Number of fraudulent transactions divided by the total number of purchase transactions.

² Total fraud losses to all parties (merchants, cardholders, and issuers) divided by the number of fraudulent transactions.

³ Dual-message debit transactions are transactions initiated with non-prepaid debit cards processed over dual-message networks.

⁴ Single-message debit transactions are transactions initiated with non-prepaid debit cards processed over single-message networks.

Table 11: 2017 fraud losses reported by covered issuers

	<i>All fraud¹</i>		<i>Card-not-present fraud²</i>		<i>Counterfeit fraud</i>		<i>Lost and stolen fraud</i>	
	<i>Loss per transaction (\$)³</i>	<i>Loss as share of transaction value (bp)⁴</i>	<i>Loss per transaction (\$)³</i>	<i>Loss as share of transaction value (bp)⁴</i>	<i>Loss per transaction (\$)³</i>	<i>Loss as share of transaction value (bp)⁴</i>	<i>Loss per transaction (\$)³</i>	<i>Loss as share of transaction value (bp)⁴</i>
All transactions	0.043	11.17	0.021	5.45	0.015	3.89	0.006	1.42
Merchant losses	0.023	5.90	0.015	3.88	0.006	1.54	0.002	0.42
Cardholder losses	0.002	0.52	0.001	0.25	0.000	0.10	0.000	0.12
Issuer losses	0.018	4.75	0.005	1.32	0.009	2.24	0.003	0.89
<i>Dual-message debit transactions⁵</i>	<i>0.054</i>	<i>13.80</i>	<i>0.032</i>	<i>8.26</i>	<i>0.014</i>	<i>3.64</i>	<i>0.005</i>	<i>1.38</i>
Merchant losses	0.032	8.28	0.023	5.85	0.006	1.66	0.002	0.49
Cardholder losses	0.002	0.62	0.002	0.43	0.000	0.10	0.000	0.09
Issuer losses	0.019	4.89	0.008	1.98	0.007	1.88	0.003	0.80
<i>Single-message debit transactions⁶</i>	<i>0.026</i>	<i>6.73</i>	<i>0.002</i>	<i>0.52</i>	<i>0.016</i>	<i>4.20</i>	<i>0.006</i>	<i>1.48</i>
Merchant losses	0.007	1.92	0.001	0.31	0.005	1.25	0.001	0.28
Cardholder losses	0.001	0.37	0.000	0.01	0.001	0.13	0.001	0.18
Issuer losses	0.017	4.44	0.001	0.20	0.011	2.82	0.004	1.02
<i>Prepaid transactions</i>	<i>0.029</i>	<i>10.41</i>	<i>0.015</i>	<i>5.30</i>	<i>0.007</i>	<i>2.54</i>	<i>0.005</i>	<i>1.58</i>
Merchant losses	0.012	4.20	0.011	3.72	0.002	0.75	0.001	0.47
Cardholder losses	0.001	0.25	0.000	0.00	0.000	0.00	0.000	0.01
Issuer losses	0.017	5.96	0.005	1.58	0.005	1.79	0.003	1.10

Note: Statistics exclude responses in which the issuer reported issuer fraud losses but was unable to report gross fraud losses. Therefore, statistics may differ from those in Table 14, which include responses in which the issuer was able to report only issuer fraud losses.

¹ Card-not-present, counterfeit, and lost and stolen fraud losses do not necessarily sum to all fraud losses. Some fraud losses could not be categorized by issuers into the categories above but are still included under all fraud losses.

² Card-not-present fraud losses may also be reported in another second category.

³ Fraud losses divided by the number of purchase transactions (both fraudulent and non-fraudulent).

⁴ Fraud losses divided by the value of purchase transactions (both fraudulent and non-fraudulent).

⁵ Dual-message transactions are transactions initiated by non-prepaid debit cards over dual-message networks.

⁶ Single-message transactions are transactions initiated by non-prepaid debit cards over single-message networks.

Table 12: Covered issuers by 2017 volume

	<i>Number of covered issuers</i>		<i>% of transactions¹</i>	<i>% of transaction value¹</i>	<i>Average transaction value (\$)²</i>
All covered issuers	115				38.21
High-volume issuers (more than 100 million transactions)	38	33%	96.21%	95.50%	37.93
Mid-volume issuers (1-100 million transactions)	59	51%	3.78%	4.48%	45.24
Low-volume issuers (less than 1 million transactions)	18	16%	0.01%	0.02%	60.52

¹ The percentage of the total number or value of covered issuer transactions. Covered issuers represent about 65 percent of all debit card transactions.

² Average transaction values in this table are calculated from the Debit Card Issuer survey. Average transaction values reported in tables 1-3 are calculated from the Payment Card Network survey.

Table 13: Average authorization, clearing, and settlement (ACS) costs, excluding issuer fraud losses, per transaction (\$)

	2017			
	<i>All covered issuers</i>	<i>High-volume issuers</i>	<i>Mid-volume issuers</i>	<i>Low-volume issuers</i>
All issuers ¹				
All transactions²	0.036	0.033	0.122	0.477
<i>Dual-message debit transactions²</i>	0.040	0.038	0.123	0.136
<i>Single-message debit transactions²</i>	0.021	0.020	0.078	1.167
<i>Prepaid transactions^{2,3}</i>	0.079	0.078	0.283	
Only issuers providing cost breakdown ¹				
All transactions²	0.034	0.033	0.118	0.578
In-house costs	0.016	0.016	0.026	0.141
Third-party processing fees	0.009	0.008	0.035	0.225
Network fees	0.006	0.005	0.035	0.106
<i>Dual-message debit transactions^{2,3}</i>	<i>0.039</i>	<i>0.038</i>	<i>0.128</i>	
In-house costs	0.020	0.020	0.022	
Third-party processing fees	0.009	0.008	0.040	
Network fees	0.007	0.006	0.046	
<i>Single-message debit transactions^{2,3}</i>	<i>0.022</i>	<i>0.021</i>	<i>0.081</i>	
In-house costs	0.010	0.010	0.021	
Third-party processing fees	0.005	0.005	0.021	
Network fees	0.004	0.004	0.022	
<i>Prepaid transactions^{2,3}</i>	<i>0.078</i>	<i>0.078</i>	<i>0.100</i>	
In-house costs	0.018	0.018	0.004	
Third-party processing fees	0.037	0.037	0.037	
Network fees	0.017	0.017	0.058	

¹ First set of rows in table reports statistics from transactions processed by all covered issuers, regardless of the level of detail in their cost reporting. Second set of rows reports statistics from transactions including only those issuers that provided a breakdown of their costs by category.

² ACS costs include transactions monitoring costs. However, transactions monitoring costs are not included in the breakout into in-house costs and third-party processing fees.

³ Prepaid figures for low-volume issuers, as well as the breakdown by cost category among low-volume issuers for dual-message, single-message and prepaid transactions, are not reported because of the small number of respondents.

Table 14: 2017 Covered issuer costs per transaction (\$) and fraud losses as share of transaction value (bp)

	All covered issuers					High-volume issuers					Mid-volume issuers					Low-volume issuers				
	Transaction-weighted average	Issuer-weighted average	Issuer percentiles			Transaction-weighted average	Issuer-weighted average	Issuer percentiles			Transaction-weighted average	Issuer-weighted average	Issuer percentiles			Transaction-weighted average	Issuer-weighted average	Issuer percentiles		
			25 th	50 th	75 th			25 th	50 th	75 th			25 th	50 th	75 th			25 th	50 th	75 th
All transactions																				
ACS costs, excluding fraud losses ¹	0.036	0.269	0.042	0.095	0.185	0.033	0.050	0.026	0.037	0.075	0.122	0.161	0.083	0.122	0.184	0.477	1.257	0.371	0.923	1.693
Fraud-prevention costs ²	0.020	0.043	0.006	0.015	0.032	0.020	0.018	0.006	0.012	0.021	0.019	0.028	0.004	0.013	0.034	0.056	0.152	0.021	0.050	0.186
Cardholder inquiry costs ³	0.032	0.031	0.004	0.015	0.038	0.032	0.022	0.009	0.021	0.032	0.032	0.041	0.001	0.011	0.061	0.027	0.029	-	-	0.034
Reward program costs	0.001	0.002	-	-	-	0.001	0.001	-	-	0.000	0.001	0.003	-	-	-	-	-	-	-	-
NSF handling costs ⁴	0.005	0.003	-	-	0.003	0.006	0.005	0.001	0.002	0.007	0.002	0.002	-	-	0.001	-	-	-	-	-
Issuer fraud losses	0.019	0.042	0.014	0.023	0.050	0.018	0.020	0.011	0.016	0.024	0.032	0.051	0.018	0.028	0.057	0.057	0.056	0.010	0.033	0.070
Dual-message debit transactions ⁵																				
ACS costs, excluding fraud losses ¹	0.040	0.119	0.034	0.082	0.158	0.038	0.061	0.029	0.035	0.082	0.121	0.169	0.070	0.141	0.209	0.136	0.224	0.178	0.224	0.270
Fraud-prevention costs ²	0.023	0.037	0.005	0.014	0.034	0.023	0.021	0.007	0.014	0.023	0.022	0.031	0.003	0.012	0.042	0.155	0.281	0.243	0.337	0.347
Cardholder inquiry costs ³	0.031	0.032	0.003	0.017	0.036	0.030	0.022	0.009	0.021	0.032	0.026	0.046	0.002	0.010	0.072	-	-	-	-	-
Reward program costs	0.000	0.003	-	-	-	<0.001	0.003	-	-	<0.001	0.001	0.003	-	-	-	-	-	-	-	-
NSF handling costs ⁴	0.006	0.004	-	0.001	0.004	0.006	0.006	0.001	0.004	0.009	0.003	0.003	-	-	0.001	-	-	-	-	-
Issuer fraud losses	0.020	0.035	0.016	0.026	0.043	0.020	0.024	0.014	0.022	0.032	0.035	0.049	0.023	0.041	0.060	0.032	0.020	-	0.018	0.031
Single-message debit transactions ⁶																				
ACS costs, excluding fraud losses ¹	0.021	0.193	0.025	0.050	0.133	0.020	0.039	0.016	0.030	0.053	0.078	0.217	0.045	0.102	0.177	<0.001	1.311	0.498	1.198	2.011
Fraud-prevention costs ²	0.016	0.044	0.004	0.013	0.028	0.016	0.018	0.005	0.012	0.020	0.018	0.055	0.002	0.012	0.036	0.081	0.147	0.085	0.193	0.194
Cardholder inquiry costs ³	0.032	0.046	0.003	0.016	0.039	0.032	0.021	0.009	0.020	0.031	0.026	0.080	0.001	0.008	0.067	0.060	0.038	-	-	0.060
Reward program costs	0.001	0.001	-	-	-	0.001	0.001	-	-	<0.001	0.001	0.002	-	-	-	-	-	-	-	-
NSF handling costs ⁴	0.004	0.002	-	-	0.002	0.004	0.005	<0.001	0.002	0.007	0.000	<0.001	-	-	-	-	-	-	-	-
Issuer fraud losses	0.017	0.057	0.003	0.017	0.051	0.017	0.017	0.003	0.009	0.021	0.050	0.092	0.005	0.032	0.096	0.075	0.061	-	-	0.059
Prepaid transactions ⁷																				
ACS costs, excluding fraud losses ¹	0.079	1.006	0.036	0.077	0.116	0.078	0.236	0.034	0.072	0.115	0.283	3.644	0.041	0.100	0.636					
Fraud-prevention costs ²	0.022	0.022	<0.001	0.012	0.024	0.022	0.021	0.003	0.014	0.026	0.036	0.024	<0.001	<0.001	0.004					
Cardholder inquiry costs ³	0.052	0.361	0.004	0.034	0.131	0.052	0.065	0.005	0.033	0.103	0.333	1.546	0.001	0.259	0.432					
Reward program costs	0.002	0.001	-	-	-	0.002	0.001	-	-	<0.001	<0.001	<0.001	-	-	-					
NSF handling costs ⁴	0.004	0.002	-	-	-	0.004	0.002	-	-	0.001	-	-	-	-	-					
Issuer fraud losses	0.017	0.056	0.008	0.017	0.041	0.017	0.050	0.009	0.017	0.036	0.040	0.073	-	0.020	0.064					
Covered issuer fraud losses (bp) ⁸	4.88	8.36	3.41	5.34	8.91	4.78	5.13	2.99	4.27	6.35	6.93	9.84	4.23	5.73	9.73	9.70	10.34	2.42	6.89	12.57
Dual-message debit transactions ⁵	5.11	7.14	4.12	6.46	9.06	5.02	6.00	3.66	5.65	7.62	7.70	8.89	5.29	7.14	10.15	5.25	4.08	-	3.37	7.04
Single-message debit transactions ⁶	4.51	12.48	0.62	3.73	11.58	4.32	4.33	0.83	2.21	5.12	11.34	20.47	1.35	6.43	16.69	12.64	10.82	-	-	9.14
Prepaid transactions ⁷	6.02	11.83	2.86	5.93	13.93	6.00	11.95	3.52	6.00	11.29	9.56	11.49	-	4.50	17.63					

¹ Authorization, clearing, and settlement costs include transactions monitoring costs and exclude issuer fraud losses, which are reported separately.

² Fraud-prevention costs include fraud-related cardholder inquiry costs and exclude transactions monitoring costs, which are counted as part of ACS costs.

³ Cardholder inquiry costs exclude fraud-related cardholder inquiry costs, which are counted as part of fraud-prevention costs.

⁴ Non-sufficient funds (NSF) handling costs.

⁵ Dual-message debit transactions are transactions initiated with non-prepaid debit cards processed over dual-message networks.

⁶ Single-message debit transactions are transactions initiated with non-prepaid debit cards processed over single-message networks.

⁷ Prepaid figures for low-volume issuers are not reported because of the small number of respondents in this category.

⁸ Covered issuer fraud losses for all transactions include covered issuers that could not allocate fraud losses among dual-message debit, single-message debit, and prepaid transactions.

Table 15: Covered issuers with costs/losses below the levels permitted by the interchange fee standard and fraud-prevention

	2011		2013		2015		2017	
	<i>% of covered issuers¹</i>	<i>% of transactions represented²</i>	<i>% of covered issuers¹</i>	<i>% of transactions represented²</i>	<i>% of covered issuers¹</i>	<i>% of transactions represented²</i>	<i>% of covered issuers¹</i>	<i>% of transactions represented²</i>
All covered issuers								
Total maximum interchange fee ³	58.4%	98.9%	58.2%	99.4%	61.8%	99.4%	74.0%	99.7%
Interchange fee standard ⁴	61.1%	99.5%	59.1%	99.4%	64.5%	99.5%	76.0%	99.7%
Fraud-prevention adjustment ⁵	43.1%	25.6%	37.3%	21.0%	34.5%	16.6%	38.2%	17.6%
<i>High-volume issuers</i>								
Total maximum interchange fee ³	96.7%	99.6%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Interchange fee standard ⁴	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Fraud-prevention adjustment ⁵	48.4%	23.5%	45.5%	19.3%	34.3%	15.2%	38.9%	16.8%
<i>Mid-volume issuers</i>								
Total maximum interchange fee ³	65.4%	87.6%	62.0%	87.1%	61.5%	84.8%	76.6%	90.2%
Interchange fee standard ⁴	67.3%	90.9%	62.0%	87.1%	67.3%	88.7%	78.7%	90.4%
Fraud-prevention adjustment ⁵	47.5%	59.8%	40.7%	56.2%	34.5%	48.8%	43.1%	43.6%
<i>Low-volume issuers</i>								
Total maximum interchange fee ³	9.7%	33.8%	3.6%	8.6%	8.3%	18.7%	0.0%	0.0%
Interchange fee standard ⁴	12.9%	42.1%	7.1%	8.7%	8.3%	18.7%	7.1%	11.9%
Fraud-prevention adjustment ⁵	30.3%	38.3%	22.6%	22.9%	34.6%	45.9%	20.0%	15.4%

¹ Percentage of covered issuers in the relevant category with average ACS costs, including issuer fraud losses, and fraud-prevention costs below the level permitted by the interchange fee standard and the fraud-prevention adjustment. All covered issuers are included, but some of these issuers may not have been eligible for the fraud-prevention adjustment.

² Percentage of purchase transactions represented by covered issuers in the relevant category with average ACS costs, including fraud losses, and fraud-prevention costs below the level permitted by the interchange fee standard and the fraud-prevention adjustment. All covered issuer transactions are included although certain prepaid transactions were exempt from the interchange fee standard.

³ Average ACS costs, including issuer fraud losses, plus fraud-prevention costs per transaction of 22 cents plus 5 basis points of the issuer's average transaction value or less.

⁴ Average ACS costs, including issuer fraud losses, per transaction of 21 cents plus 5 basis points of the issuer's average transaction value or less.

⁵ Average fraud-prevention costs per transaction of 1 cent or less.