The Check Sample Study

A Survey of Depository Institutions for the 2007 Federal Reserve Payments Study

Research Sponsored by the Federal Reserve System

Performed by Global Concepts

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1 Introduction

This report details the methodology and findings of the *2007 Check Sample Study*. The Check Sample Study (CSS) characterizes check payments according to type of payer, payee and purpose. Specifically, the CSS estimates the distribution of who (*consumer, business* or *government*) writes checks to whom (*consumer, business* or *government*) and for what purpose (remittance, point of sale, income or casual payments). The results estimate the distribution of a population of checks across these variables. The population is checks processed in 2006 by nine large commercial banks that process approximately 40 percent of all checks processed in the United States.

The study's findings are intended to help the Federal Reserve, the industry, and the public better understand how checks are being used. For example, it may be instructive for capacity planning or revenue forecasting to know the percentage of checks, such as *consumer*-to-*business* remittance checks, that have a relatively high probability of displacement by alternatives, or the percentage of checks, such as *business*-to-*business* remittance checks, with a relatively low probability of displacement.

Sponsorship of the 2007 CSS is part of an ongoing effort by the Federal Reserve System to measure and analyze trends in noncash payments in the United States. Global Concepts staff members designed and proposed the data collection strategy and conducted the analysis. Federal Reserve staff members oversaw the process and made suggestions. The study complements *The 2007 Federal Reserve Payments Study*, which estimates the number and value of check and other noncash payments in the United States.[1]

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[1] The results of the current Check Sample Study are not directly comparable to those of a similar Federal Reserve study performed in 2001, which followed a substantially different sampling and data collection approach.

2 Methodology

In an effort to characterize the check payments market, Global Concepts worked with nine large banks to conduct a random sample survey of checks processed by those banks during 2006.[2] Banks were selected to participate based on their use of a common check image archive.

2.1 SAMPLING

Participation in the study was voluntary, and respondents selected for the study were from the group of banks that use the Viewpointe check image archive. The use of a common check image archive helped to standardize the process of sampling checks at random and greatly reduced the overall data collection effort.[3] The final sample represents the population of checks processed during 2006 by nine Viewpointe customer banks. The population is estimated to represent approximately 40 percent of all "prime pass" items in the United States.[4] Additionally, participant banks held approximately 26 percent of deposit liabilities and paid approximately 25 percent of all checks paid in the United States in 2006.

Although the population of checks archived for these nine large banks represents a significant share of checks, it is unclear how the results would have differed had the sample been drawn from a nationally representative sample of depository institutions.

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[2] *The Check Sample Study* sampled "prime pass" checks, including both transit checks, which were deposited at a participant bank but drawn on another depository institution, and checks paid by the participant banks. Adjustments were made to account for sample bias from checks deposited at one of the participant banks and paid by another participant bank.
[3] One bank performed random sampling in-house using a systematic approach similar to that used by the other participant banks.
[4] Prime pass items refers to the total number of discrete items processed, excluding any re-handling of checks for the purpose of sorting to paying bank endpoints, customer statements, etc. The estimated number of industry prime pass items excludes item processing by the Federal Reserve Banks.

2.1.1 Sample Size and Sampling Technique

A sample size of 30,000 checks was deemed sufficient to accurately characterize the population of checks being sampled with a 95 percent confidence interval of +/- 5 percent.   The number of items sampled from each bank was proportional to its share of all items processed by participant banks in 2006.

To reach the target final sample of 30,000 checks, archived items were oversampled. This allowed for duplicate checks and non-check items to be removed from the sample.[5] After oversampling and eliminating duplicate checks and non-check items, the final sample was 35,169 checks.

See 2.3.2, Eliminating Duplicate Checks, for details.

2.1.2 Weighting the Final Sample

Two weights were applied to data from each sampled check:

1. *Primary weighting.* Sample weights were applied to ensure the final sample was representative of the population of checks processed by participant banks.

2. *Secondary weighting.* A second weight adjusted for the fact that an interbank check exchanged between two participants in the study had a higher probability of random selection than an interbank check between a study participant and a depository institution (DI) not in the study.[6] Although each interbank check is a single paper item, it may be stored as discrete images in multiple banks' archives. Because a single check exchanged between two participants can exist as two discrete images in the sample population, once as a transit item and once as an inclearing item, this check has a higher probability of selection in the final sample than one processed by only one of the participant banks (i.e., a check represented by only one image across the combined archives of participant banks). To adjust for this, the research team weighted interbank

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[5] Item processing archives house check and non-check items (e.g., deposit slips). Therefore, the method of over-sampling provides a cushion to cull out any non-check documents during data collection. Additionally, because the participants send checks to one another, over-sampling allows for the removal of any duplicate checks from the sample.
[6] An interbank check is one drawn on a different bank than at which it was deposited. Although the check is one paper item, it may be stored as discrete images in multiple banks' archives.

checks between participant banks such that each interbank item in the final sample appeared to have the same probability of selection.[7]

Determining whether or not a check in the final sample was an interbank check between two participant banks required the research team to compare the payer bank routing number (RTN) to the bank of first deposit (BOFD) RTN.[8]

2.2 REFERENCE PERIOD

A 12-month reference period of January 1-December 31, 2006 was chosen to mitigate seasonal variation in check writing during 2006.[9] The use of check image archives for sampling made this approach uniquely practical from a data collection perspective. A retrospective 12-month survey posed no data gathering difficulty based on the image archive strategy of participant banks. Generally, check archival practices provide a unique environment in which to perform retrospective data collection.

2.3 DATA COLLECTION

The data collection strategy required gathering non-sensitive information about each sampled check to use in an effort to categorize it by its counterparty and purpose. The data collection approach required three independent investigators to "interrogate," i.e., systematically collect information from, each sampled check. Investigators used one of two survey instruments: the Full CSS Survey Instrument or the Short CSS Survey Instrument.[10] A copy of the Full CSS Survey Instrument and Short CSS Survey Instrument can be found in Appendix B and C, respectively. The Full CSS survey consisted of 24 questions, and the Short survey asked seven questions. The survey forms were completed using a Microsoft Access database and user interface. Answers were stored within Access database tables that were subsequently delivered to the research team for analysis.

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[7] The weighting for interbank checks differed for each of the nine banks depending upon their percentage of checks found to be interbank.

[8] Payer bank RTNs are displayed in the MICR line on the front of the check. Bank of First Deposit RTNs are stamped on the back of checks. The method to collect these data is described in section 2.3, Data Collection.

[9] The 2007 Depository Institutions Study collected data for March and April 2007, and a multiplication factor of six was used to annualize the figures. Please see the 2007 Depository Institutions Study report for details of the study's methodology.

[10] Section 2.3.3.2, Independent Survey Collection, describes the methodology of using three independent surveys. Two of the three investigators used the Short CSS Survey to collect data. The third investigator gathered data in the Full Survey.

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Investigators answered survey questions by clicking check boxes to indicate – yes or no – whether each check contained various attributes, such as the following:

1. Organizational suffixes, such as LLC, PLC, LTD, Co., Corp., Corporation, Services, .com, Assoc., etc. in the name or address of the payer or payee.

2. Indicators of government entities, such as State of, County of, City of, Town of, Township of, Bureau of, Municipality, etc. in the name or address of the payer or payee.

3. Indicators of organizational departments, such as Treasury, Treasurer, Commissioner, Controller, Office of, Accounts Payable, etc. in the name or address of the payer or payee.

4. Indicators of personal addresses, such as Apartment or Apt # in the payer or payee address.

5. Whether the payee line contains an address.

6. Whether the check contains an auxiliary on-us field.

7. Whether the maker's signature or payee's endorsement is hand-written.

8. Presence of handwritten information recorded at the time of tender, such as a driver's license number, date of birth, etc.

9. Whether the payee's endorsement is vertical or horizontal.

In addition to recording Boolean data about the presence of specific attributes, investigators also recorded non-sensitive information from the front and back of the check, such as the following:

1. Date of the check.

2. Dollar amount of the check.

3. Nine-digit routing number (RTN) of the payer bank.

4. Serial number of the check.

5. Endorsing bank(s) RTN.

6. Payer's zip code (if present).

The survey instrument also captured subjective information from investigators about what they believed the type of payer and payee to be for each check.

2.3.1 Metadata

Some participant banks also provided metadata about the sampled checks. The amount of information stored in a metadata file varied by bank. For the purposes of the study, when

metadata were available, the research team used them to automatically determine serial numbers, dollar amounts, and payer bank transit routing numbers (RTN). The metadata for checks automatically populated the survey form with the payer bank RTN, dollar amount of the check, and serial number of the check.

2.3.2 Eliminating Duplicate Checks

Because the study required sampling checks from multiple banks' archives, and because checks deposited at one participant bank and drawn on another were part of the sample population, there was some risk that a check sampled from one bank's archive data would be identical to a check sampled from another bank's archive data. Additionally, the research team considered the possibility that random sampling may select the same check more than once from the same archive (e.g., a returned check that was subsequently re-presented). In order to eliminate duplicates from the sample, the research team systematically analyzed four fields of data recorded by participant banks about each check:

1. The check date as written by the payer.

2. Check serial number.

3. Dollar amount of the check.

4. Nine-digit routing number (RTN) of the payer bank.

If two or more items within the sample had all four fields equal, this indicated a duplicate item. Through this method all duplicate items were systematically identified and removed from the final sample.

2.3.3 Data Collection Process

CSS data collection began December 3, 2007 and concluded January 9, 2008. Global Concepts' staff provided training for participant banks' data collection teams and used feedback from the teams to make adjustments to the survey instrument after a preliminary data collection period.

2.3.3.1 Data Collection Training

Global Concepts administered in-person training with each bank's investigation staff. The initial training consisted of the following:

1. Describing the purpose of the study.

2. Explaining the basic fields contained on a check.

3. Providing examples of *consumer*, *business*, and *government* checks, and discussing important characteristics of each.

4. Listing specific examples of payer and payee categories as well as types of checks (e.g., travelers checks) and how to appropriately categorize them.

5. Walking the investigators through several demos of the Full CSS survey instrument.

Ongoing training consisted of the following:

1. Answering questions from investigators or team leaders about how to answer various types of questions.

2. Managing any technical difficulties from using the Microsoft Access survey instrument.

2.3.3.2 Independent Survey Collection

Each sampled check was interrogated three times during data collection, as described in section 2.3, Data Collection, above. In each round, a different investigator surveyed each check. There were two primary reasons to investigate each check multiple times:

1. To improve the ability to confidently categorize each check based on multiple, independent observations about its payer, payee and purpose.

2. To provide a basis to reconcile discrepancies in categorization and keying errors.

2.4 CHECK PAYMENTS CATEGORIZATION

Based on data received from each bank's data collection team, the research team employed a model to categorize each sampled check according to its payer, payee, and purpose. Exhibit 1 below illustrates the categorization used within each of these three variables:

Exhibit 1: Categorization Used for Payer, Payee, or Purpose

Payer	Payee	Purpose
Consumer	Consumer	Remittance
Business	Business	Point of Sale (POS)
Government	Government	Income Payments[11]
		Casual Payments[12]

2.4.1 Payer and Payee Categories

During the design phase the research team decided that three categories – C*onsumer, Business, and Government* – sufficiently described the potential parties to a payment.

1. *Consumer* (C) – an individual, household or small business.[13]

2. *Business* (B) – a private sector entity.

3. *Government* (G) – local, state or Federal government entity.

These categories are commonly accepted in the industry and represent groups with a common set of behaviors and payment options available to them.

A *consumer*, for example, generally does not have the ability to accept credit or debit card payments; whereas a *business* or *government* would have no significant impediments to accepting debit or credit as alternatives to paper checks at the point of sale. As a payer, a *consumer* is likely to have PIN-based debit available to him or her; whereas, a *business* or *government* entity cannot pay with PIN-based debit.

Very small businesses, such as sole proprietorships, may resemble a *consumer* payer or payee more closely than a *business* in terms of availability and use of electronic payment alternatives. As a practical matter, the 2007 CSS effectively deals with the commonality between consumers and sole proprietorships by assuming that any check written to or from an individual and having

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[11] Income describes any payment from a *business* or *government* entity to a *consumer* (i.e., individual) or small business indistinguishable from a consumer.
[12] Casual describes any payment from one *consumer* (i.e., individual) to another. This also includes small businesses that are indistinguishable from consumers.
[13] Some small business owners (e.g., sole proprietorships) use their personal checking accounts for business purposes and likely cannot be distinguished from consumers based on data from their checks alone.

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no characteristics on the check to indicate a *business* payer or payee is classified as *consumer* payer or payee, respectively.

The distinction between *business* and *government* is largely immaterial for the purpose of evaluating substitution potential. Generally, there are no particular impediments to a *government* entity accepting a payment type that a *business* might accept and vice versa. Likewise, *business* or *government* payers are assumed to have comparable access to payment alternatives, such as purchasing cards, financial EDI (an electronic format for exchanging financial business transaction data) or ACH initiation capabilities.

2.4.2 Purpose Categories

Considering all possible payment types and their various options for substitution of electronic for paper payments, Global Concepts defined the following four primary purpose categories:

1. Casual – Payment from one individual to another. By definition, all *consumer*-to-*consumer* payments are categorized as Casual. As a category, these payments are believed to have a relatively low potential for electronic substitution in the near term.

2. Income – Payment to an individual from either a *business* or *government* entity. By definition all *business*-to-*consumer* or *government*-to-*consumer* payments are categorized as Income. Examples of Income payments include the following:

   a. Payroll

   b. Pension

   c. Benefits / Entitlements

   d. Rebate / Promotional / Refund

   e. Expense Reimbursement

   f. Tax Refunds

   g. Investment Disbursements

   h. Remittances to Small Businesses Indistinguishable from Consumers

3. Remittance (REM) – Payment from any type of payer to either a *business* or *government* payee that does not occur at the point of sale. The following are examples of Remittance payments:

a. Recurring Retail Remittance – Regular recurring payments, typically described as "bill payments." Examples: utility bill payments, insurance premiums, telecommunications charges, credit card bill payments, loan repayments, etc.

b. Non-Recurring Retail Remittance – Irregular remittance payments made for products or services rendered for consumer consumption. Examples: medical bill, plumber, carpenter, pest control, legal fees, accountant fees, etc.

c. Commercial Remittance – Any B2B, B2G, G2B, G2G payments not made at the point of sale. Examples: raw materials purchase, office supplies, business equipment, finished goods from wholesalers, etc.[14]

4. Point of Sale (POS) – Payments from any type of payer to either a *business* or *government* payee that occur in any of the following environments:

a. Storefront – Traditional single or multi-lane retail environment, such as department store, drugstore, clothing store, gas station, dry cleaner, concessions, etc.

b. MOTO – Mail Order/Telephone Order transactions (e.g., catalog orders).

c. Internet – Purchase of goods or services over the Internet.

d. Over-The-Counter Retail Remittance – Remittance payments made in person, such as telecom bill paid at the local office, utility bills paid in person, medical expenses paid at the doctor's office, etc.

e. Mobile POS / C.O.D.– Payments made for goods or services delivered off-premise by the seller with payment occurring at time of delivery, such as food delivery, home maintenance fees, etc.

f. Vending.[15]

Exhibit 2 below illustrates the intersection of the three payer types, three payee types and four purpose classifications. A primary purpose of the study was to document the distribution of

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[14] The counterparty nomenclature of X2Y refers to an X payer paying a Y payee. For instance B2G refers to *business*-to-*government* payments where the business is the payer and the *government* entity is the payee.
[15] Internet, MOTO, and Vending transactions fall into the POS category, but they do not apply to check payments. The categorization was designed to describe all potential payment mechanisms – not just checks – for the POS purpose category.

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check payments across this matrix. Note that black shaded cells indicate check payment types that do not exist.[16]

Exhibit 2: Original Check Categorization Matrix

Purpose	Payer	Payee			
		C	B	G	T
Remittance (REM)	C	■			
	B	■			
	G	■			
	T	■			
Point of Sale (POS)	C	■			
	B	■			
	G	■			
	T	■			
Income Payments	C	■	■	■	■
	B		■	■	
	G		■	■	
	T		■	■	
Casual Payments	C		■	■	
	B	■	■	■	■
	G	■	■	■	■
	T		■	■	
Total (Number and Value)	C				
	B				
	G				
	T				

C = Consumer

B = Business

G = Government

T = Total

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[16] It was decided that dividend payments to corporate shareholders would not qualify as Income payments. From a substitution perspective – i.e., the ability to substitute electronic for paper payments – this category is indistinguishable from business-to-business remittance payments and, therefore, should be categorized as such.

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2.5 CHECK CATEGORIZATION MODEL

Global Concepts employed a categorization model based on conditional logic to assign a classification to each check. Judging from data recorded by each investigator, the model – i.e., the algorithm – assigned a payer, payee, and purpose classification to each item.

The following terms are used throughout this section:

1. Investigator 1 (Inv. 1) – refers to the investigator that completed the Full CSS Survey Instrument for a check.

2. Investigator 2 (Inv. 2) – refers to the investigator that completed the Short 1 CSS Survey Instrument for a check.

3. Investigator 3 (Inv. 3) – refers to the second investigator that completed the Short CSS Survey Instrument for a check.

4. Investigator classification – refers to the subjective classification made by an Investigator as to the type of payer, payee, or purpose of a check.

5. Algorithm Response – refers to the model's classification of payer, payee, or purpose based upon the objective data gathered in the Full CSS Survey Instrument by Inv. 1. This classification is based on objective data and is determined before introducing Inv. 1's subjective categorization.

6. Algorithm Final Answer – refers to combination of the Algorithm Response and Inv. 1's subjective classification of the payer, payee, or purpose. For example, if the Algorithm Response categorizes the payer as a *business* and Inv. 1 subjectively classifies the payer as a *business* then the model combines the two to produce an Algorithm Final Answer of *business*.

7. Reconciliation Algorithm – refers to the process of combining the Algorithm Response and subjective classifications by Inv. 1, Inv. 2, and Inv. 3 to derive a categorization for payer, payee, and purpose. Each category type has a separate, independent Reconciliation Algorithm.

8. Final Categorization – refers to ultimate categorization of payer, payee, and purpose for each check. Depending on whether specific conditions are met, this may or may not be the Algorithm Final Answer, as described below.

For each classification category (payer, payee, and purpose), the model analyzed a group of relevant survey questions from the Full CSS survey instrument and attempted to provide a determinate response: first the Algorithm Response then the Algorithm Final Answer. The model combined the responses to each question in the relevant group to form a logical chain. If the relevant questions yielded a chain with enough information and no inconsistencies, the model produced a determinate response. A determinate response was one of the set of prescribed outcomes for a given category (e.g., *business, consumer*, or *government*).

If the model could not definitively categorize the surveyed item, it generated one of two alternate Algorithm Final Answers: *Indeterminate* or *Error*. The model returned an *Indeterminate* outcome if the survey form was correctly completed but the logical chain did not contain enough information to yield a determinate response. Otherwise, if the survey form was incorrectly completed (i.e., the logical chain is inconsistent), the model produced an *Error* outcome.

The Algorithm Final Answer then entered a secondary set of logical conditions known as the Reconciliation Algorithm. In the event that the model produced an *Indeterminate* or *Error* Algorithm Final Answer or if other conditions were not met from Inv. 1's subjective classification, the Reconciliation Algorithm automatically selected the check for supplementary analysis. At that point, the classifications from Inv. 2 and Inv. 3 were used in conjunction with the Algorithm Response and Inv. 1's classification in attempt to determine the categorization of the check. These reconciled answers, the Final Categorizations, are described below in Section 3, Results and Analysis.

Although data collection was performed for each check in three independent surveys, the algorithm first analyzed objective responses from the Full CSS Survey because it provided the most amount of information about the check's characteristics. The algorithm used both Short CSS Survey results to double check the subjective classification of Inv. 1. The types of factors that went into the categorization of each item are described below.

2.5.1 Categorization of the Payer

Information on the face of the check determined its payer type.
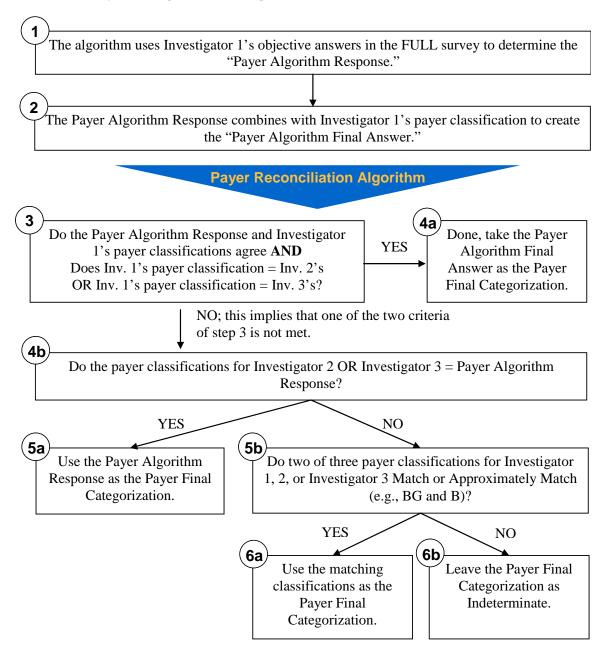
Checks were typically categorized as *business*, *government* or *business, or government* based on the characteristics of the MICR line (e.g., Federal Government checks' MICR line begins with 000, many *business* checks include an auxiliary on-us field), the method used to frank the check (e.g., typed or machine printed "signature"), and the characteristics of the payer name and

address. For example, the payer name/address field was useful in both subjective and objective categorizations, because it contained indicators such as Inc., LLC, PLC, LTD, Corp., Department of, City of, Town of, Bureau of, Accounts Payable, etc. The payee line (e.g., following "Pay to the order of…") was also useful in some cases, because *business* or *government* payers – unlike *consumers* – sometimes include the full mailing address of the payee (machine printed) on the face of the check.

Checks classified as *consumer* generally included checks without characteristics in the MICR line or name/address fields to suggest a *business* or *government* classification. It is entirely possible that some small businesses or sole proprietors might use their personal checks for business payments. Without any characteristics to indicate a business use, these checks would be classified as c*onsumer*. This risk of misclassification was deemed acceptable. With regard to payments substitution, small businesses that are difficult to distinguish from consumers have similar payments preferences to consumers' and face many of the same payments choices.

A Payer Reconciliation Algorithm combined the subjective classification of payer type from each of the three investigators (Inv. 1, 2, and 3) with the Payer Algorithm Response. The logic in comparing these answers to produce a Payer Final Categorization was as follows:

Exhibit 3: Payer Categorization Logic

1 The algorithm uses Investigator 1's objective answers in the FULL survey to determine the "Payer Algorithm Response."

2 The Payer Algorithm Response combines with Investigator 1's payer classification to create the "Payer Algorithm Final Answer."

Payer Reconciliation Algorithm

3 Do the Payer Algorithm Response and Investigator 1's payer classifications agree **AND** Does Inv. 1's payer classification = Inv. 2's OR Inv. 1's payer classification = Inv. 3's?

→ YES → **4a** Done, take the Payer Algorithm Final Answer as the Payer Final Categorization.

NO; this implies that one of the two criteria of step 3 is not met.

4b Do the payer classifications for Investigator 2 OR Investigator 3 = Payer Algorithm Response?

YES → **5a** Use the Payer Algorithm Response as the Payer Final Categorization.

NO → **5b** Do two of three payer classifications for Investigator 1, 2, or Investigator 3 Match or Approximately Match (e.g., BG and B)?

YES → **6a** Use the matching classifications as the Payer Final Categorization.

NO → **6b** Leave the Payer Final Categorization as Indeterminate.

2.5.2 Categorization of the Payee

The determination of the payee was made from information on both the front and back of the check: the payee line, the endorsement, and any other writing/stamp/print on the check.

Investigators used the payee line to identify any obvious signs of a *business* or *government* payee, e.g., Inc., LLC, Corp., IRS, Tax Commissioner, Bureau of, Town of, County of, etc. Additionally, investigators recorded the presence of unique printing or stamps on the checks that might indicate a POS transaction, such as a driver's license number, date of birth, such phrases as store number, terminal number, cash back, etc. The payee endorsement was also a significant determinant of payee type. *Business* or *government* payees tend to stamp or machine print their endorsements on the back of checks. Lockbox (i.e., remittance) payments in particular tend to be endorsed along the length of the check (i.e., parallel to text on the face of the check) rather than across the end of the check (i.e., perpendicular to text on the face of the check).[17]
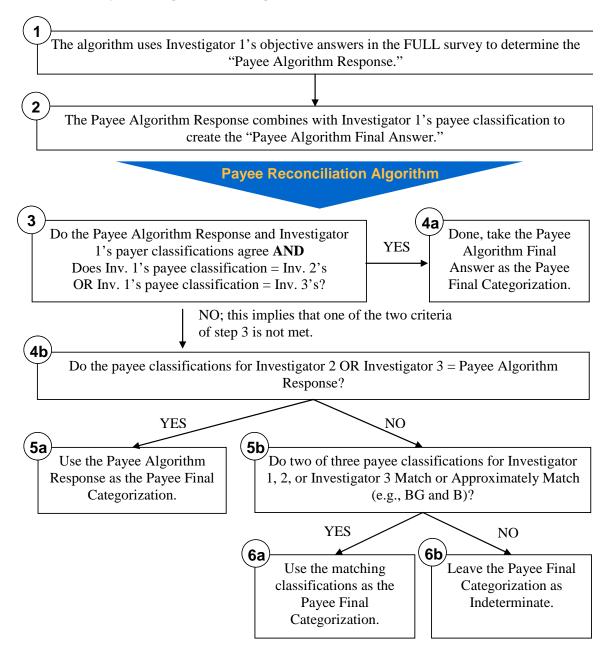
The check's payee was classified as *consumer* if a) the check showed no indications of being written to a *business* or *government* payee and b) this fact agreed with the investigators' subjective determination.

In all cases, the investigator was also asked to indicate the classification of the check payee based on all the information available (payee line, endorsement, etc.).

A Payee Reconciliation Algorithm combined the subjective classification of payee from each of the three investigators (Inv. 1, 2, and 3), with the Payee Algorithm Response. The logic in comparing these answers to produce a Payee Final Categorization was as follows:

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[17] In recent years some POS systems have also begun to endorse checks along the length of the check.

Exhibit 4: Payee Categorization Logic

1 The algorithm uses Investigator 1's objective answers in the FULL survey to determine the "Payee Algorithm Response."

2 The Payee Algorithm Response combines with Investigator 1's payee classification to create the "Payee Algorithm Final Answer."

Payee Reconciliation Algorithm

3 Do the Payee Algorithm Response and Investigator 1's payer classifications agree **AND** Does Inv. 1's payee classification = Inv. 2's OR Inv. 1's payee classification = Inv. 3's?

YES →

4a Done, take the Payee Algorithm Final Answer as the Payee Final Categorization.

NO; this implies that one of the two criteria of step 3 is not met.

4b Do the payee classifications for Investigator 2 OR Investigator 3 = Payee Algorithm Response?

YES

5a Use the Payee Algorithm Response as the Payee Final Categorization.

NO

5b Do two of three payee classifications for Investigator 1, 2, or Investigator 3 Match or Approximately Match (e.g., BG and B)?

YES

6a Use the matching classifications as the Payee Final Categorization.

NO

6b Leave the Payee Final Categorization as Indeterminate.

2.5.3 Categorization of Purpose

The categorization model determined the purpose of the check payment by combining information gathered directly from the check with the Final Categorization of its counterparty (i.e., payer and payee combination).

The first step in determining the purpose of a check was to cross-reference the Payer and Payee Final Categorizations, as shown in Exhibit 5 below:

Exhibit 5: Purpose by Counterparty Combinations

		Payee Final Categorization					
		Consumer	**Business**	**Govt.**	**Business / Consumer**	**Business / Govt.**	**Unknown**
Payer Final Categorization	**Consumer**	Casual	REM or POS	REM or POS	Unknown	REM or POS	Unknown
	Business	Income	REM or POS	REM or POS	Unknown	REM or POS	Unknown
	Govt.	Income	REM or POS	REM or POS	Unknown	REM or POS	Unknown
	Business / Consumer	Unknown	REM or POS	REM or POS	Unknown	REM or POS	Unknown
	Business / Govt.	Income	REM or POS	REM or POS	Unknown	REM or POS	Unknown
	Unknown	Unknown	REM or POS	REM or POS	Unknown	REM or POS	Unknown

Several cells in Exhibit 5 show that the payer and payee (counterparty) relationship alone was enough to determine the purposes of some checks. For example, all *business*-to-*consumer*, *government*-to-*consumer*, or *business*/*government*-to-*consumer* checks were classified as *Income.* As noted in Section 2.4.2, Purpose Categories, not all income payments as categorized by this study are payroll checks. Rebate checks, tax refunds, stock dividends are all types of checks that would fall into the *Income* category.

Similarly, all check payments from one individual to another individual were classified as *Casual*. Based on the examples discussed above, this category likely includes payments to or from sole proprietorships or small businesses that use what are, or appear to be, personal

checks for business transactions. *Casual* might also include payments from an individual to his/her attorney. Rent payments from tenants to individual landlords may also be included in *Casual* unless the information on the check (e.g., statements on the memo line) indicated otherwise. The classification of some of these checks as *Casual* may not be entirely inappropriate. Checks of the types described above often have a low probability of substitution by electronic instruments. The risk of misclassification is acceptable for the purposes of this study.

If the model classified a check's purpose as *Income* or *Casual* based on its counterparty (e.g., a *business*-to-*consumer* check), the algorithm automatically defined that as the Purpose Final Categorization.
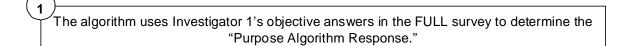
Any check written to a *business* or *government* payee was categorized as either *Remittance* or *POS* based on the logic of Exhibit 5 above. In order to definitively categorize these items, the model evaluated other information about the payee, such as the endorsement or other information added to the check by the payee. If the endorsement included such information as a store number, a terminal number or a customer's driver's license number, this suggested a *POS* transaction. Lockbox endorsements, apparent by their alignment across the length of the check in conjunction with the terms "absentee" or "absent endorsed," indicated a *Remittance* payment.

The distinction between *Remittance* and *POS* was also based on information recorded by the investigators about the type of organization paid. If an investigator reported that the payee was clearly a credit card issuer, a utility, etc., this lent evidence toward a *Remittance* classification. Conversely, payments made to a convenience store, a restaurant, drugstore, or retail store suggested a *POS* payment.

If the distinction between *Remittance* and *POS* could not be determined through the data recorded by Inv. 1, the model classified the check as *Remittance/POS* (REM/POS) in the Algorithm Final Answer.

The Purpose Reconciliation portion of the model attempted to convert REM/POS and indeterminate answers from the Purpose Categorization process into either the determinate answer of REM or POS. The Purpose Reconciliation Algorithm combined purpose classifications from each of the three investigators (Inv. 1, 2, and 3) with the Purpose Algorithm Response. The logic in comparing these answers to produce a Purpose Final Categorization was as follows:

Exhibit 6: Purpose Categorization Logic

1 The algorithm uses Investigator 1's objective answers in the FULL survey to determine the "Purpose Algorithm Response."

2 The Purpose Algorithm Response combines with Investigator 1's purpose classification to create the "Purpose Algorithm Final Answer."

Purpose Reconciliation Algorithm

3 Do the Purpose Algorithm Response and Investigator 1's purpose classifications agree **AND** do not produce a REM/POS ambiguous result **AND** Does Inv. 1's purpose classification = Inv. 2's = Inv. 3's?

YES
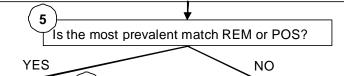
4a Done, take the Purpose Algorithm Final Answer as the Purpose Final Categorization. Also, if the Payee Final Categorization is Consumer, then the Purpose Final Categorization is automatically Income or Casual dependent upon the Payer Final Categorization.

NO; this implies that one of the three criteria of step 3 is not met.

4b Calculate the approximate match for every combination of 3 of the 4 purpose classifications (i.e. Inv. 1 and Inv. 2 and Inv. 3; Purpose Algorithm Response and Inv. 2 and Inv. 3). Then determine the most prevalent match among the combinations.

5 Is the most prevalent match REM or POS?

YES   NO

6a Use the prevalent match as the Purpose Final Categorization.

6b Search the matches to check for a determinate classification (i.e REM or POS). If a determinate is found, use it as the Purpose Final Categorization. If REM/POS is the only approximate match, use REM/POS as the Purpose Final Categorization. Otherwise leave the Purpose Final Categorization as indeterminate.

2.6 ADDITIONAL ANALYSIS

In addition to studying the distribution of checks by payer, payee, and purpose, the research team sought to identify the incidence of certain demand drafts and checks ineligible for conversion to ACH.

2.6.1 Demand Drafts

A demand draft is a check that doesn't have the account holder's signature on it and is issued by a third party under the purported authority of the customer for the purpose of charging to the customer's account with a bank. A demand draft may come in one of two varieties. The first variety contains the customer's printed or typewritten name or account number; a notation that the customer authorized the draft. This includes checks written by check printers who process invoices for businesses. Banks and other third parties such as RR Donnelley are industry providers of this service. These checks do not have any distinguishing characteristics that can be recorded without capturing sensitive information such as payer name or account number (a central requirement of this study was that no sensitive information be collected). Therefore, the research team cannot estimate the incidence of this type of check from the data gathered by this study.

The second variety of demand drafts, commonly referred to as remotely created checks, consists of checks that have in lieu of a signature, a typed statement, such as "No Signature Required," "Signature on File," "Authorized by the Depositor," or "Authorized by the Payer." The study measured the incidence of checks that contain one of these statements.

2.6.2 Checks Ineligible for ACH Conversion

Certain types of checks by agreement between the payer and payee can be converted to ACH for clearing and settlement. The study aimed to identify the incidence of checks that are ineligible for conversion to ACH, according to NACHA rules.[18] The determination was made based on the following conditions:

1. If characteristics within the Payer's name and address indicate that the payer is a federal entity, such as the US Treasury, Federal Reserve, Federal Home Loan, a mutual fund or investment firm.

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[18] NACHA is the National Automated Clearing House Association.

2. If the amount of the check exceeds $25,000.

3. If the leftmost portion of the MICR line, before the RTN, contains the optional number known as the auxiliary on-us field.

4. If a signature is not present. This includes blanks and statements in lieu of a signature such as "No Signature Required."

3 Results and Analysis

Results of the 2007 CSS are based on the information gathered from 32,448 categorized checks.[19]

3.1 DISTRIBUTION OF CHECKS

The tables in this section detail the distribution of the number of check payments according to payer, payee, and purpose. Each subtotal data element in the tables below includes a corresponding estimate of the half-width of the 95 percent confidence interval. The boundaries of the confidence interval are estimated as the point estimate plus or minus the half-width. Assuming the data are normally distributed and the sample is large, an estimate of the half-width is equal to 1.96 times the standard error of the given estimate. The standard error is an estimate of the amount of variability associated with computing the proportions with a sample rather than the population of checks in the archives of the nine reporting banks. It is an estimate of how closely the sample estimates approximate that population, not the population of all checks in the United States. The standard error also does not account for the possibility that the algorithm misclassified a check.

The highest percentage of check payers were *consumer*s at 58 percent, while the highest percentage of check payees were businesses at 78 percent. The check purpose with the highest percentage was remittance payments at 49 percent. A relatively small percentage of checks could not be categorized accurately based on data available from the survey.[20]

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[19] The number of categorized checks is weighted according to the methodology described in Section 2.1.2, Weighting the Final Sample.

[20] The unknown category includes checks that were either categorized as indeterminate or as business or consumer (BC). The BC category indicates the extent to which business and consumer names (and checks) are difficult to differentiate. From a substitution perspective, however, the two have little in common. Consumers do not accept POS or remittance payments, for example. Therefore, the BC category (whether payer or payee) was combined with indeterminate and "Error" categorizations into an unknown category for analyses.

Exhibit 7: Distribution of Checks by Payer

Payer	Distribution*	
Consumer	58.0%	+/- 0.5%
Business	38.8%	+/- 0.5%
Government	2.9%	+/- 0.2%
Business or Government	0.1%	+/- 0.0%
Unknown	0.1%	+/- 0.0%
Total	100.0%	

*Point estimate +/- half-width of the 95% confidence interval.

Exhibit 8: Distribution of Checks by Payee

Payee	Distribution*	
Consumer	23.4%	+/- 0.5%
Business	72.1%	+/- 0.5%
Government	4.3%	+/- 0.2%
Business or Government	0.1%	+/- 0.0%
Unknown	0.1%	+/- 0.0%
Total	100.0%	

*Point estimate +/- half-width of the 95% confidence interval.

Exhibit 9: Distribution of Checks by Counterparty

Payee / Payer	Distribution*										
	Cons	+/-	Bus	+/-	Gov	+/-	Bus/Gov	+/-	Unknown	+/-	Total
Cons	6.6%	0.3%	48.7%	0.5%	2.6%	0.2%	0.1%	0.0%	0.0%	0.0%	58.0%
Bus	15.1%	0.4%	22.1%	0.5%	1.6%	0.1%	0.0%	0.0%	0.0%	0.0%	38.8%
Gov	1.7%	0.1%	1.1%	0.1%	0.1%	0.0%					2.9%
Bus/Gov	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%			0.1%
Unknown	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%			0.0%	0.0%	0.1%
Total	23.4%		72.1%		4.3%		0.1%		0.1%		100.0%

*Point estimate +/- half-width of the 95% confidence interval.

Exhibit 10 below combines counterparty and purpose estimates. The largest segments of check payments are *consumer* remittance payments to *business* (29.8 percent), *business* income payments to *consumers* (15.1 percent), *business* remittance payments to *businesses* (14.2 percent) and *consumer POS* payments to *businesses* (13.3 percent).

Payments categorized as REM/POS are roughly split between those written by *consumers* (5.6 percent) and those written by *businesses* (5.1 percent).

For the purpose of reporting data and performing data analysis, this report groups the *business* (B), *government* (G), and *business* or *government* (BG) categorizations into a single categorization called *business* or *government* (BG).[21] From a substitution perspective, *business* or *government* entities are assumed to be indistinguishable. This also helped to simplify the analysis and also to create more meaningful cell sizes for analysis in exhibits that display both counterparties and purpose. It should be noted that the vast majority of *business* or *government* checks (whether payer or payee) are *business* checks.

Exhibit 10: Distribution of Checks by Counterparty and Purpose

Purpose \ Counterparty	Distribution*										
	C2C	+/-	C2BG	+/-	BG2BG	+/-	BG2C	+/-	Unknown	+/-	TOTAL
Income							16.8%	0.4%	0.0%	0.0%	16.8%
Casual	6.6%	0.3%									6.6%
REM			32.4%	0.5%	16.4%	0.4%			0.0%	0.0%	48.8%
POS			13.3%	0.4%	3.2%	0.2%			0.0%	0.0%	16.6%
REM/POS			5.7%	0.3%	5.4%	0.2%			0.0%	0.0%	11.1%
Unknown									0.0%	0.0%	0.1%
Total	6.6%		51.4%		25.1%		16.8%		0.4%		100.0%

*Point estimate +/- half-width of the 95% confidence interval.

3.2 DISTRIBUTION OF VALUE OF CHECKS

In contrast to the number of check items analysis, *consumer*-written checks account for only 19.6 percent of the total value of check payments, while *businesses* write checks for 77.8 percent of total check value. In terms of value, *businesses* are both the heaviest writers and

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[21] Full details of all categorizations are in Appendix A, Detailed Data Tables.

receivers of check payments. *Business*-to-*business* checks account for 58.6 percent of the total value of check payments.

Exhibit 11: Distribution of Check Value by Payer

Payer	Distribution*	
Consumer	19.6%	+/- 0.4%
Business	77.8%	+/- 0.5%
Government	2.5%	+/- 0.2%
Business or Government	0.0%	+/- 0.0%
Unknown	0.1%	+/- 0.0%
Total	100.0%	

 *Point estimate +/- half-width of the 95% confidence interval.

Exhibit 12: Distribution of Check Value by Payee

Payee	Distribution*	
Consumer	20.5%	+/- 0.4%
Business	74.8%	+/- 0.5%
Government	4.5%	+/- 0.2%
Business or Government	0.2%	+/- 0.0%
Unknown	0.0%	+/- 0.0%
Total	100.0%	

 *Point estimate +/- half-width of the 95% confidence interval.

Exhibit 13: Distribution of Check Value by Counterparty

Payee Payer	Distribution*										
	Cons	+/-	Bus	+/-	Gov	+/-	Bus/Gov	+/-	Unknown	+/-	Total
Cons	3.0%	0.2%	15.1%	0.4%	1.4%	0.1%	0.0%	0.0%	0.0%	0.0%	19.6%
Bus	16.4%	0.4%	58.6%	0.5%	2.6%	0.2%	0.2%	0.0%	0.0%	0.0%	77.8%
Gov	1.0%	0.1%	1.0%	0.1%	0.5%	0.1%					2.5%
Bus/Gov	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			0.0%
Unknown	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%			0.0%	0.0%	0.1%
Total	20.5%		74.8%		4.5%		0.2%		0.0%		100.0%

 *Point estimate +/- half-width of the 95% confidence interval.

The distribution of check payments by dollar value demonstrates that POS checks, while a significant portion of total items (16.6 percent) make up only 8.2 percent in terms of the total value of checks. Conversely, the REM/POS category accounts for a significantly greater portion (19.3 percent) of check payments value than of items (11.1 percent). This is due to a relatively small number of high-value checks between *business* or *government* payers and payees for which the purpose (either remittance or POS) could not be clearly determined.

Over half of the check value was for *business*-to-*business* payments, with 39 percent going toward remittance payments, 16.9 percent to remittance or POS payments and 6.6 percent for POS payments. The only other segment with more than 15 percent of the total value of check payments is *business* income payments to *consumers* (17.4 percent).

Exhibit 14: Distribution of Check Value by Counterparty and Purpose

Counterparty / Purpose	Distribution*										
	C2C	+/-	C2BG	+/-	BG2BG	+/-	BG2C	+/-	Unknown	+/-	TOTAL
Income							17.4%	0.4%			17.4%
Casual	3.0%	0.2%									3.0%
REM			12.7%	0.4%	39.3%	0.5%			0.0%	0.0%	52.0%
POS			1.6%	0.1%	6.6%	0.3%			0.0%	0.0%	8.2%
REM/POS			2.3%	0.2%	16.9%	0.4%			0.0%	0.0%	19.3%
Unknown									0.0%	0.0%	0.0%
Total	3.0%		16.6%		62.9%		17.4%		0.0%		100.0%

*Point estimate +/- half-width of the 95% confidence interval.

3.3 AVERAGE DOLLAR VALUE BY PURPOSE AND COUNTERPARTY

Exhibit 15: Average Value per Check by Category

Purpose \ Counterparty	Average Value*										
	C2C	+/-	C2BG	+/-	BG2BG	+/-	BG2C	+/-	Unknown	+/-	TOTAL
Income							$988	$83			$988
Casual	$446	$29									$446
REM			$372	$86	$2,255	$141			$299	$5	$1,010
POS			$111	$8	$1,946	$120			$2,102	$65	$469
REM/POS			$401	$38	$3,020	$123			$95	$1	$1,691
Unknown									$318	$4	$318
Total	$445		$307		$2,378		$988		$590		$953

*Point estimate +/- half-width of the 95% confidence interval.

3.4 DISTRIBUTION OF CHECKS BY DOLLAR VALUE CATEGORY

The majority of checks appear to be written for relatively low dollar transactions. As illustrated in the table below, over a third of all checks (35%) are written for $50 or less. Over 80% of all checks are for transactions of $500 or less.

Exhibit 16: Distribution of Checks by Dollar Amount

Dollar Amount Range	Distribution*	
$0.01-$50	35.0%	+/- 0.5%
$50.01-$100	17.0%	+/- 0.4%
$100.01-$500	30.0%	+/- 0.5%
$500.01-$1000	8.0%	+/- 0.3%
$1000.01-$2500	6.0%	+/- 0.2%
$2500.01-$5000	2.0%	+/- 0.2%
$5000.01 +	3.0%	+/- 0.2%
Total	100.0%	

*Point estimate +/- half-width of the 95% confidence interval.

3.5 DEMAND DRAFTS

As outlined in section 2.6.1, Demand Drafts, the number of demand drafts that the 2007 CSS measures includes only those defined as remotely created checks. Therefore, any demand drafts that fall outside of the definition of a remotely created check were not measured in the study.

The study estimates that approximately 0.95 percent or 308 of the 32,448 checks sampled were remotely created.

3.6 CHECKS INELIGIBLE FOR ACH CONVERSION

As outlined in section 2.6.2, Checks Ineligible for ACH Conversion, the number of checks ineligible for ACH conversion in the sample are those that match the conditions set by NACHA. Forty-one percent of the checks in the sample were found to be ineligible for ACH conversion.

APPENDICES

Appendix A: Detailed Data Tables

(Follow this link.)

Appendix B: Full Check Sample Study Survey Instrument

(Follow this link.)

Appendix C: Short Check Sample Study Survey Instrument

(Follow this link.)

Appendix A:

Detailed Data Tables

Appendix Exhibit 1 below is similar to Exhibit 10 in the main report, with business and government entities separated. Most of the C2BG volume goes to C2B when split out. C2B payments comprise nearly half of total volume, and remittance payments also make up nearly half of total volume. C2B remittance payments are 30% of total volume.

Appendix Exhibit 1: Distribution of Checks by Counterparty and Purpose

Counterparty \ Purpose	Income	Casual	REM	POS	REM/POS	Unknown	Total
C2C		6.6%					6.6%
		0.3%					
C2B			29.8%	13.3%	5.6%		48.7%
			0.5%	0.4%	0.3%		
C2G			2.6%	0.0%	0.0%		2.6%
			0.2%	0.0%	0.0%		
B2C	15.1%						15.1%
	0.4%						
B2B			14.2%	2.9%	5.1%		22.1%
			0.4%	0.2%	0.2%		
B2G			1.6%		0.0%		1.6%
			0.1%		0.0%		
G2C	1.7%						1.7%
	0.1%						
G2B			0.4%	0.4%	0.3%		1.1%
			0.1%	0.1%	0.1%		
G2G			0.1%		0.0%		0.1%
			0.0%		0.0%		
Other	0.0%		0.1%	0.0%	0.1%	0.1%	0.3%
	0.0%		0.0%	0.0%	0.0%	0.0%	
Unknown						0.0%	0.0%
						0.0%	
TOTAL	16.8%	6.6%	48.8%	16.6%	11.1%	0.1%	100.0%

*The number below each point estimate is the half-width of its 95% confidence interval.

Appendix Exhibit 2 is similar to Exhibit 14 in the main report, with business and government entities separated. The highest percentage of check value is B2B payments, comprising 36% of total value.

Appendix Exhibit 2: Distribution of Check Value by Counterparty and Purpose

Counterparty \ Purpose	Distribution*						
	Income	Casual	REM	POS	REM/POS	Unknown	Total
C2C		3.0%					3.0%
		0.2%					
C2B			11.3%	1.6%	2.3%		15.1%
			0.3%	0.1%	0.2%		
C2G			1.4%	0.0%	0.0%		1.4%
			0.1%	0.0%	0.0%		
B2C	16.4%						16.4%
	0.4%						
B2B			35.6%	6.5%	16.6%		58.6%
			0.5%	0.3%	0.4%		
B2G			2.6%		0.0%		2.6%
			0.2%		0.0%		
G2C	1.0%						1.0%
	0.1%						
G2B			0.7%	0.1%	0.2%		1.0%
			0.1%	0.0%	0.0%		
G2G			0.5%		0.0%		0.5%
			0.1%		0.0%		
Other	0.0%		0.0%	0.1%	0.2%	0.0%	0.3%
	0.0%		0.0%	0.0%	0.0%	0.0%	
Unknown			0.0%	0.0%	0.0%	0.0%	0.0%
			0.0%	0.0%	0.0%	0.0%	
TOTAL	17.4%	3.0%	52.0%	8.2%	19.3%	0.0%	100.0%

*The number below each point estimate is the half-width of its 95% confidence interval.

Appendix Exhibit 3 is similar to Exhibit 15 in the main report, with business and government entities separated. The highest average values are G2G payments and B2B payments. To arrive at +/- use 1.96 +/- Standard deviation divided by the square root of n.

Appendix Exhibit 3: Average Value per Check Category (Counterparty by Purpose)

	Average Value*						
Purpose **Counterparty**	Income	Casual	REM	POS	REM/POS	Unknown	Total
C2C		$446					$446
		$29					
C2B			$360	$111	$404		$296
			$88	$8	$38		
C2G			$512	$22	$157		$509
			$44	$0	$4		
B2C	$1,036						$1,036
	$87						
B2B			$2,351	$2,158	$3,161		$2,508
			$147	$128	$127		
B2G			$1,494		$1,454		$1,494
			$91		$23		
G2C	$563						$563
	$15						
G2B			$1,519	$334	$608		$882
			$46	$20	$21		
G2G			$6,118		$6		$5,900
			$157		$0		
Other	$114		$233	$377	$170		$418
	$2		$3	$5	$2		
Unknown			$302	$2,181	$75	$277	$584
			$5	$65	$0	$4	
TOTAL	$988	$446	$1,010	$470	$1,691	$277	$953

*The number below each point estimate is the half-width of its 95% confidence interval.

Appendix B:

Full Check Sample Study Survey Instrument

Full CSS Survey Instrument

1. Does this image have a *Payee Line* field (i.e., the line indicating to whom the check is written) **and an amount?**

  θ Yes

  θ No – *(next image)*

2. Is there a smaller picture of another check embedded within the image?

  θ Yes – *(prompts Q3)*

  θ No – *(skips to Q4)*

3. Does the following sentence appear to the left of that image, "This is a LEGAL COPY of your check. You can use it the same way you would use the original check."?

  θ Yes

  θ No

4. Are any of these words on the front of the check?

θ Cashier's Check, Official Check, or Certified Check

θ Money Order or Postal Money Order

θ Traveler's Check

θ None of the above

Payer (wrote the check)

5. Does the *Payer* name or address have any of these? *(Check all that apply)*

θ One or more persons' full names (John Smith, John and Mary Smith, John Smith, Inc.)

θ Inc., LLC, LTD, Co., NA, Corp., Corporation, Trust, Trustee, Company, Services, .com, Association, PC

θ Church, Temple

θ Bank, Credit Union, Insurance

θ Funds, Mutual, Mutual Fund, Mutual Company, Investments, Investment Company, Investor's Fund

θ Initials of Business or Association (e.g. NAACP, AT&T)

θ State of, City of, County of, Town of, Township of, Bureau of, Municipality

θ State Treasury, State Treasurer, County Treasurer, County Commissioner, County Controller

θ US Treasury, Federal Reserve Bank, Federal Home Loan

θ IRS, Internal Revenue Service, State Tax, County Tax, Tax Commissioner, Tax Collector

θ Port Authority, Water Authority, Power Authority, Transit Authority, Department of

θ School, High School, Elementary, University, College

θ Apartment number (apt. #) <u>NOT</u> Suite # or Building #

θ Mail code (e.g., MC-648, BIN#)

θ Accounts Payable, Acct. Payable

θ Other business indicator

θ *NO -- <u>None</u> of the above*

6. Based on the *Payer* name and address and the characteristics of the check, can you definitively categorize the *Payer* as any of these?

θ Consumer (i.e., not a business or government)

θ Government (common examples of payer addresses will contain the words State of, City of, County of, Town of, Township of, Bureau of, Municipality, State Treasury, State Treasurer, County Treasurer, County Commissioner, County Controller, Port Authority, Water Authority, Power Authority, Transit Authority, Department of)

θ Business

θ Not Consumer – either business or government

θ Not Government – either business or consumer

θ Cannot determine

7. *Payer's* ZIP code:

  | | | | | | |-| | | | |

θ Zip code not present

Payee (paid by the check)

8. Does the *Payee Line* (i.e., the line indicating to whom the check is written) or the front of the check itself include an address for the *Payee*?

θ Yes

θ No

9. Does the *Payee* name (or address, if present) have any of these? *(Check all that apply)*

θ One or more persons' full names (John Smith, John and Mary Smith, John Smith, Inc.)

θ Cash

θ Inc., LLC, LTD, Co., NA, Corp., Corporation, Trust, Trustee Company, Services, .com, Association, PC

θ Church, Temple

θ Bank, Credit Union, Insurance

- θ   Initials of Business or Association (e.g. NAACP, AT&T)
- θ   State of, City of, County of, Town of, Township of, Bureau of, Municipality
- θ   IRS, Internal Revenue Service, State Tax, County Tax, Tax Commissioner, Tax Collector, US Treasury
- θ   Port Authority, Water Authority, Power Authority, Transit Authority, Department of
- θ   School, High School, Elementary, University, College
- θ   Dr., Doctor, MD, DDS, DVM, PC, Specialist, -ologist
- θ   Apartment number (apt. #) NOT Suite # or Building #
- θ   Mail code (e.g., MC-648, BIN#)
- θ   Accounts Receivable, Acct. Receivable
- θ   Other business indicator
- θ   *NO -- None of the above*

on the front…

10. **Date of the check:**

|___|___|___| / |___|___|___| / |___|___|

- θ   Date not present

11. **Enter the *Serial Number* (aka Check Number) listed in the upper right hand corner of the check.**

If there is no serial number in the upper right hand corner, look to the bottom-most row of numbers on the check. If the first character on the left hand side is a ‖■ symbol, then enter the number you see between that symbol of the next ‖■ symbol.

|___|___|___|___|___|___|___|___|___|___|___|___| …

- θ   Number not present

12. **Dollar amount of the check:**

$|___|___|___| , |___|___|___| , |___|___|___| . |___|___|

- θ   Amount not present

13. **Is the dollar amount in the *Courtesy Amount* field handwritten?**

- θ Yes
- θ No (Machine-printed)

14. **Enter the 9-digit transit routing number. This number is in the bottom-most row of numbers between the**

⫶ and ⫶ symbols:

⫶ |___|___|___|___|___|___|___|___|___| ⫶

- θ   Bottom row of numbers not present

15. **Does the symbol ‖■ appear in the leftmost position of the row of numbers at the bottom of the document?**

- θ Yes
- θ No

16. **Which *ONE* of the following best describes the *Signature* on the face of the check:**

- θ Hand-written or facsimile
- θ Name in printed type face
- θ Reads "No Signature Required"
- θ Reads "Signature on File"
- θ In place of the signature a phrase stating "Authorized by the depositor", "Authorized by the Payer", or "As Authorized Signatory" is present
- θ Below the signature a phrase stating "Authorized by the depositor", "Authorized by the Payer", or "Authorized Signature" is present
- θ The signature field is blank.

17. **Are any of these items handwritten on the check? *(Check all that apply)***

- θ   DL, driver's license, license
- θ   Handwritten state initials (GA, CA, MI, etc.) followed by or preceded by a number
- θ   Account, (e.g. acct #) followed or preceded by a number
- θ   Phone number handwritten or circled on face of check
- θ   Birth date written on check (*Note:* Date will be 1990 or earlier.)
- θ   Stamped form (generally on the back of the check) that is filled in with handwritten characters
- θ   *NO -- None of the above*

on the back…

18. **Are any of these words in the *Payee* endorsement? *(Check all that apply)***

- θ   Dollar Amount, Amount, $

- θ Store, Store #, register #, terminal #, branch #, location #, DL, D/L, cashback
- θ Inc., LLC, LTD, Co., NA, Corp., Corporation, Company, Services, .com, Association, Trust
- θ Church, Temple
- θ Bank, Credit Union, Insurance
- θ Initials of a Business or Association (NAACP, AT&T)
- θ State of, City of, County of, Town of, Township of, Bureau of, Municipality
- θ US Treasury, IRS, Internal Revenue Service, State Tax, County Tax, Tax Commissioner, Tax Collector
- θ Port Authority, Water Authority, Power Authority, Transit Authority, Department of
- θ School, High School, Elementary, University, College
- θ Dr., Doctor, M.D., DDS, DVM, PC, Specialist, –ologist
- θ Other business indicator
- θ *NO -- None of the above*

19. Is the *Payee* endorsement handwritten?

- θ Yes – Handwritten
- θ No – It's stamped / machine-printed
- θ Cannot find Payee endorsement

20. On the back, is the *Payee* endorsement perpendicular or parallel to the writing on the front of the check?

- θ Perpendicular
- θ Parallel
- θ Cannot find Payee endorsement

21. Do the words "Absent(ee)" or "Absent Endorsed" appear anywhere on the back of the check?

- θ Yes
- θ No

22. Input the number (typically 9 digits) found on the back of the check that exists between > and < symbols. In the event that more than one set of > < symbols appear, first look for the endorsement with a bank name associated with it and enter that number. If each set has a bank name associated with it, then choose the set that has the earliest date. The date will appear next to or just below the number between the > < symbols.

> | | | | | | | | | | <

- θ Number not present

Categorizing Payee

23. Based on the *Payee* name/address and endorsement, can you definitively categorize the *Payee* as any of these?

- θ Consumer
- θ Government
- θ Business
- θ Not Consumer – either business or government
- θ Not Government – either business or consumer
- θ Cannot determine

24. If *Payee* is business or government, mark which type:

- θ Power, gas, phone, cable or internet service provider
- θ Bank, credit union, credit card company, or insurance company
- θ Supermarket or Drugstore
- θ Convenience store
- θ Retail Store, retail service shop, or cataloger
- θ Restaurant, bar, diner, fast food, etc.
- θ Subscription, membership organization, club, etc.
- θ Charitable organization, church
- θ State of, City of, County of, Town of, Township of, Bureau of, Municipality
- θ US Treasury, IRS, Internal Revenue Service, State Tax, County Tax, Tax Commissioner, Tax Collector
- θ Port Authority, Water Authority, Power Authority, Transit Authority, Department of
- θ School, High School, Elementary, University, College
- θ Medical (e.g., hospital, doctor's office, etc.)
- θ *NOT a business or government*
- θ Other business indicator
- θ Cannot determine

Appendix C:

Short Check Sample Study Survey Instrument

Short CSS Survey Instrument

Payer (wrote the check)

1. **Based on the *Payer* name and address and the characteristics of the check, can you definitively categorize the *Payer* as any of these?**

- θ Consumer (i.e., not a business or government)
- θ Government (common examples of payer addresses will contain the words State of, City of, County of, Town of, Township of, Bureau of, Municipality, State Treasury, State Treasurer, County Treasurer, County Commissioner, County Controller, Port Authority, Water Authority, Power Authority, Transit Authority, Department of)
- θ Business
- θ Not Consumer – either business or government
- θ Not Government – either business or consumer
- θ Cannot determine

on the front…

2. **Date of the check:**

| | | | / | | | | / | | | |

- θ Date not present

3. **Enter the *Serial Number* (aka Check Number) listed in the upper right hand corner of the check.**

If there is no serial number in the upper right hand corner, look to the bottom-most row of numbers on the check. If the first character on the left hand side is a ∥■ symbol, then enter the number you see between that symbol of the next ∥■ symbol.

| | | | | | | | | | | | | | | … |

- θ Number not present

4. **Dollar amount of the check:**

$ | | | | | , | | | | | , | | | | | . | | |

- θ Amount not present

5. **Enter the 9-digit transit routing number. This number is in the bottom-most row of numbers between the** I: **and** I: **symbols:**

I: | | | | | | | | | | I:

- θ Bottom row of numbers not present

Categorizing Payee

6. **Based on the *Payee* name/address and endorsement, can you definitively categorize the *Payee* as any of these?**

- θ Consumer
- θ Government
- θ Business
- θ Not Consumer – either business or government
- θ Not Government – either business or consumer
- θ Cannot determine

7. **If *Payee* is business or government, mark which type:**

- θ Power, gas, phone, cable or internet service provider
- θ Bank, credit union, credit card company, or insurance company
- θ Supermarket or Drugstore
- θ Convenience store
- θ Retail Store, retail service shop, or cataloger
- θ Restaurant, bar, diner, fast food, etc.
- θ Subscription, membership organization, club, etc.
- θ Charitable organization, church
- θ State of, City of, County of, Town of, Township of, Bureau of, Municipality
- θ US Treasury, IRS, Internal Revenue Service, State Tax, County Tax, Tax Commissioner, Tax Collector
- θ Port Authority, Water Authority, Power Authority, Transit Authority, Department of
- θ School, High School, Elementary, University, College
- θ Medical (e.g., hospital, doctor's office, etc.)
- θ *NOT a business or government*
- θ Other business indicator
- θ Cannot determine