

# Checks Processed by the Federal Reserve in 2021

## Report of the Check Sample Survey

Federal Reserve Bank of Atlanta  
Retail Payments Risk Forum Working Paper 23-1

**Abstract:** The 2021 Check Sample Survey (CSS) is designed to gain an understanding of the payer, payee, and purpose of checks written by business (including government) and consumers in the United States. It includes shares by number and value and average values of checks collected and checks returned based on items that the Federal Reserve System processed in 2021.

From 2018 to 2021, the number of checks written by consumers declined faster than the number of checks written by businesses. Consumer-to-business checks for bill payment declined most as a share of all checks collected. Checks written at the retail point of sale (POS) are increasingly rare, representing a vanishing share of checks by number. While most checks were returned for nonsufficient funds, the value of possible check fraud grew faster than the value of checks collected.

Data tables (appendix A), technical appendix (appendix B), and check questionnaires (appendix C) are available for download at [frbatlanta.org](https://frbatlanta.org).

JEL classification: E42

Key words: US consumer check use, US business check use, paper checks, personal checks, business checks, Federal Reserve Payments Study, Check Sample Survey

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The views expressed here are those of the authors (Nancy Donahue, Claire Greene, Nancy Liu, and Catherine Thaliath) and not necessarily those of the Federal Reserve Bank of Atlanta or the Federal Reserve System. Any errors are the authors' responsibility. If you have questions, contact Nancy Donahue, [nancy.donahue@atl.frb.org](mailto:nancy.donahue@atl.frb.org).

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## About the Check Sample Survey

The 2018 and 2021 Check Sample Survey is a collaboration of the Federal Reserve Bank of Atlanta and Federal Reserve Financial Services. It was administered with the help of the GCI Analytics office of McKinsey & Company. Contributors from the Atlanta Fed are Nancy Donahue, Claire Greene, Catherine Thaliath, and Jessica Washington. From Federal Reserve Financial Services are Dorian Hall, Mark Kielman, Nancy Liu, Jill Jones, Jean McKelvey, Kevin McKenna, Nicholas Piazza, and Mike Williams. From GCI Analytics–McKinsey & Company are Michael Argento, Kathleen Ferguson, Christopher A. Gill, Sohil Patel, and Kim Zhang. We thank Geoffrey Gerdes, May Liu, Brent Meyer, and Joanna Stavins for valuable comments.

This report is based on checks processed through the Federal Reserve System. Therefore, the sample does not represent the full population of checks in the United States in 2021. It excludes checks written by and paid to account holders of the same financial institution (“on-us” checks), checks settled directly between two banks or through a private clearinghouse, and checks “converted” to an automated clearinghouse (ACH) payment.

# Introduction

Nowadays, you are unlikely to see a consumer writing a check at the grocery store. Check use in the United States has been trending down for at least two decades, declining 6.2 percent by number per year and 1.8 percent per year by value in nominal terms from 2000 to 2021 (FR 2023 and FR 2019).<sup>1</sup> Checks remain relevant, however, for consumer bill payment, for payments from one person to another, and, most importantly, for business-to-business payments. The Federal Reserve System continues to process billions of checks every year: 3.66 billion checks were collected in 2021 with a total value of \$8.76 trillion.<sup>2</sup>

This report examines the use of checks by US consumers, businesses, and government in 2021, using a sample of approximately 35,000 checks drawn on commercial banks, savings institutions, and credit unions in the United States.<sup>3</sup> Understanding who writes checks, for how much, and to whom can give some insight into consumers' and businesses' evolving use of checks. Investigating the reasons for returned checks can assist with fraud prevention and risk management. This information can help check processors, financial institutions, payment businesses, and regulators understand current trends and plan for the future.

This report is based on checks cleared through the Federal Reserve System. Therefore, the sample does not represent the full population of checks in the United States in 2021 (also called "forward checks" or "checks collected"). It excludes checks written and paid to account holders of the same financial institution ("on-us" checks), checks settled directly between two banks or through a private clearinghouse, and checks "converted" to an automated clearinghouse (ACH) payment. These excluded checks generally are written on or received by larger financial institutions, so the mix of counterparty types could differ.

The number of checks collected by the Federal Reserve declined faster from 2018 to 2021 than it had over the prior two decades. The number of checks collected declined 8.3 percent per year, compared to a decline of 6.8 percent per year from 2000 to 2018. Similarly, the nationally representative Federal Reserve Payments Study (FRPS) found that the number of check payments fell by 7.2 percent per year from 2018 to 2021, a sharper decline than from 2000 to 2018 (FRS 2023).

In addition, for checks processed through the Federal Reserve System, we find:

- The number of checks collected that were written by consumers declined 10.5 percent per year from 2018 to 2021. This decline exceeded the per-year decline in the number of checks written by businesses: 5.9 percent.
- Checks were mostly paid to businesses: three-quarters by value and almost two-thirds by number in 2021.
- Consumer-to-business (C2B) checks declined most as a share of all checks collected.

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<sup>1</sup> The real-value decline from 2000 to 2021 was 3.9 percent per year. US Bureau of Labor Statistics, <https://www.bls.gov/cpi/data.htm>

<sup>2</sup> [https://www.federalreserve.gov/paymentsystems/check\\_commcheckcolannual.htm](https://www.federalreserve.gov/paymentsystems/check_commcheckcolannual.htm)

<sup>3</sup> For purposes of this report, "businesses" include government entities. The distinction between business and government is immaterial for evaluating the potential to substitute other payment methods for checks because government entities can accept or initiate payment types that a business might also accept or initiate. Although government entities often behave differently than private businesses, most survey questions asked respondents to include government payments in business payments. The Federal Reserve Banks process and can distinguish payments conducted by the US Treasury and many federal agencies, but a discussion of such payments is out of the scope of this report.

- In 2021, checks presented at the retail point of sale were a vanishing share of check payments to businesses.
- From 2018 to 2021, the value of checks returned grew faster than the value of checks collected. This could be related to bank forbearance in 2020 cascading into increased returns in 2021 as well as to the greater prevalence of fraud since the start of the pandemic.
- In both 2018 and 2021, most checks were returned for nonsufficient funds (NSF).
- From 2018 to 2021, the value of possible check fraud grew faster than the value of checks collected.

## Research design

By number in the United States, the Federal Reserve processes an estimated one-third of all checks written, collected, and paid as checks (also called “forward items”).<sup>4</sup> Checks collected include remotely created checks<sup>5</sup> and exclude checks converted and collected through ACH. The Federal Reserve processes about half of returned checks—that is, unpaid checks that the paying bank sends back to the depositing bank.

In 2021, the Fed collected 3.7 billion checks and processed 19 million returns. From the 2021 Federal Reserve check image archive, 24,957 checks collected and 9,938 returns were sampled. Check images captured as part of regular Fed processing were sampled monthly from January 2021 through December 2021, with the number of checks sampled each month adjusted for seasonality. First, check image files submitted by collecting banks were randomly sampled. Then, individual checks were sampled randomly from the files. The sampling accounted for the disparate sizes of financial institutions using Federal Reserve Financial Services.<sup>6</sup> The proportion of forward sample checks that were sourced from large files (which are more likely to be associated with large financial institutions) was selected to match the proportion of checks from large files in the overall forward check population (appendix B provides detail).

We catalogued these random samples of checks collected and return items according to an assessment of the nature of the payer, payee, and purpose. For each check, we captured as many as 24 data elements, including routing number, value, and indicators that the payee or payer was a consumer or business (for example, inclusion of “Inc.,” “Corp.,” or “Association” in the payer name and whether or not the check was handwritten) and then assigned payer and payee classifications and purpose categories (data elements are listed in appendix B).<sup>7</sup>

The populations used for the 2018 and 2021 Check Sample Surveys were similar—that is, a random sample from the Federal Reserve check image archive for each year, including checks processed by financial institutions of all sizes. Prior iterations of this survey used a different population: checks processed by a commercial processor for large commercial banks, including on-us checks.<sup>8</sup> Consequently, we recommend against comparing the 2018 and

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<sup>4</sup> Estimated market shares based on [2019 Federal Reserve Payments Study](#) and Federal Reserve Financial Services analysis.

<sup>5</sup> Remotely created checks are checks issued on a payer’s behalf. They are authorized by the payer and drawn on the payer’s account but do not bear the payer’s signature. See [federalreserve.gov/newsevents/pressreleases/files/bcreg20170531a1.pdf](https://www.federalreserve.gov/newsevents/pressreleases/files/bcreg20170531a1.pdf). They are a negligible share of the sample: 1.5 percent of checks collected by number and 0.5 percent by value.

<sup>6</sup> A disproportionate number of small banks clear checks through the Federal Reserve System but an overwhelming number of checks come from the largest depositors and represent a majority of items processed and cleared by the Federal Reserve (see appendix B).

<sup>7</sup> No sensitive or personally identifiable information was retained. Each analyst’s work was checked and inconsistencies were resolved. For more information, see appendix B.

<sup>8</sup> See appendix B.

2021 data to previous CSS samples, because differences could be due to dissimilar populations rather than to real change in check use. For example and as noted above, compared to the Federal Reserve Payments Study, the per-year decline in the number and value of checks collected by the Federal Reserve was more rapid. The nationally representative FRPS finds a 5.8 percent per-year decline in the number of checks and a 2.3 percent decline in the value from 2000 to 2018. Checks collected by the Federal Reserve declined 6.8 percent per year by number and 2.7 percent per year by value over the same period.

Researchers should avoid using the distributions presented here to draw conclusions about the number and volume of all check payments in the United States because, as noted above, the population of checks studied is incomplete. Estimates of noncash payments volume and values, including checks, based on survey data gathered from a nationally representative survey of depository and financial institutions, are available in the Federal Reserve Payments Study (FRS 2019, FRS 2020, and FRS 2023).

## Checks collected declined 8.3 percent per year, 2018–2021

The total number of checks collected by the Federal Reserve declined from 4.7 billion in 2018 to 3.7 billion in 2021, or 8.3 percent per year.<sup>9</sup> In contrast, the total value of checks collected increased from \$8.49 trillion in 2018 to \$8.76 trillion in 2021, or 1.1 percent per year.<sup>10</sup> As noted above, this finding is limited to checks collected by Federal Reserve Financial Services and may not be representative of the change in the number of all checks cleared in the United States over this period (table 1).<sup>11</sup>

**Table 1. From 2018 to 2021, total value of checks collected increased slightly**  
Number and value of checks collected by the Federal Reserve by payer, 2018 and 2021

	2018		2021		CAGR (percent)	
	Number (millions)	Value (billions of dollars)	Number (millions)	Value (billions of dollars)	Number	Value
Total	4,740	8,485	3,657	8,758	-8.3	1.1
Business	2,204	6,372	1,839	6,612	-5.9	1.2
Consumer	2,536	2,113	1,818	2,146	-10.5	0.5

Notes: CAGR is compound annual growth rate. Inflation adjusted, the value of checks collected declined 1.5 percent per year, checks attributed to business payers declined 1.3 percent per year, and checks attributed to consumer payers declined 2.0 percent per year.

Source: [https://www.federalreserve.gov/paymentsystems/check\\_commcheckcolannual.htm](https://www.federalreserve.gov/paymentsystems/check_commcheckcolannual.htm), CSS table A-1

## Consumers wrote about half of checks

By number, consumers wrote half of checks in 2021, slightly down from 2018 as a percentage share, when consumers wrote 53.5 percent (table 2). The increase in percentage share for business checks by number implies a slower rate of decline in the number of business checks, compared to the decline in checks written by consumers. Applying the estimated shares of checks written by consumers and businesses to the annual volume of checks processed by the Fed, we find that the number of business checks processed by the Fed declined by 5.9 percent per year and the number of consumer checks by 1.1 percent per year (table 1).

<sup>9</sup> [https://www.federalreserve.gov/paymentsystems/check\\_commcheckcolannual.htm](https://www.federalreserve.gov/paymentsystems/check_commcheckcolannual.htm)

<sup>10</sup> Unless otherwise noted, nominal dollar values are used in this report and for the accompanying tables in appendix A.

<sup>11</sup> FRS 2023

**Table 2. Business payers account for three-quarters of the value of checks collected**

Shares of checks collected by payer, 2018 and 2021 (percent)

	2018		2021	
	Number	Value	Number	Value
Total	100	100	100	100
Business	46.5	75.1	50.3	75.5
Consumer	53.5	24.9	49.7	24.5

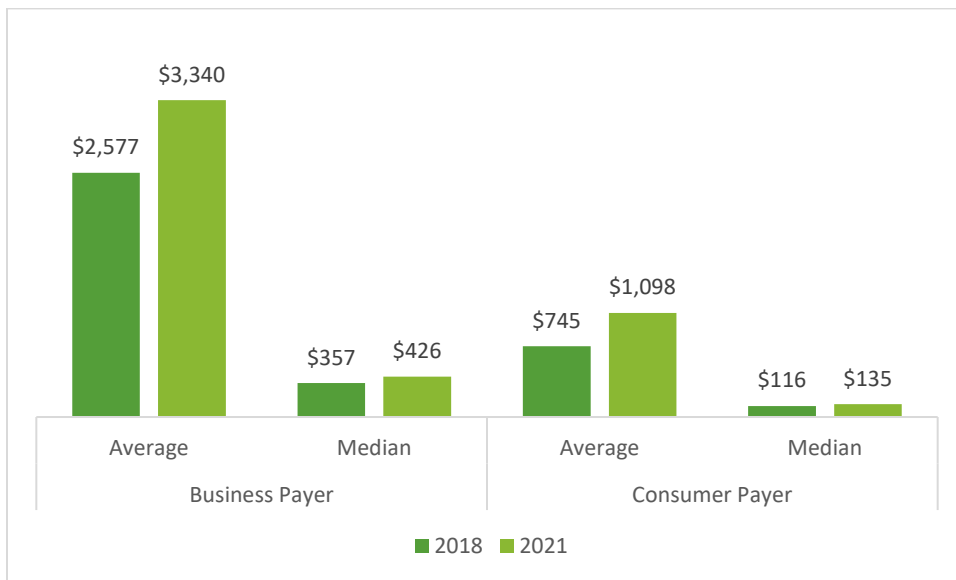
Source: 2018 and 2021 CSS table A-1

The total value of checks collected through the Federal Reserve increased nominally by a small amount—1.1 percent per year from 2018 to 2021—but declined by 1.5 percent per year on an inflation-adjusted basis.<sup>12</sup> By value, businesses wrote the bulk of checks: 75.5 percent, unchanged from 2018.

Congruent with the decline in checks collected by number and the relatively stable total value, average and median values of checks written by consumers and businesses increased across the board (figure 1 and appendix table A-1). The average value of all checks collected through the Federal Reserve was \$1,790 in 2018, increasing monotonically to \$2,395 in 2021.<sup>13</sup> In the 2021 CSS sample, the average value of a check written by a business was \$3,340; by a consumer, \$1,098. This increase in average values is consistent with the recent findings of the nationally representative Federal Reserve Payments Study, which found monotonic growth in the average value of check payments from 2012 through 2018 (FRS 2019, updated January 2020).

**Figure 1. Average and median values of checks collected increased from 2018**

By payer, values of checks collected by the Federal Reserve, 2018 and 2021



Note: Inflation-adjusted, the 2021 medians are flat: \$366 for business payers and \$116 for consumers in 2018 dollars.

Source: 2018 and 2021 CSS table A-1

<sup>12</sup> U.S. Bureau of Labor Statistics, <https://www.bls.gov/cpi/data.htm>.

<sup>13</sup> [https://www.federalreserve.gov/paymentsystems/check\\_commcheckcolannual.htm](https://www.federalreserve.gov/paymentsystems/check_commcheckcolannual.htm)

## Checks were mostly paid to businesses

On the receiving side, checks are mostly paid to businesses: two-thirds of checks by number and three-quarters by value were paid to businesses (table 3). Both shares changed little from 2018: shares paid to businesses were down between one and two percentage points (with a corresponding increase in shares paid to consumers).<sup>14</sup> Applying the estimated shares of checks written to consumers and businesses to the annual volume of checks collected by the Fed, we find that the number of checks written to businesses declined by 9.3 percent per year and the number of checks written to consumers by 6.4 percent per year (table 4). By payee, average and median values of checks also increased from 2018 (figure 2).

**Table 3. Business payees received two-thirds of checks by number, three-quarters by value**  
Shares of checks collected by payee, 2018 and 2021 (percent)

	2018		2021	
	Number	Value	Number	Value
Total	100	100	100	100
Business	66.0	75.8	63.9	74.5
Consumer	34.0	24.2	36.2	25.2

Source: 2018 and 2021 CSS table A-1

**Table 4. Check payments to businesses declined more rapidly than did check payments to consumers**  
Number and value of checks collected by the Federal Reserve by payee, 2018 and 2021

	2018		2021		CAGR (percent)	
	Number (millions)	Value (billions of dollars)	Number (millions)	Value (billions of dollars)	Number	Value
Total	4,740	8,485	3,657	8,758	-8.3	1.1
Business	3,128	6,432	2,337	6,523	-9.3	0.5
Consumer	1,612	2,053	1,324	2,235	-6.3	2.8

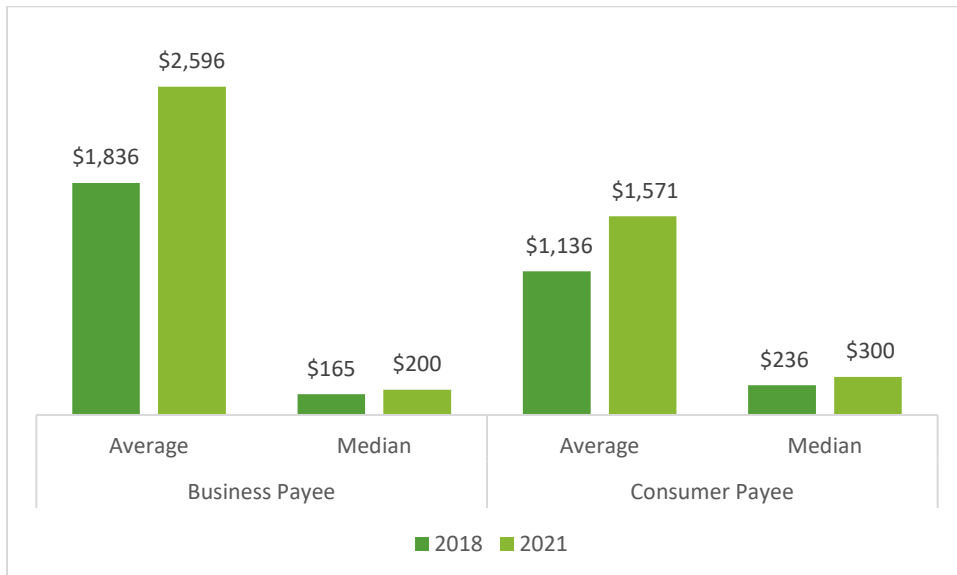
Notes: CAGR is compound annual growth rate. Inflation adjusted, the value of checks collected declined 1.5 percent per year, the value of checks to business payees declined 2.0 percent per year, and the value of checks to consumer payees was flat.

Source: [https://www.federalreserve.gov/paymentsystems/check\\_commcheckcolannual.htm](https://www.federalreserve.gov/paymentsystems/check_commcheckcolannual.htm), CSS table A-1

<sup>14</sup> For this report, federal, state, and local government agencies and nonprofit organizations are grouped with businesses because they are all able to accept the same payment types.

Figure 2. **Average and median values of checks collected increased from 2018**

By payee, values of checks collected by the Federal Reserve, 2018 and 2021



Note: Inflation adjusted, the 2021 medians are \$185 for business payees and \$278 for consumer payees in 2018 dollars.

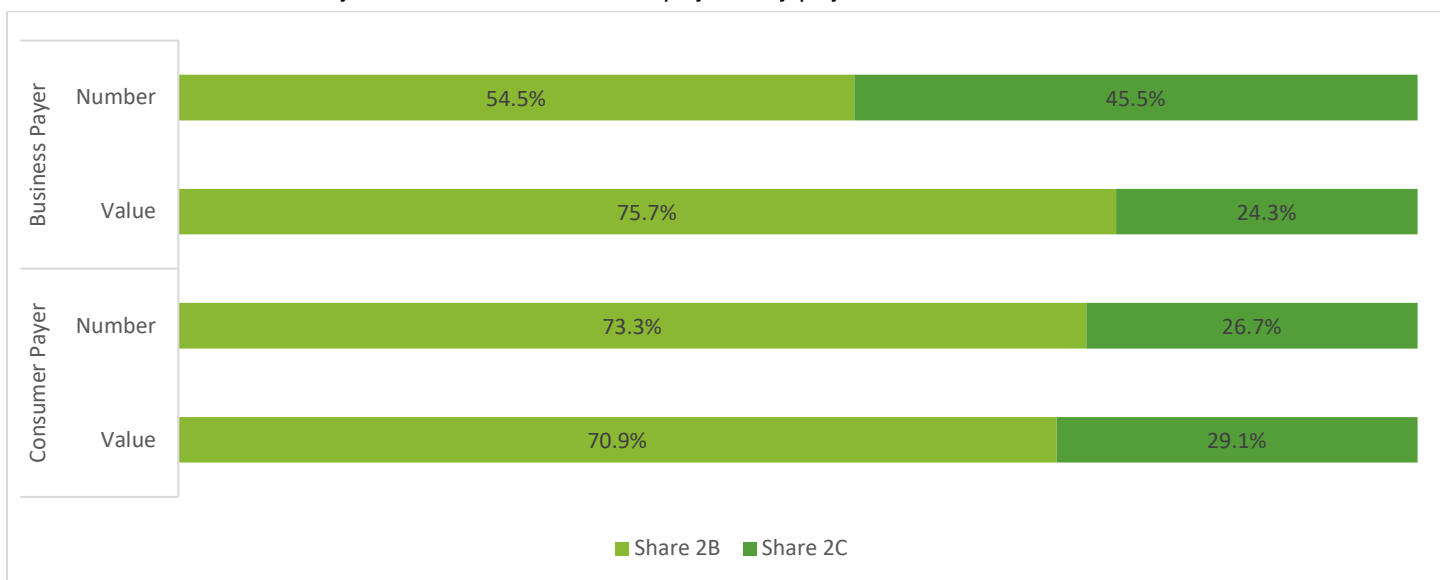
Source: 2018 and 2021 CSS table A-1

### Consumer-to-business checks declined as a share of all checks

Consumers wrote three-quarters of their checks, by both number and value, to businesses (C2B) (figure 3). As a share of all checks and as a share of checks written by consumers, C2B checks declined by both number and value from 2018. Businesses wrote just over half of their checks by number and three-quarters by value to other businesses (B2B).

Figure 3. **B2B payments are half of business checks written by number, three-quarters by value**

Shares of checks written by business and consumer payers, by payee 2021



Source: 2021 CSS table A-1



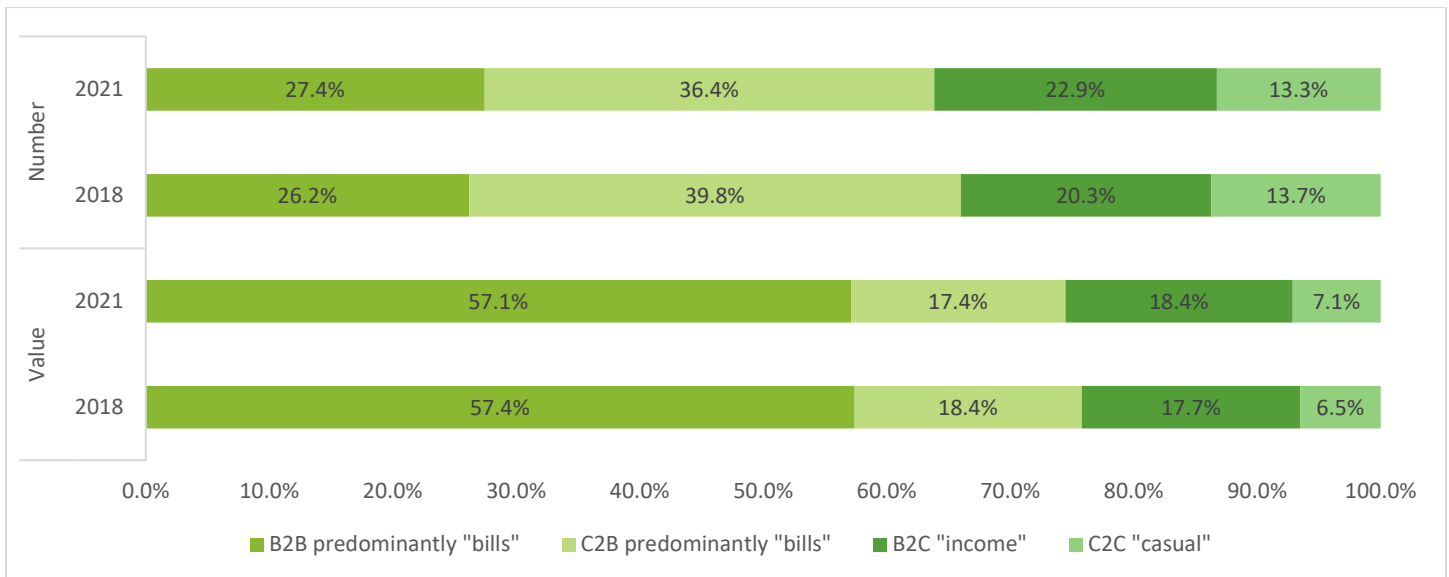
## Most checks were written to pay bills

The identities of the counterparties, both payer and payee, are used to roughly categorize the purpose of a check payment. Payments to consumers, 36.2 percent of payments by number in 2021 and 25.2 percent by value (table 3), are further categorized by payer as follows:

- Income.** All B2C payments are categorized as income. Such payments can include payroll; pension; benefits and entitlements; rebates, promotions, and refunds; expense reimbursements; tax refunds; investment disbursements; and bill payments to small businesses that are indistinguishable from consumers.<sup>15</sup> In 2021, payments of income were 36.4 percent of all payments by number and 17.4 percent by value (figure 4). The average dollar value of these income payments was \$1,788 in 2021, up from \$1,389 in 2018.
- Casual.** All C2C payments are categorized as casual. The term casual, implying informal or irregular usage, reflects the wide variety of uses in this broad group. C2C payments include informal payments to family, friends, and acquaintances, such as for gifts, babysitting, lawn mowing, and reimbursements. In 2021, 13.3 percent of checks by number were “casual” payments, 7.1 percent by value. The average dollar value of casual payments was \$1,197 in 2021, up from \$760 in 2018.

Figure 4. **Most check payments to businesses are bill payments**

Shares of checks written by counterparties, 2018 and 2021



Note: B2B and C2B payments are “predominantly bills” because a negligible share of B2B or B2C payments are POS payments or indeterminate. Figure 5 (below) shows the shares for POS payments.

Source: 2018 and 2021 CSS table A-1

Payments to businesses, 63.9 percent of payments by number in 2021 and 74.5 percent by value (figure 4), are further categorized as follows: bill payments, point-of-sale payments, or indeterminate (that is, unable to be

<sup>15</sup> For example, a small-business owner might use a consumer checking account to manage the business finances.

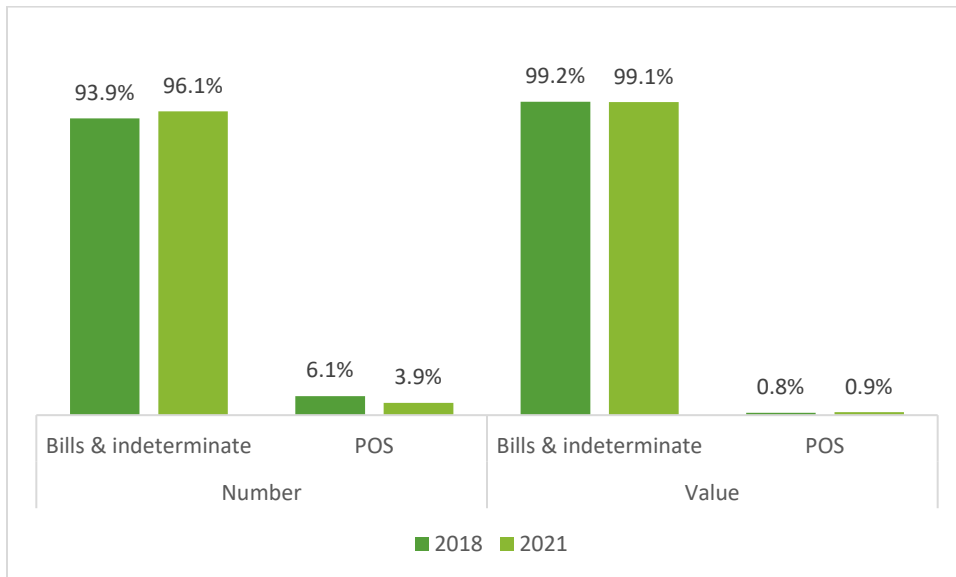
classified because limits on the data available from the checks constrain our ability to identify the purpose of a payment).

**Bill payments.** By both number and value, more than 95 percent of payments to businesses are categorized as bill payments, regardless of whether the payer is a business or consumer. Bill payments are C2B or B2B payments that did not occur at the point of sale. Such payments include regularly recurring payments, such as utility bill payments; nonrecurring bill payments made by consumers, including medical bills; and commercial bill payments, such as payments of B2B invoices for materials or supplies. By number, 60.7 percent of all checks collected in 2021 were bill payments to a business. By value, 73.6 percent of the value of checks collected was for bill payments.

**Point-of-sale payments.** Some of the remaining checks paid to businesses contain information that differentiates them from bill payments. For example, a check endorsement that included a store number or terminal number would imply a check payment at the point of sale (POS).<sup>16</sup> In 2021, a minuscule share of check payments to business occurred at the in-person POS: 2.5 percent of all check payments by number and less than 1 percent by value. Those shares have declined from 2018, from 4 percent and about 1 percent, respectively. Figure 5 shows POS check payments as shares of payments to businesses.

Figure 5. **POS payments: A shrinking sliver of check payments to businesses**

Shares of checks to business payees, number and value, 2018 and 2021



Note: Less than 1 percent of checks paid to businesses were classified as indeterminate for 2021.

Source: 2018 and 2021 CSS table A-1

**Indeterminate payments.** Some payments to businesses are not categorized because information on the check was insufficient to categorize the purpose as bill or POS (“indeterminate” in appendix tables A-1, 2, 5, 8, and 9). The 2021 procedure for gathering information about business payments was improved from 2018, and the share of indeterminate payments dropped from 2018: by number, from 3.7 percent to 0.7 percent, and by value, from 2.2 percent to 0.1 percent.

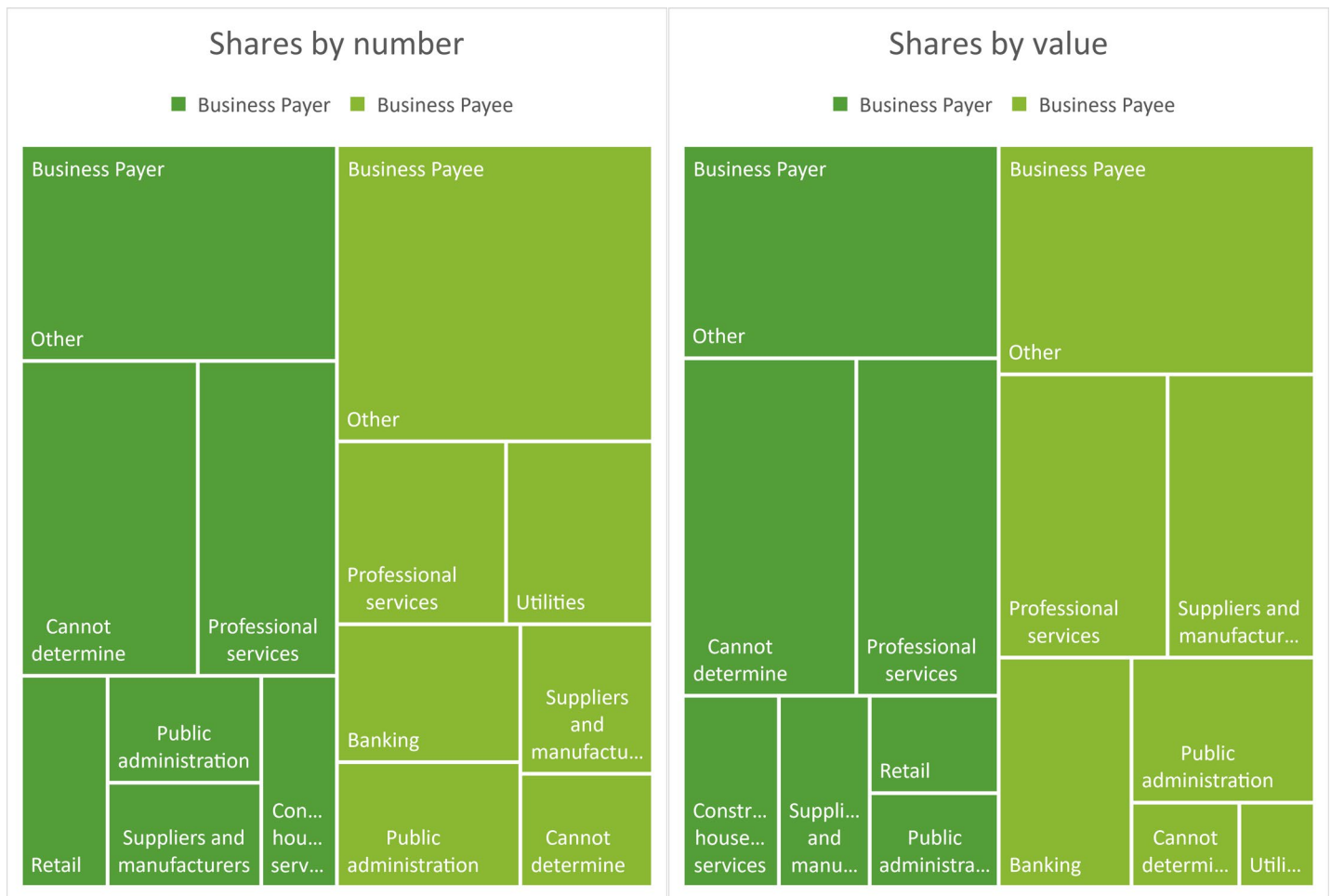
<sup>16</sup>For detail, see appendix B.

## Professional services firms, government units more likely to write and receive business checks

Examining the industries of business payers and payees could provide insights into opportunities for digitization by industry category and into situations where digitization could be more difficult or less rewarding. Business counterparties were classified into 16 industry groups, based on the information on the front and back of the checks. As figure 6 shows, among payers, one-quarter of checks could not be classified by industry; among payees, 6 percent. In addition, large shares (30 percent by number and 40 percent by value) were grouped as “Other” for illustrative purposes. Therefore, this analysis is incomplete. With more information, the rankings discussed here could change substantially.

Figure 6. **Professional services firms wrote and received a plurality of business checks**

Shares of B2\* and \*2B checks by number and value, 2021



Source: 2021 CSS table A-4

Note: A substantial share of counterparties could not be classified by industry (“cannot determine”); classes that represent smaller percentage shares are grouped as “other.”

Three industries are among the top five payers by industry and also among the top five payees: professional services, public administration, and suppliers and manufacturers (Figure 6). Of these counterparties by industry classification, only professional services firms (doctors, lawyers, accountants) represent more than 15 percent of checks by number and value as both payer and payee.

Businesses in five industries write about half of business checks by number and value: 47.1 percent by number and 46.3 percent by value. These include checks to business payees and consumer payees. Of business payers that could be classified by industry, professional services firms write the most checks by number (18.7 percent) and the most checks by dollar value (20.5 percent). Other business types in the top five are retail stores, public administration, suppliers and manufacturers, and construction and household services businesses. About one-quarter of checks written by businesses could not be classified by industry, given the information on the checks, so additional information could influence these rankings.

By payee, professional services firms also receive the most checks by number (13.2 percent) and the highest share by dollar value (20.4 percent). These include checks from both business and consumer payers. The four other industries receiving the most checks were utilities, banking services, public administration, and suppliers and manufacturers. The top five industries account for half of checks by number (53.6 percent) and two-thirds by value (65.2 percent). About 6 percent of checks received by businesses could not be classified by industry.

## Value of returns increased more than value of checks collected

The total number of checks returned through the Federal Reserve declined from 29 million in 2018 to 19 million in 2021, or 13.1 percent per year.<sup>17</sup> The decline in the number of returned checks was more rapid than the decline in checks collected, which fell 8.3 percent per year (table 1). In contrast, the total value of checks returned increased from \$57 billion in 2018 to \$62 billion in 2021, or 2.8 percent per year, a more rapid increase than the increase in the value of checks collected (1.1 percent per year) (table 5). Inflation adjusted, the total value of returns was flat. As noted above, this finding is limited to checks returned by Federal Reserve Financial Services and may not be representative the change in the number and value of all checks returned in the United States over this period.

**Table 5. From 2018 to 2021, total value of checks returned to consumers payers increased 12 percent per year**

Number and value of checks returned by payer, 2018 and 2021

	2018		2021		CAGR (percent)	
	Number (millions)	Value (billions of dollars)	Number (millions)	Value (billions of dollars)	Number	Value
Total	29	57	19	62	-13.1	2.8
Business	9	38	7	35	-9.4	-2.6
Consumer	20	19	12	27	-15.1	12.0

Notes: CAGR is compound annual growth rate. Inflation adjusted, the value of total returns processed by the Fed was flat, returns attributed to business payers declined 5.1 percent per year, and returns attributed to consumer payers increased 9.6 percent per year (compared to the real-value decline of 1.5 percent per year in total checks collected).

Source: Federal Reserve Board ([https://www.federalreserve.gov/paymentsystems/check\\_commcheckretannual.htm](https://www.federalreserve.gov/paymentsystems/check_commcheckretannual.htm)), CSS 2018 and 2021 table A-5

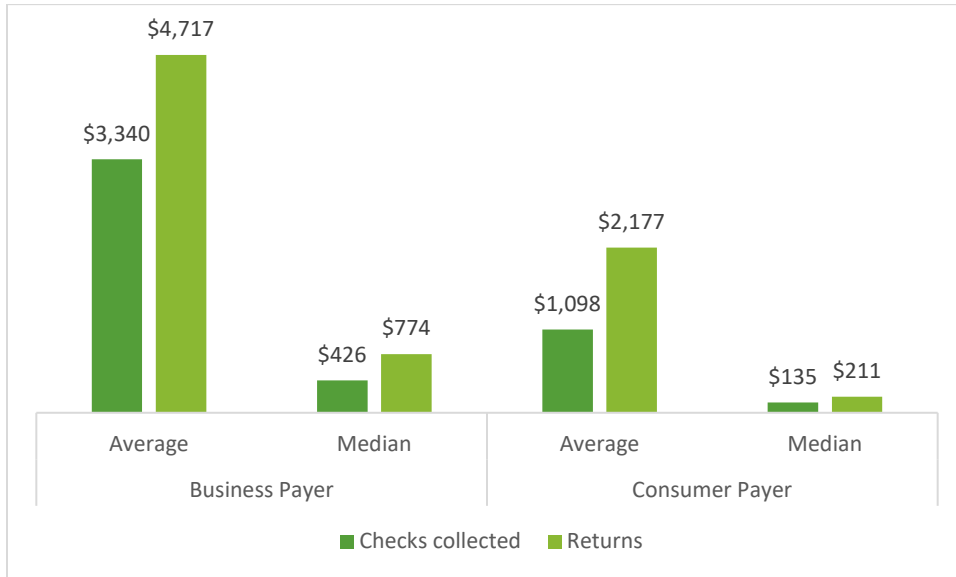
Returned checks, or checks returned from the payer's bank unpaid, occur for a variety of reasons, nonsufficient funds (NSF) and possible fraud among them. The relatively rapid decline in the number of returned checks

<sup>17</sup> [https://www.federalreserve.gov/paymentsystems/check\\_commcheckretannual.htm](https://www.federalreserve.gov/paymentsystems/check_commcheckretannual.htm)

accompanied by the faster increase in the total value of returned checks implies a faster increase in the average values of checks returned compared to that of checks collected (appendix table A-5), and the average value of returned checks increased from \$1,736 in 2018 to \$3,116 in 2021. In both 2018 and 2021, average and median values of returned checks consistently exceeded those of checks collected (figure 7). In 2021, the average value of a business check returned was 40 percent greater than the average value of a business check collected. The average value of consumer checks returned was double the average value of consumer checks collected.

**Figure 7. Average values of returns exceeded average values of checks collected**

By payer, average and median values of checks collected and returned, 2021



Source: 2021 CSS Tables A-1 and A-5

### By number, consumers wrote almost two-thirds of returned checks

Consumers wrote almost two-thirds of returned checks in 2021 (table 6). By value, more than half of returned checks were written by businesses. Applying the estimated shares of checks returned by payer to the annual volume of checks returned by the Fed, we find that the total value of returned checks to consumer payers increased 12 percent per year from 2018, while the total value of returned checks to business payers declined 2.6 percent per year (table 5). By number, both consumers and business checks declined from 2018.

**Table 6. By number, two-thirds of returns by consumer payers**

Shares of checks returned by payer, 2018 and 2021 (percent)

	2018		2021	
	Number	Value	Number	Value
Total	100	100	100	100
Business	32.6	65.9	37.0	56.0
Consumer	67.4	34.1	63.0	44.0

Source: 2018 and 2021 CSS table A-5

## Most returned checks were written to businesses

On the receiving sides, most returned checks were written to businesses, approximately two-thirds by both number and value (Table 7). From 2018 to 2021, however, both the number and value of returned checks to businesses dropped more rapidly than the number and value of returned checks to consumers (table 8). Like the value to returned checks by consumer payers, the value of returned checks to consumer payees increased by double digit percentages per year from 2018 to 2021.

**Table 7. Two-thirds of returned checks were to business payees**

Shares of checks returned by payee, 2018 and 2021

	2018		2021	
	Number	Value	Number	Value
Total	100	100	100	100
Business	69.7	76.1	63.6	63.7
Consumer	30.3	23.9	36.4	36.3

Source: CSS 2018 and 2021 table A-5

**Table 8. Total value of returns to consumer payees increased almost 20 percent per year from 2018 to 2021**

Checks returned by payee, 2018 and 2021

	2018		2021		CAGR (percent)	
	Number (millions)	Value (billions of dollars)	Number (millions)	Value (billions of dollars)	Number	Value
Total	29	57	19	62	-13.1	2.8
Business	20	43	12	40	-15.7	-3.1
Consumer	9	14	7	22	-7.7	18.2

Notes: CAGR is compound annual growth rate. Inflation adjusted, the value of total returns processed by the Fed was flat, the value of returns written to business payees decreased almost 5 percent, and the value of returns written to consumer payees increased 13 percent (compared to the real-value decline of 1.5 percent in total checks collected).

Source: Federal Reserve Board ([https://www.federalreserve.gov/paymentsystems/check\\_commcheckretannual.htm](https://www.federalreserve.gov/paymentsystems/check_commcheckretannual.htm)), CSS 2018 and 2021 table A-5

## Compared to checks collected, consumer payers accounted for an outsize share of returns

Checks written by consumers accounted for an outsize share of returned checks (table 9) compared to checks written by businesses. By number, consumers wrote two-thirds of returned checks, more than their share of checks collected (half). Consumers wrote 44.0 percent of the value of returned checks, also more than the value of checks written by consumers (24.5 percent).

**Table 9: Shares of returns attributed to consumer-written checks exceed shares of checks attributed to consumers**

Shares of checks collected and returned by counterparty, 2018 and 2021 (percent)

	2018				2021			
	Number		Value		Number		Value	
	Collected	Returns	Collected	Returns	Collected	Returns	Collected	Returns
Total	100	100	100	100	100	100	100	100
Consumer payer	53.5	67.4	24.9	34.1	49.7	63.0	24.5	44.0
C2B predominantly "bill"	39.8	51.7	18.4	22.9	36.4	47.5	17.4	25.4
C2C "casual"	13.7	15.7	6.5	11.2	13.3	15.5	7.1	18.7
Business payer	46.5	32.6	75.1	65.9	50.3	37.0	75.5	56.0
B2B predominantly "bill"	26.2	18	57.4	53.2	27.4	16.1	57.1	38.3
B2C "income"	20.3	14.6	17.7	12.7	22.9	20.9	18.4	17.6

Note: Cells where the percentage of returns exceeds the percentage of checks collected are highlighted.

Source: 2021 CSS tables A-1 and A-5

On the receiving side, business payees received two-thirds of checks that were returned unpaid by both number and value. About half of returned checks by number were from a consumer to a business (one-quarter by value).

As noted above, a small share of check payments was made at the retail POS. Checks written at the POS were overrepresented in the shares of returns, compared to their share of all checks collected, by both number and value. Table 10 shows, again, that consumers are proportionately overrepresented in these returned checks.

**Table 10. Checks written at the POS, still a small share, were overrepresented in returns**

By purpose, shares of all checks collected and returned by counterparty, 2018 and 2021 (percent)

	2018				2021			
	Number		Value		Number		Value	
	Collected	Returns	Collected	Returns	Collected	Returns	Collected	Returns
POS	4.0	6.6	0.6	2.5	2.5	3.7	0.7	1.5
B2B	1.1	1.0	0.3	1.6	0.5	0.4	0.0	0.1
C2B	2.9	5.5	0.3	0.9	2.0	3.3	0.7	1.4

Note: Cells where the percentage of returns exceeds the percentage of checks collected are highlighted. Figures may not sum due to rounding.

Source: 2021 CSS tables A-1 and A-5

### Among business payees, banking and retail were most affected by returns

Understanding which industries have a greater propensity to write checks that are returned and which industries are more likely to receive checks that are returned could be helpful for risk management and fraud prevention. Business-returned checks (both business payer, also designated B2\*, and business payee, also designated \*2B) were classified by industry, as described above.

For most industries, shares of returns tracked somewhat closely to shares collected, differing by one or two percentage points. As payees, the banking and retail industries were overrepresented in returns (table 11). Professional services firms also experienced a large share of returns (13 percent by number and 21.4 percent by value); however, in contrast to banks and retail, these shares are more in line with the professional services share of checks collected. As payers of returned checks, professional services, construction, and retail were somewhat overrepresented.

**Table 11. Banking and retail received proportionately more of returned business checks**

By counterparty, shares of business checks collected and returned, 2021 (percent)

Percentage shares of business checks	Number		Value	
	Collected	Returned	Collected	Returned
By business payer	100	100	100	100
Professional services	18.7	20.7	20.5	22.6
Construction	6.8	9.0	7.9	5.0
Retail	7.8	6.5	5.4	8.2
All other	66.7	63.8	66.3	64.2
By business payee	100	100	100	100
Banking	10.8	25.5	13.0	16.7
Retail	5.4	9.0	5.5	11.5
Professional services	13.2	13.0	20.4	21.4
All other	70.6	52.5	61.1	50.4

Note: Cells where the percentage of returns exceeds the percentage of checks collected for payer and payee pairings are highlighted.

Source: 2021 CSS tables A-4 and A-11

## Most checks were returned for NSF

Checks are returned unpaid by the payer banks for many reasons, including NSF, stop payments and closed accounts, and images that fail quality tests. The CSS identifies 30 return codes; table A-6 details the proportions for each. Table 12 summarizes returns into three broad categories. Half of checks by number and one-third by value were returned NSF in 2021. This is a drop in share from 2018, when two-thirds by number and half by value were returned NSF. In 2021, a greater share of checks was returned in various administrative categories (stop payment and closed accounts, for example).

**Table 12. For 2021, NSF represented half the number and one-third the value of returned checks**

Shares of checks returned by reason (percent)

	2018		2021	
	Number	Value	Number	Value
Total	100	100	100	100
NSF	67.2	50.7	50.9	36.9
Stop payment	6.5	16.5	12.5	22.1
Possible fraud	10.2	15.1	15.0	15.6
Other (closed or frozen account, unusable image, etc.)	16.1	17.7	21.6	25.4

Source: 2021 CSS table A-5



## Value of possible check fraud grew faster than value of checks collected, 2018–2021

Some anecdotal evidence points to an increase in check fraud during the COVID-19 pandemic—in particular, spikes in checks stolen (“fished”) from mailboxes and then altered<sup>18</sup> and the theft of Economic Impact Payment and unemployment checks.<sup>19</sup> At the same time, some Treasury and finance professionals have reported a decline in the business impact of check fraud.<sup>20</sup> The value of potentially fraudulent returned checks processed by the Fed increased by 4.0 percent per year from 2018 to 2021 (table 13). The increase in the value of potentially fraudulent checks exceeded the growth in the aggregate value of returned checks (2.8 percent) as well as the growth in the value of checks collected (1.1 percent). Inflation-adjusted, the value of possibly fraudulent checks increased 1.5 percent.

Table 13. **Estimated value of check fraud grew 4.0 percent per year, 2018 to 2021**

Number and value of checks returned by the Federal Reserve by return reason

	2018		2021		CAGR (percent)	
	Number (millions)	Value (billions of dollars)	Number (millions)	Value (billions of dollars)	Number	Value
Total	29	57	19	62	-13.1	2.8
NSF	19.5	28.9	9.7	22.9	-20.8	-7.5
Possible fraud	3.0	8.6	2.9	9.7	-1.2	4.0

Note: CAGR is compound annual growth rate. Note: Inflation adjusted, the value of possibly fraudulent checks processed by the Fed increased 1.5 percent (compared to the real-value decline of 1.5 percent per year in total checks collected).

Source: Federal Reserve Board ([https://www.federalreserve.gov/paymentsystems/check\\_commcheckretannual.htm](https://www.federalreserve.gov/paymentsystems/check_commcheckretannual.htm)), 2018 and 2021 CSS table A-6

By value, shares of checks returned for possible fraud were the same in both 2018 and 2021, about 15 percent of the value of returned checks. By number in 2021, the share of checks returned for possible fraud was 15.0 percent, increased from 10.2 percent in 2018. Possible fraud includes duplicate presentment, which increased from 1.5 percent of checks returned in 2018 to 2.9 percent in 2021. Over the same time, the value share dropped to 1.2 percent from 3.6 percent, with the decline in the dollar-value shares, suggesting that these returns could be related to consumers’ use of remote deposit capture.

## Summary

Evidence from checks processed by the Federal Reserve System in 2021 suggests that despite other payment options and the ongoing decline in check volume, checks continue to meet the needs of businesses and consumers. From 2018 to 2021, the number of checks written by consumers declined faster than the number of checks written by businesses. Consumer-to-business checks for bill payment declined most as a share of all checks collected. Checks written at the retail POS are increasingly rare, representing a vanishing share of checks by number. While most checks were returned for NSF, the value of possible check fraud grew faster than the value of checks collected.

<sup>18</sup> Sweeney (2022), Hull (2022)

<sup>19</sup> Berry (2022)

<sup>20</sup> Association of Financial Professionals (2022)

## Appendices

- [Appendix A: Data Tables](#)
- [Appendix B: Technical Appendix](#)
- [Appendix C: Check Questionnaires](#)

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