

# Exploring Voluntary Disclosure of Gift Card Breakage: Insights From Agency and Signaling Theory

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*This study investigates the voluntary disclosure of gift card breakage among retail and restaurant firms, examining whether agency and signaling theories explain such disclosures and identifying firm-specific characteristics that influence the likelihood of disclosure. Using data from 79 U.S. publicly traded firms over 2013-2022, the study employs two-sample t-tests, difference-in-differences models, and logistic regression to analyze the impact of financial metrics on disclosure decisions. Firms with lower liquidity and weaker turnover management are more likely to disclose gift card breakage, supporting agency theory by suggesting that these disclosures reduce information asymmetry. The results also present a nuanced view of signaling theory, where disclosure might function as a "bad news" signal for firms with weaker financial health. The study also highlights the significant influence of ASC 606 adoption on disclosure practices, with firms being approximately 15 times more likely to disclose gift card breakage post-ASC 606. This research extends the corporate voluntary disclosure literature by focusing on the under-researched element of gift card breakage. The sector-specific focus highlights industry-specific nuances in voluntary disclosure practices.*

*Keywords: agency theory, ASC 606, breakage, gift cards, information asymmetry, signaling theory, unexercised contractual rights, voluntary disclosure*

## INTRODUCTION

Corporate voluntary disclosure (CVD) is a powerful tool that goes beyond regulatory requirements, enabling firms to share crucial financial and non-financial information. This practice facilitates access to capital, reduces equity costs, and significantly mitigates information asymmetries (Healy & Palepu, 2001; Saha & Kabra, 2020; Shroff et al., 2013). Despite extensive research, specific financial elements like unexercised contractual rights (UCR), or breakage, remain underexplored. Breakage, such as forfeited gift cards, offers unique financial insights because it arises from customer inaction. By examining gift card breakage, this paper provides a novel perspective on voluntary disclosures, extending the CVD literature and uncovering new opportunities for understanding firm behavior.

Breakage recognition in financial statements relies on estimates of customer inaction relative to customer action. This proportion, or breakage rate, is a proprietary metric known only to managers. For external stakeholders, determining the value of customer inaction from mandatory disclosures is

impossible, necessitating reliance on voluntary firm disclosure. If breakage information is valuable to external users, we expect corporate managers to disclose it to reduce information asymmetry.

This paper explores whether agency and signaling theory explains voluntary gift card breakage disclosure in annual reports and whether firm-specific characteristics influence the likelihood of such disclosure. At the core of agency and signaling theory is the issue of information asymmetry, where corporate managers possess superior knowledge of their firms' operations. Empirical CVD literature indicates that managers will voluntarily disclose information to reduce information asymmetry (Zamil et al., 2023). From an agency perspective, managers disclose information to reduce agency costs arising from information asymmetry. From a signaling perspective, managers disclose private information to signal efficiency and effectiveness.

Research suggests that firm-specific characteristics, such as profitability, efficiency, and liquidity influence whether managers will engage in voluntary disclosure (Zamil et al., 2023). For example, larger firms are more likely to disclose voluntarily than smaller firms (Meek et al., 1995; Soliman, 2013), and organizations with more efficient turnover management are more likely to engage in voluntary disclosure than those with less efficient turnover management (Bhatia & Dhamija, 2015). The firm characteristics considered in our study include profitability, efficiency, liquidity, leverage, turnover management, market prospects, and firm size. We discuss each factor and its justification in the section on variables and hypotheses.

Our study differentiates itself in three ways. First, we leverage the implementation of Accounting Standards Codification (ASC) 606 - Revenue from Contracts with Customers. For annual reporting periods after December 2017, ASC 606 clarified UCR recognition practices and directed organizations to recognize expected breakage as revenue in proportion to their customers' pattern of exercised rights (BDO, 2023; Kaufinger & Peddicord, 2020). While ASC 606 includes overall disclosure objectives (BDO, 2023), it does not specifically mandate breakage disclosure, leading firms to voluntarily disclose these values. Notably, firms like American Eagle Outfitters, Best Buy, and Red Robin Gourmet Burgers disclosed breakage values before and after ASC 606 implementation. In contrast, others like Amazon.com and Domino's Pizza have never disclosed breakage values. Yet other firms, such as Abercrombie & Fitch, disclosed breakage values prior to ASC 606 but ceased doing so afterward. Our study bridges the pre- and post-ASC 606 eras, providing new insights into CVD.

Second, while CVD occurs in various mediums such as press releases, letters to shareholders, and analyst conference calls (Frankel et al., 1999; Watson et al., 2002), we prioritize annual report CVDs due to their perceived importance for decision-makers (Johansen & Plenborg, 2013; Shehata, 2014).

Third, we focus on the retail and restaurant sectors for three reasons: (a) The financial value of breakage in these sectors is significantly large due to low redemption rates on gift cards (Perkins-Southam, 2021; Restaurant Gift Card Sales & Redemption, 2023). (b) Previous research demonstrates that CVD in these sectors has decision-making utility for investors and certain consumers (Avery et al., 2023; Cole & Jones, 2004; Francis et al., 2003). (c) There is a need for sector-specific research within the CVD literature to highlight industry idiosyncrasies (Zamil et al., 2023).

Analytically, we follow established corporate voluntary disclosure literature by using data from listed firms (Zamil et al., 2023). Our sample consists of 178 publicly traded firms classified as "retailers" or "restaurants and bars" under the Industry Classification Benchmark (ICB) taxonomy. From this, we selected an unmatched sample of 79 U.S. firms, including 45 firms (367 firm years) that disclosed annual gift card breakage at least once during the sample period and 34 firms (423 firm years) that did not. Importantly, the firms in our final sample meet all the narrowing criteria defined later in this paper. To evaluate the influence of time variance on CVD, we collected financial metrics for the five years preceding and after the implementation of ASC 606.

We leverage two-sample t-tests, difference-in-differences models, and logistic regression. We used t-tests to compare the means of various financial metrics between firms that voluntarily disclose breakage and those that do not. The difference-in-differences model assessed the intervention effect of ASC 606 on voluntary disclosure. A logistic regression model estimated the likelihood of voluntary breakage disclosure based on seven firm characteristics: profitability, efficiency, liquidity, leverage, turnover management,

market prospects, and firm size. We also conducted separate logistic regression models for disclosing and non-disclosing firms to compare behavior during the pre- and post-ASC 606 adoption periods and whether ASC 606 accelerated voluntary disclosures. This comprehensive approach enhances the reliability and validity of the findings.

The principal finding of this paper is that the voluntary disclosure of gift card breakage significantly reduces information asymmetry between corporate managers and external stakeholders. This transparency aligns the interests of managers and shareholders, reducing agency costs. The study highlights that certain financial metrics, such as ROIC, efficiency %, liquidity (NCA%), and turnover ratios (e.g., Total Asset Turnover, Inventory Turnover, Payables Turnover, Cash & Equiv. Turnover) significantly influence the likelihood of voluntary disclosure, suggesting that these disclosures may be used to address information asymmetry and signal transparency. Additionally, the research suggests that firms may use the voluntary disclosure of gift card breakage to showcase positive financial performance, particularly in the post-ASC 606 period. This supports both agency and signaling theories, demonstrating that these theories are complementary in explaining voluntary disclosure practices. By integrating both theories, the study provides a more comprehensive understanding of the motivations behind corporate voluntary disclosure. It shows that firms voluntarily disclose breakage to reduce agency problems and strategically signal their financial health and operational efficiency to the market. A secondary finding is that firms are approximately 15 times more likely to disclose gift card breakage post-ASC 606 adoption, indicating a strong influence of the revised accounting standard on voluntary disclosure behavior.

This study makes five significant contributions to the literature on corporate voluntary disclosure. First, the study extends the existing CVD literature by focusing on a specific and under-researched element—gift card breakage. This unique financial phenomenon arises from customer inaction and provides a novel context to explore voluntary disclosure practices. Second, by applying agency and signaling theories, the study demonstrates that these theories are not mutually exclusive but complementary in explaining voluntary disclosure practices. This integration provides a more comprehensive understanding of the motivations behind corporate voluntary disclosure. Third, the study leverages the implementation of ASC 606 to assess its impact on voluntary disclosure practices. It highlights how accounting standards can influence voluntary disclosure behavior, providing insights into the regulatory environment's role in shaping corporate transparency. Fourth, the use of a difference-in-differences model and logistic regression to evaluate the intervention effect of ASC 606 on voluntary disclosure is a methodological contribution. This approach helps isolate the impact of the regulatory change from other variables. Finally, the study highlights industry-specific nuances in voluntary disclosure practices by focusing on the retail and restaurant sectors. This sector-specific focus addresses calls for more detailed research within industries to understand their unique disclosure behaviors. Overall, this study enhances the literature by deepening the understanding of voluntary disclosure practices, integrating theoretical perspectives, and offering methodological innovations and practical insights.

## **LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT**

### **Corporate Voluntary Disclosure**

The Financial Accounting Standards Board (FASB) defines voluntary disclosure as information provided outside of financial statements that neither GAAP nor the SEC explicitly requires (FASB, 2001). Thus, it is a firm's discretionary choice (Adina & Ion, 2008; Najm-Ul-Sehar & Tufail, 2013). Leuz and Verrecchia (2000) argue that voluntary disclosure is an ex-post activity, with managers deciding to disclose information after assessing its content. However, due to information asymmetry and agency conflicts, stakeholders often pressure managers to provide additional insights into operations, social responsibility, financial results, and diversity initiatives beyond what is mandated. This creates tension between managerial discretion and stakeholder demands. Researchers explore corporate voluntary disclosure to understand its drivers, motivations, and consequences.

Stakeholders benefit from CVD in various ways. Farvaque et al. (2011) highlight benefits for shareholders, including value creation, increased market liquidity, reduced information asymmetry, and

mitigated agency issues. Similarly, Healy and Palepu (2001) argue that managers benefit through monetary gains from performance-based stock compensation, reduced litigation risk, and favorable talent assessments. Despite these benefits, information asymmetry remains central to voluntary disclosure (Zamil et al., 2023). Managers possess superior knowledge about their organization, which external stakeholders lack. Feltham and Xie (1992) suggest that managers may selectively reveal good and bad news, perpetuating asymmetry issues. In contrast, Leuz and Verrecchia (2000) argue that the economic benefits of voluntary disclosures outweigh their costs, leading rational managers to engage in voluntary disclosure to mitigate asymmetry issues. Over the past two decades, these contrasting views have spurred extensive research on corporate transparency and disclosure, focusing significantly on CVD drivers. Zamil et al. (2023) identify CVD determinants as firm characteristics, governance mechanisms, ownership structures, audits, top management talent, disclosure policies, and country-related factors. Among these, firm characteristics are most used to assess disclosure activities (Zamil et al., 2023). Our study follows this literature, examining seven firm characteristics: profitability, efficiency, liquidity, leverage, turnover management, market prospects, and firm size.

CVD literature identifies various mediums for disclosure (e.g., shareholder letters, annual reports) and classifications of disclosure. We follow established literature that investigates CVD in annual reports (e.g., Braam & Borghans, 2014; Broberg et al., 2010; Hossain et al., 1995). Investors, CEOs, financial directors, and other stakeholders widely regard the annual report as a prominent medium for voluntary disclosure (PWC, 2007). Meek et al. (1995) identify three broad categories of annual report disclosures: strategic, non-financial, and financial information. Strategic information includes corporate strategy, acquisitions and divestitures, R&D, general corporate characteristics, and other prospective information. Non-financial information encompasses details about employees, directors, and social responsibility. Financial information includes financial reviews, segment information, foreign currency data, and stock price data. Our study focuses on financial-related disclosures, which expert users, private shareholders, finance directors, and auditors prioritize for their relative usefulness over other disclosures such as objectives and strategies, employee value drivers, or social/environmental disclosures (Beattie & Pratt, 2002). We narrowed our study to a unique voluntary financial disclosure called unexercised contractual rights, or breakage. The reasons why managers voluntarily disclose or withhold detailed breakage-related information are unclear, and to our knowledge, no one has empirically researched this topic.

### **ASC 606, Unexercised Rights, and the Disclosure Environment**

ASC 606 introduced significant revisions to revenue accounting and disclosure requirements, including the treatment of unexercised contractual rights (breakage). Breakage occurs when customers do not fully utilize their contractual rights from nonrefundable prepayments (FASB, ASC 606-10-55-47). Entities must recognize expected breakage as revenue in proportion to customers' usage patterns.

The standard requires public entities to disclose their contracts with customers, interpretive judgments and changes in those judgments, costs to obtain or fulfill a contract, reconciliations of contract account balances, performance obligations, and disaggregated revenue. These disclosures apply only to material items, and there is no specific disclosure objective for breakage values, leaving it to the discretion of individual firms. Contrasting examples of discretionary breakage disclosure include:

**Dollar General Corporation (2023):** Estimated breakage revenue, a percentage of gift cards that will never be redeemed based on historical redemption rates, is recognized over time in proportion to actual gift card redemptions. The Company recorded breakage revenue of \$2.6 million, \$2.3 million, and \$1.7 million in 2023, 2022 and 2021, respectively. (p.54)

**Tilly's Inc. (2023):** Based on actual historical redemption patterns, we determined that a small percentage of gift cards are unlikely to be redeemed (which we refer to as gift card "breakage"). Based on our historical gift card breakage rate, we recognize breakage revenue over the redemption period in proportion to actual gift card redemptions. (p.51)

Studies on ASC 606's impact show several benefits, such as reduced information asymmetry, improved revenue information, and increased market liquidity and volume. For instance:

- Ahn et al. (2021): Found reductions in information asymmetry for complex adopters.
- Hao and Pham (2023): Observed a temporary boost in investor confidence due to improved revenue informativeness.
- Hinson et al. (2024): Reported improvements in analysts' sales forecasts with increased revenue disaggregation.
- Ferreira (2021): Noted increased market liquidity among early adopters.
- Glaze et al. (2024): Observed increased trading volume with more frequent quarterly revenue disclosures.
- Hubbard (2023): Found evidence of revenue manipulation post-adoption, especially among firms with complex revenue operations.

Despite these insights, research on voluntary disclosure under ASC 606 remains limited. This is unexpected because non-GAAP disclosures provide investors with relevant information (Campbell et al., 2022). Our study aims to fill this gap by investigating the voluntary disclosure environment for breakage before and after ASC 606 adoption.

### **Discerning Corporate Voluntary Disclosure Motivations**

Multiple theories help discern managers' motivations for corporate voluntary disclosure. Agency theory, introduced by Jensen and Meckling (1976), addresses information asymmetry between managers (agents) and stakeholders (principals). This theory suggests that increased disclosure can reduce agency problems by improving transparency and enabling better performance judgments (Holmstrom, 1979). Empirical research supports this, finding an association between increased corporate voluntary disclosure and reductions in agency-related issues (e.g., Barako et al., 2006; Eng & Mak, 2003; Huang & Zhang, 2012). In the context of gift card breakage, annual report disclosures provide new information based on estimates of customer inaction. This is significant in sectors like retail and restaurants, where breakage can be material (Kaufinger, 2013; Perkins-Southam, 2021; Restaurant Gift Card Sales & Redemption, 2023). Voluntary breakage disclosure can reduce agency issues by providing transparency on non-redemptions, which external stakeholders cannot determine from financial statements alone.

On the other hand, signaling theory focuses on how firms signal their quality and intentions to reduce information asymmetry. Unlike agency theory, which aims to solve the agency problem, signaling theory emphasizes the strategic communication of private information held by management. Firms use financial signals to convey their attributes or intentions to stakeholders (e.g., Basoglu & Hess, 2014; Camarero et al., 2023; Tuli et al., 2012; Zhao et al., 2008). For example, high liquidity can signal financial strength and stability, while low liquidity might indicate financial distress. In the context of gift card breakage, significant breakage levels could signal current period revenue strength but also potential future risks. ASC 606 requires breakage recognition in proportion to customer gift card redemptions, making breakage a potential signal of financial performance.

Research suggests that firm-specific characteristics such as size, liquidity, profitability, and leverage influence the extent of voluntary disclosure (Watson et al., 2002; Zamil et al., 2023). Larger firms and those with lower liquidity are more likely to disclose additional information to reduce information asymmetry and offer better visibility into firm operations. Conversely, firms with high liquidity may disclose more to signal financial strength. This study explores how firms use voluntary disclosure to address information asymmetry and signal financial performance, particularly through gift card breakage disclosures. By examining these disclosures, we aim to understand better the motivations behind corporate voluntary disclosure and its impact on stakeholders.

### **Disclosure Variables and Hypotheses**

We base our discussion and hypotheses on literature related to financial and accounting disclosures. Following established practices (Watson et al., 2002; Zamil et al., 2023), we examine voluntary disclosure through firm characteristics such as profitability, efficiency, liquidity, leverage, turnover management,

market prospects, and size. The literature confirms that these characteristics influence the disclosure of voluntary information among entities (Zamil et al., 2023). To explore the theoretical relationship between breakage disclosure and firm characteristics, we use financial ratios as proxies for these characteristics, as done in previous studies (e.g., Adhikari & Duru, 2006; Bhatia & Dhamija, 2015; Watson et al., 2002).

Considering firm characteristics, Zamil et al. (2023) highlight mixed results within the CVD literature, indicating that the direction of any proposed relationships remains unclear. This suggests that while firm characteristics are important, their impact on voluntary disclosure can vary. To address this, Table 1 summarizes our independent variables by hypothesis, corresponding theoretical predictions and related prior empirical studies. This approach allows us to systematically investigate how different firm characteristics might influence breakage disclosure, providing a clearer understanding of the motivations behind corporate voluntary disclosure.

**TABLE 1**  
**INDEPENDENT VARIABLES, THEORETICAL PREDICTIONS, AND**  
**SUPPORTING PRIOR RESEARCH**

Hypothesis	Independent Variable	Agency Theory	Signaling Theory	Prior Research
H1	Profitability	+	?	Adhikari & Duru (2006) (-); Bhatia & Dhamija (2015) (-/N); Dahiyat (2020) (+); El-Gazzar et al. (2008) (+); Elfeky (2017) (+); Habbash et al. (2016) (+); Ji et al. (2015) (-); Lan et al. (2013) (+); Meek et al. (1995) (+/N); Mutiva et al. (2015) (+/-); Najm-Ul-Sehar & Tufail (2013) (+); Pernamasari (2020) (+); Saxton et al. (2012) (+/N); Simpson (2008) (N); Wang et al. (2008) (+); Watson et al. (2002) (+/-)
H2	Efficiency	+	+	Watson et al. (2002) (N)
H3	Liquidity	?	+	Adhikari & Duru (2006) (-); Almusli & Qeshta (2014) (-/N); Bhatia & Dhamija (2015) (+/N); Lan et al. (2013) (-/N); Masum et al. (2021) (+); Shalutha & Priyadarshanie (2020) (-/N); Watson et al. (2002) (N)
H4	Leverage	+	?	Adhikari & Duru (2006) (+); Aitken et al. (1997) (+/N); Almusli & Qeshta (2014) (+); Bhatia & Dhamija (2015) (-/N); Dahiyat (2020) (+/N); El-Gazzar et al. (2008) (+/N); Elfeky (2017) (+); Habbash et al. (2016) (-); Ji et al. (2015) (-/N); Lan et al. (2013) (+); Masum et al. (2021) (+); Meek et al. (1995) (-/N); Simpson (2008) (N); Watson et al. (2002) (+/-)
H5	Turnover Management	+	+	Bhatia & Dhamija (2015) (+/N); Fu et al. (2023) (+); Ji et al. (2015) (+/N); Lan et al. (2013) (+); Simpson (2008) (N); Sriram (2020) (+/N)
H6	Market	+	+	Adelopo (2011) (+); Adhikari & Duru (2006) (-

Hypothesis	Independent Variable	Agency Theory	Signaling Theory	Prior Research
	Prospects			/N); Beattie & Jones (1992) (+); Dilla & Janvrin (2010) (-); Jones (2007) (-)
H7	Firm Size	+	+	Adelopo (2011) (+); Aitken et al. (1997) (+); Bhatia & Dhamija (2015) (+); Dahiyat (2020) (+); El-Gazzar et al. (2008) (+); Elfeky (2017) (+); Habbash et al. (2016) (+); Jones (2007) (+); Lan et al. (2013) (+); Meek et al. (1995) (+); Raffournier (1995) (+); Saxton et al. (2012) (-); Simpson (2008) (+); Sriram (2020) (+); Walker & Louvari (2003) (-/N); Watson et al. (2002) (+)
+ = positive association; - = negative association; +/- = mixed association; N = insignificant; ? = uncertainty about the relationship				

### *Profitability*

Corporations use signals to bridge information asymmetry and convey financial strength, enhancing investor confidence. Reliable signals depend on their ability to provide additional, relevant information to stakeholders (Dainelli et al., 2013). Voluntary disclosures in annual reports offer such incremental value, especially for firms wishing to signal financial strength (Dainelli et al., 2013).

Breakage, recognized in proportion to gift card redemptions, is always earnings accretive (Kaufinger & Peddicord, 2020). From a financial performance perspective, breakage disclosure could serve as a signal of current profit strength. Signaling theory, therefore, suggests a positive relationship between firm profitability and voluntary breakage disclosure. However, breakage could also signal negative future performance if disclosed, as it alters current margins at the expense of future margins. Thus, firms disclosing breakage might convey "bad" news to the market, leading to an opposing relationship. Due to this contradiction, we make no presupposition about the direction of the relationship.

According to agency theory, voluntary disclosure can mitigate the agency problem by promoting accountability and transparency, allowing stakeholders to evaluate managerial performance more effectively. Inchausti (1997) contends that agents in more profitable firms disclose additional, voluntary information to maintain their employment and compensation arrangements. Since firms derive breakage from customer inaction, its disclosure reflects management's ability to effectively manage gift card programs. Therefore, agents of more profitable firms should theoretically be more likely to disclose breakage as evidence of their effectiveness.

Research on the relationship between voluntary disclosures and profitability shows mixed results. Some studies found a negative relationship (Adhikari & Duru, 2006; Ji et al., 2015), while others found insignificant (Simpson, 2008; Saxton et al., 2012; Bhatia & Dhamija, 2015) or mixed results (Watson et al., 2002). Of the 16 studies cited in Table 1, agency theory is the most common theoretical base, followed by signaling theory. Researchers also reference stakeholder and proprietary cost theories. Empirical methods include OLS regression, logistic regression, probit analysis, and difference-in-differences models. Studies used samples from multiple sectors and various geographic regions. This study examines voluntary disclosures in US retail and restaurant corporations.

To investigate the relationship between breakage disclosure and profitability, we hypothesize the null:

**H<sub>1</sub>:** *There is no difference in profitability between firms disclosing breakage in their annual reports and those making no disclosure.*

### *Efficiency*

Following Watson et al. (2002), we define efficiency as revenue per employee, capturing workforce utilization and indicating a high-performing organization (Jerris & Pearson, 1997). Yan et al. (2023) argue that efficient organizations are more adaptive, make better decisions, and mitigate uncertainty, making stakeholders interested in their efficiency. In gift card programs, this metric could indicate excellent customer service and firm performance (Oh et al., 2012).

According to signaling theory, managers may hesitate to disclose unfavorable efficiency results but are eager to signal favorable ones (Watson et al., 2002). Breakage could indicate an inefficient gift card program, leading inefficient firms to withhold breakage values, while efficient firms would disclose them. Thus, we expect a positive relationship between efficiency and breakage disclosure.

Efficient organizations that effectively utilize their workforce and resources are less likely to experience severe agency problems. In the context of breakage disclosure, efficient firms are likely to disclose breakage values as evidence of their effective management and operational performance. This transparency helps mitigate agency problems by providing stakeholders with the information needed to evaluate managerial performance accurately. Therefore, we expect a positive association between efficiency and breakage disclosure. We hypothesize the null:

***H<sub>2</sub>***: *There is no difference in efficiency between firms disclosing breakage in their annual reports and those making no disclosure.*

### *Liquidity*

Liquidity represents an organization's ability to convert current assets into cash to meet short-term obligations. Stakeholders view firms with higher liquidity as better performers. Researchers use liquidity metrics across various fields, including financial distress, risk management, and voluntary disclosure (Akhtaruddin & Haron, 2010; Altman et al., 2017; Gul & Leung, 2004; Panaretou, 2014; Valaskova et al., 2018).

Understanding gift card accounting is essential to predict the liquidity variable's direction. Sales of gift cards increase cash but create a current liability (unearned revenue). Redemptions release this liability, recording a sale and reducing inventory assets. However, breakage reduces the liability and records a sale without decreasing inventory, mathematically benefiting liquidity metrics. Because the perception of favorable liquidity enhances a company's reputation with stakeholders, signaling theory posits that entities with higher liquidity ratios are more likely to engage in voluntary disclosure to showcase their managerial prowess (Almusli & Qeshta, 2014). Thus, under signaling theory, we expect a positive relationship between firm liquidity and voluntary breakage disclosure.

Agency theory, however, presents a paradox. On the one hand, it suggests that less liquid firms disclose voluntarily to reduce information asymmetry (Wallace et al., 1994). On the other hand, the level of liquidity could reflect an agency-opportunity cost trade-off. Holding liquid assets to maintain flexibility and control reduces agency problems but at the cost of lower returns on invested capital. Therefore, managers of highly liquid firms may disclose additional information about their liquidity position to demonstrate sound financial management and reassure stakeholders. Consequently, we do not state an expectation regarding the liquidity-disclosure relationship's direction.

Studies on liquidity and CVD (Table 1) are inconclusive. Masum et al. (2021) found a positive relationship, while Adhikari & Duru (2006) found a negative one. Other studies found no significant relationship, suggesting liquidity may not influence disclosure decisions. Our study aims to clarify this, focusing on the retail and restaurant sectors with high liquidity (Demirgüneş, 2016).

Of the seven studies cited, agency theory is the most common theoretical base, followed by signaling theory, stakeholder theory, and no theory. Researchers used OLS regression, logistic regression, and difference-in-differences models, with liquidity proxied through the current ratio. We advance these findings with additional liquidity ratios and more recent sampling frame. To investigate the relationship between breakage disclosure and liquidity, our null hypothesis is:



**H<sub>3</sub>:** *There is no difference in liquidity between firms disclosing breakage in their annual reports and those making no disclosure.*

#### *Leverage*

Leverage refers to the financial risk from using debt instead of equity to increase returns (Higgins, 2001). It can signal financial health, with some arguing that higher leverage indicates managerial confidence (Ross, 1977), while others suggest it signals increased risk (Myers & Majluf, 1984). Signaling theory is inconclusive about leverage's impact on voluntary disclosures (Watson et al., 2002), so we do not predict direction.

Agency theory suggests a positive relationship between leverage and disclosure. To reduce information asymmetry, creditors incur bonding and monitoring costs, prompting managers to disclose more information. Higher leverage should lead to more disclosure. Breakage provides discretionary cash from unredeemed gift cards, which managers might use for their own objectives, raising creditor concerns. To reassure creditors, managers may disclose breakage, aligning with agency theory. We expect a positive relationship between leverage and voluntary breakage disclosures.

Research on leverage and voluntary disclosures shows mixed results (Table 1). Eight studies found a positive relationship, while four were statistically insignificant. Significant studies, except Adhikari and Duru (2006), used broad disclosure indices. Among insignificant studies, only Dahiyat (2020) used a multifaceted index. Studies showing a negative relationship, except Ji et al. (2015) and Bhatia and Dhamija (2015), also used broad indices. This suggests that disclosure measurement is a limiting factor in CVD research (Urquiza et al., 2009). We argue that specific disclosures like breakage should provide better insights into disclosure motivations.

Adhikari and Duru (2006) found a positive relationship between leverage and free cash flow disclosure in US firms (1994-2004). Higher leveraged firms were more likely to disclose free cash flow, reorienting stakeholder attention to cash flow amid heavier debt loads. In contrast, Bhatia and Dhamija (2015) found leverage was not significant in explaining financial ratio disclosures among Indian firms. Watson et al. (2002) found mixed results for UK firms. We advance this literature by examining voluntary disclosure before and after a US accounting standard change in two sectors.

To investigate the relationship between breakage disclosure and leverage, our null hypothesis is:

**H<sub>4</sub>:** *There is no difference in leverage between firms disclosing breakage in their annual reports and those making no disclosure.*

#### *Turnover Management*

Our study defines turnover management as an entity's ability to effectively use and manage its assets and current liabilities. Effective turnover management should lead to better organizational performance. For example, high inventory turnover implies higher sales revenue and lower holding costs, positively influencing profitability. Studies support a positive relationship between turnover management and firm performance across various industries and regions (e.g., Alarussi & Alhaderi, 2018; Alnaim & Kouaib, 2023; Capkun et al., 2009; Fu et al., 2023; Gołaś, 2020; Santosuosso, 2014; Tahir & Anuar, 2016). Turnover management signals efficiency to stakeholders, and signaling theory posits that firms with high turnover management are more likely to engage in voluntary disclosure (Bhatia & Dhamija, 2015).

Regarding breakage disclosures, breakage can improve asset turnover metrics (Kaufinger, 2013). However, Kaufinger (2015) found that retail firms recognize more breakage to bolster profitability as operational efficiency declines. Despite this paradox, signaling theory suggests that firms with strong turnover management are more likely to disclose, while those with weaker turnover management would avoid signaling poor efficiency. Therefore, we expect a positive relationship between turnover management and voluntary breakage disclosure. Additionally, agency theory suggests that turnover management disclosure reduces information asymmetry by providing clear efficiency measures for stakeholders to evaluate performance. If breakage improves asset turnover metrics, we should expect a positive association between turnover management and breakage disclosure.

Studies on the relationship between turnover management and CVD are mixed (Table 1). Fu et al. (2023) and Lan et al. (2013) found a positive relationship for Chinese firms, while Ji et al. (2015) found mixed results. Other studies (Bhatia & Dhamija, 2015; Simpson, 2008; Sriram, 2020) report insignificant results. Our study builds on these by exploring two sectors with historically high turnover ratios (Gupta & Huefner, 1972) but whose turnover management may be in decline (Evans & Mathur, 2014).

From a theoretical perspective, Ji et al. (2015) relies on agency theory, Bhatia and Dhamija (2015) on signaling theory, Lan et al. (2013) on both, and Sriram (2020) adds capital needs theory. Fu et al. (2023) and Simpson (2008) do not clearly state a theoretical basis. Researchers used OLS regression, logistic regression, and various proxies for turnover management, such as total asset turnover, accounts receivable turnover, inventory turnover, and fixed assets as a component of total assets. We advance this literature by focusing on US publicly traded retail and restaurant corporations and using a broader mix of turnover ratios.

To investigate the relationship between breakage disclosure and turnover management, our null hypothesis is:

*H<sub>5</sub>: There is no difference in turnover management between firms disclosing breakage in their annual reports and those making no disclosure.*

#### *Market Prospects*

This section discusses financial metrics used by shareholders and investors to assess company performance and financial health, calculate valuation ratios, and make investment decisions. We focus on per share ratios, such as earnings per share, cash flow per share, and book value per share, which are particularly important to investors (Islam et al., 2014). Empirical literature supports the value relevance of these metrics (e.g., Bepari et al., 2013; Burke & Wieland, 2017; Consler et al., 2011; Cormier & Magnan, 2002; Halim Kadri et al., 2009; Sawalqa, 2021).

Consistent, robust per share ratios demonstrate managerial skill and capabilities. Signaling theory suggests that firms with strong per share ratios are more likely to engage in voluntary disclosure to signal financial strength and stability. Breakage has positive earnings and cash flow implications, encouraging managers to disclose voluntarily. Therefore, we expect a positive relationship between voluntary breakage disclosure and these ratios. From an agency perspective, disclosure reduces information asymmetry, making managers in better-performing firms more likely to disclose to protect their employment and compensation. Thus, we anticipate a positive relationship between voluntary breakage disclosure and the ratios used by market participants.

Research shows inconclusive results (Table 1). Beattie and Jones (1992) found higher-performing entities more likely to use graphical narratives, while Dilla and Janvrin (2010) found entities with larger increases in earnings per share less likely to disclose graphical narratives due to political costs. Adelopo (2011) found a positive relationship between earnings per share and a disclosure index, while Jones (2007) found a negative relationship between the book-to-market ratio and R&D disclosures. Adhikari and Duru (2006) found no significant relationship between free cash flow disclosure and the book-to-market ratio.

Regarding theoretical and design issues, Adelopo (2011) uses agency theory, while Jones (2007) and Adhikari and Duru (2006) do not specify a theoretical underpinning. Beattie and Jones (1992) and Dilla and Janvrin (2010) rely on graphical/impression-based theories. Our study, utilizing agency and signaling theory, adds to the literature. Regression is the most popular method in the studies cited in Table 1. Earnings per share is the most utilized per share ratio, followed by the book-to-market ratio. We differentiate our study by adopting cash flow per share and book value per share, which may provide incremental information beyond earnings per share.

To investigate the relationship between breakage disclosure and market prospects, our null hypothesis is:

*H<sub>6</sub>: There is no difference in the market prospects of firms disclosing breakage in their annual reports and those making no disclosure.*

### *Firm Size*

Watson et al. (2002) argue that firm size and CVD are related due to factors like the ability to incur disclosure costs, increase marketability, or reduce public scrutiny. Larger organizations face greater agency problems due to the separation of ownership from operations, increased managerial discretion, and additional managerial layers. Consequently, larger entities tend to engage in more CVD compared to smaller ones (Meek et al., 1995; Soliman, 2013). In the context of breakage disclosure, agency theory suggests that larger retailers and restaurants are more likely to disclose, indicating a positive relationship between breakage disclosure and firm size.

Similarly, signaling theory suggests that firm size signals stability, growth potential, or managerial quality. Larger firms can send credible signals because they can afford the costs of disclosure (Elfeky, 2017; Watson et al., 2002). Thus, signaling theory also predicts a positive relationship between firm size and breakage disclosure.

Most studies support a positive association between firm size and CVD (Zamil et al., 2023). However, some exceptions exist, such as Saxton et al. (2012) and Walker & Louvari (2003), who found negative or insignificant relationships. Despite these exceptions, firm size remains a frequently used variable in disclosure research due to its explanatory power (Leventis & Weetman, 2004).

From a methods standpoint, studies use various proxies for firm size, including the log of total assets, log of market equity, total sales, and their natural logs. The 16 studies listed in Table 1 show significant diversity in voluntary disclosure variables, ranging from financial ratios to R&D disclosures and advertising expenses. Our study extends this diversity by focusing on unexercised contractual rights disclosures. To evaluate firm size, we state the null hypothesis as:

*H<sub>7</sub>: There is no difference in firm size between firms disclosing breakage in their annual reports and those making no disclosure.*

## **RESEARCH METHOD**

This paper explores whether signaling or agency theory explains voluntary gift card breakage disclosure in retail and restaurant company annual reports and whether firm-specific characteristics influence the likelihood of this disclosure. It also investigates the voluntary disclosure environment for breakage before and after ASC 606 adoption. We leverage a difference-in-differences model to assess the intervention effect of ASC 606 on voluntary breakage disclosure and then employ a logistic regression model to assess disclosure likelihood. Our difference-in-differences model allows us to create a quasi before-and-after study of disclosing and non-disclosing firms considering ASC 606 implementation, helping to resolve mixed evidence outcomes found in prior CVD literature (Houston et al., 2019). Additionally, following established literature (e.g., Adhikari & Duru, 2006; El-Gazzar et al., 2008; Ji et al., 2015), we use logistic regression to estimate the likelihood of voluntary breakage disclosure based on predictor variables comprising seven firm characteristics.

### **Sample and Data**

We obtained our sample from 178 US publicly traded firms classified as “retail” or “restaurants and bars” under the ICB taxonomy in Mergent Online. We classified a firm as a disclosing firm if it met the following criteria:

1. The entity released an annual report every year during the 10-year period 2013-2022 (encompassing the five years before and five years after ASC 606 implementation).
2. The entity disclosed that it had a gift card program.
3. The entity disclosed breakage values at least once in their annual reports during the fiscal periods 2013-2022.
4. The entity reported positive equity throughout the sample period (ensuring the calculation of certain financial ratios).

We did not assess the materiality of the disclosed breakage values, only whether the entity reported them. Of the 178 possible firms, 45 firms (367 firm years) disclosed gift card breakage at least once during the sample period.

We classified a corporation as a non-disclosing firm if it met the following criteria:

1. The entity released an annual report every year during the 10-year period 2013-2022.
2. The entity disclosed that it had a gift card program.
3. The entity did not disclose breakage values in any annual reports during the fiscal periods 2013-2022.
4. The entity reported positive equity throughout the sample period.

Out of 178 firms, 34 firms (423 firm years) met these criteria.

Ninety-nine firms failed to pass our criteria: 62 firms did not mention gift card programs, 27 reported less than 10 years of annual financial data, and 10 reported negative firm equity. All 79 firms in the final sample implemented ASC 606 at the start of fiscal year 2018.

We collected our data from company annual reports warehoused by the Securities and Exchange Commission's EDGAR database and from Mergent Online. Table 2 provides a profile of the sampled firms by sector (Retail versus Restaurants & Bars), and specifically for the retail sector, by retail subsector. The retail sector comprises 68% of the final sample. Corporations voluntarily disclosed breakage in 367 of 790 firm years (46%); pre-ASC 606, disclosure occurred in 44% of the firm years, whereas post-ASC 606, disclosure happened in 49% of the firm years. We attribute the increase in disclosure frequency post-ASC 606 to the restaurant and bar sector. Average assets over the 10-year period are \$9.0 billion, while average revenue over the same period is \$16.7 billion. Big-4 accounting firms audited 88% of all firm years; notably, Big-4 accounting firms audited 94% of all retail firm years, but only 76% of restaurant and bar firm years.

**TABLE 2**  
**SAMPLED FIRM PROFILE (\$BILLIONS)**

Attribute	Total Sample	Retail				Total Restaurants & Bars
		Total Retail	Apparel Retailers	Diversified Retailers	Home Improvement & Specialty Retailers	
No. of Firms (% of total)	79	54 (68%)	26 (33%)	11 (14%)	17 (21%)	25 (32%)
Total Firm Years:	<u>790</u>	<u>540</u>	<u>260</u>	<u>110</u>	<u>170</u>	<u>250</u>
Disclosure	<u>367</u>	<u>262</u>	<u>138</u>	<u>45</u>	<u>79</u>	<u>105</u>
Pre-ASC 606	173	129	72	20	37	44
Post-ASC 606	194	133	66	25	42	61
No Disclosure	423	278	122	65	91	145
Avg. Revenue <sup>†</sup>	<u>\$16.7</u>	<u>\$23.4</u>	<u>\$5.9</u>	<u>\$83.6</u>	<u>\$11.3</u>	<u>\$2.2</u>
Pre-ASC 606 <sup>◇</sup>	\$13.9	\$19.4	\$5.4	\$67.2	\$9.9	\$1.9
Post-ASC 606 <sup>◇</sup>	\$19.5	\$27.4	\$6.3	\$99.9	\$12.7	\$2.6
Avg. Assets <sup>†</sup>	<u>\$9.0</u>	<u>\$12.3</u>	<u>\$3.6</u>	<u>\$43.1</u>	<u>\$5.6</u>	<u>\$2.0</u>
Pre-ASC 606 <sup>◇</sup>	\$6.5	\$8.9	\$2.8	\$29.6	\$4.8	\$1.4
Post-ASC 606 <sup>◇</sup>	\$11.5	\$15.7	\$4.4	\$56.6	\$6.4	\$2.5

Attribute	<u>Retail</u>					Total Restaurants & Bars
	Total Sample	Total Retail	Apparel Retailers	Diversified Retailers	Home Improvement & Specialty Retailers	
% of Firm Years Audited by a Big-4 CPA Firms	88%	94%	93%	90%	98%	76%
<i>† Values reflect the 10-year average (FY 2013 - 2022).</i> <i>◆ Values reflect the 5-year average pre-ASC 606 implementation (FY 2013 - 2017) and 5-year average post-ASC 606 implementation (FY 2018 - 2022), respectively</i>						

## Variables

### Dependent Variable

Our dependent variable, *Discl\_Brkge*, is a dichotomous variable that represents voluntary disclosure. This variable takes the value of 1 if an organization disclosed a breakage value in its annual report and zero otherwise.

### Independent Variables

Firm characteristics are the most used determinants in CVD literature (Zamil et al., 2023). The attributes considered in our study include profitability, efficiency, liquidity, leverage, turnover management, market prospects, and firm size. Following established literature, each attribute is proxied through financial ratios. Table 3 summarizes the independent variables (firm characteristics), associated financial ratios, their respective derivations, and referential literature.

- **Profitability Ratios:** These compare earnings performance. Previous studies (e.g., El-Gazzar et al., 2008; Habbash et al., 2016; Raffournier, 1995) use traditional measures of organizational profitability, including Return on Sales (ROS), Return on Assets (ROA), Return on Equity (ROE), and Return on Invested Capital (ROIC). We also include tax rate percent (Tax Rate %) and Earnings Before Interest, Taxes, Depreciation, and Amortization percent (EBITDA %). Mintz and Chen (2014) contend that researchers widely use an entity's effective tax rate to measure tax impacts on firm profits. Flagmeier et al. (2023) find that effective tax rates are discriminants in voluntary disclosure decisions. EBITDA is relevant in the global retail and food sectors (Maxim, 2023; Truşculescu et al., 2018).
- **Efficiency Ratios:** These indicate the utilization of an entity's workforce. We follow Watson et al. (2002), defining efficiency % as revenue per employee. This ratio may indicate excellent customer service, especially in the context of gift card programs (Oh et al., 2012).
- **Liquidity Ratios:** These communicate an organization's ability to meet short-term obligations. We use the current ratio, quick ratio, and net current assets as a percent of total assets (NCA%). The quick ratio excludes inventory from current assets, better indicating an entity's ability to meet short-term obligations (Ramadan & Morshed, 2023). NCA% shows whether a firm carries an appropriate level of liquidity for its size (Benjamin, 1939).
- **Leverage Ratios:** These compare an organization's ability to meet both short- and long-term obligations. We use traditional measures of leverage, including long-term debt to equity (LTDE) and total debt to equity (TDE), and include the interest coverage ratio, which measures the ability to pay interest on debt from current earnings.
- **Turnover Management Ratios:** These measure an entity's ability to effectively use and manage its assets and current liabilities. We use receivable turnover, inventory turnover, and

total asset turnover ratios (Bhatia & Dhamija, 2015; Fu et al., 2023; Ji et al., 2015; Sriram, 2020). We also include PP&E turnover, payables turnover, accrued expense turnover, and cash and equivalent turnover.

- **Market Prospects Ratios:** These provide insight into the strength of corporate business models. We adopt cash flow per share (CF/Share) and book value per share (BV/Share). Cash flow per share has received limited attention in the CVD literature, while researchers widely use book value per share in value relevance literature.
- **Firm Size (Size):** This variable is determined as the log of total assets, following previous literature (e.g., Aitken et al., 1997; Elfeky, 2017; Lan et al., 2013; Watson et al., 2002). Firm size serves as a proxy for other characteristics such as competitive advantage or informational costs (Hossain et al., 1995).

#### Other Variables

To implement the difference-in-differences model, we utilize two additional variables: ASCPeriod and Diff-in-Diff. ASCPeriod is a dichotomous variable that indicates whether the period is before or after the implementation of ASC 606. This variable takes the value of 1 for the post-ASC 606 period and zero otherwise. Diff-in-Diff represents the interaction between the treatment variable (Discl\_Brkge) and the before/after variable (ASCPeriod). We calculate Diff-in-Diff as the product of Discl\_Brkge and ASCPeriod.

**TABLE 3**  
**INDEPENDENT VARIABLES, RATIOS, AND THEIR DERIVATION**

Variable	Ratio(s)	Formula	References
Profitability	ROS ROA ROE ROIC EBITDA % Tax Rate %	Operating Income ÷ Revenue Net Income ÷ Avg. Total Assets Net Income ÷ Avg. Equity Op. Income ÷ Avg. Invested Capital EBITDA ÷ Revenue Taxation ÷ EBT	Adhikari & Duru (2006); El-Gazzar et al. (2008); Flagmeier et al. (2023); Habbash et al. (2016); Lavin et al. (2021); Meek et al. (1995); Mutiva et al. (2015); Raffournier (1995); Watson et al. (2002)
Efficiency	Efficiency %	Revenue ÷ No. of Employees	Watson et al. (2002)
Liquidity	Quick Current NCA %	Quick Assets ÷ Current Liabilities Current Assets ÷ Current Liabilities Net Current Assets ÷ Total Assets	Adhikari & Duru (2006); Aggarwal (2022); Almusli & Qeshta (2014); Bhatia & Dhamija (2015); Lan et al. (2013); Masum et al. (2021); Nalikka (2009); Shalutha & Priyadarshanie (2020); Watson et al. (2002)
Leverage	LTDE TDE Interest Coverage	LT Debt ÷ Equity Funding Total Debt ÷ Equity Funding Op. Income ÷ Interest Expense	Al Amosh et al. (2022); Bhatia & Dhamija (2015); Dahiyat (2020); El-Gazzar et al. (2008); Elfeky (2017); Habbash et al. (2016); Kim & An (2021); Meek et al. (1995); Watson et al. (2002)

Variable	Ratio(s)	Formula	References
Turnover Management	Total Asset Turnover Receivables Turnover Inventory Turnover Payables Turnover Accrued Exp. Turnover PP&E Turnover Cash & Equiv. Turnover	Revenue ÷ Avg. Total Assets Revenue ÷ Avg. Receivables Cost of Sales ÷ Avg. Inventories Revenue ÷ Avg. Accounts Payable Revenue ÷ Avg. Accrued Expenses Revenue ÷ Avg. Net PP&E Revenue ÷ Avg. Cash & Equivalents	Bhatia & Dhamija (2015); Fu et al. (2023); Ji et al. (2015); Simpson (2008)
Market Prospects	CF/Share BV/Share	Op. CF ÷ Basic WA Comm. Shares Net Assets ÷ Shares Outstanding	Iatridis (2008); Owusu-Ansah & Ganguli (2010)
Size	Size	Log (Total Assets)	Aitken et al. (1997); El-Gazzar et al. (2008); Elfeky (2017); Lan et al. (2013); Simpson (2008); Watson et al. (2002)

## RESULTS

This analysis determines if specific financial metrics predict voluntary gift card breakage disclosure among retail and restaurant firms. Examining data from 79 U.S. publicly traded firms (2013-2022), we used two-sample t-tests to compare financial metrics between disclosing and non-disclosing firms, identifying statistically significant differences (see Table 4, Appendix).

Three of the twenty-four ratios showed significant differences ( $p < 0.05$ ), indicating they can help predict whether firms disclose gift card breakage. These ratios are:

- Current Ratio: 1.53 for disclosing firms vs. 1.67 for non-disclosing firms.
- Net Current Assets % of Total Assets (NCA%): 12.28% for disclosing firms vs. 15.14% for non-disclosing firms.
- Cash & Equivalent Turnover: 29.46 for disclosing firms vs. 41.74 for non-disclosing firms.

The results indicate that firms with lower liquidity and cash turnover are likelier to disclose gift card breakage to address information asymmetry. This voluntary disclosure under less liquid conditions contradicts signaling theory, which suggests that firms with greater liquidity are more likely to disclose information voluntarily. However, it supports agency theory, as disclosure can reduce information asymmetry regarding firms' liquid positions.

Interestingly, we could interpret lower cash turnover in disclosing firms as a "bad news" signal, aligning with signaling theory in a negative context. In this case, breakage disclosure might signal that firms with weaker cash management are indicating their struggles in generating cash flow. The results contradict agency theory if we assume that better-managed firms (with higher cash turnover) should be more transparent.

### Empirical Findings

We continued our analysis using a difference-in-differences design to assess whether ASC 606 changes provide predictive power in classifying firms that voluntarily disclose gift card breakage versus those that

do not. This approach allows us to compare the financial metrics of these firms, isolating the effects of ASC 606 from other variables to provide a clearer picture of its impact.

First, we divided firms into two groups: those disclosing gift card breakage and those that do not. We further divided these groups into pre-ASC 606 (2013-2017) and post-ASC 606 (2018-2022) periods. We calculated the differences in means between each group's pre- and post-ASC 606 periods. We then compared the differences in means for firms that disclose breakage against non-disclosing firms for each independent variable. To assess significance, we used regression to determine t-values on each independent variable's difference-in-differences (Diff-in-Diff) variable. Table 5 (Appendix) provides summary results.

The mean difference-in-differences for the Quick ratio (Quick), Current ratio (Current), Net Current Assets as a percentage of Total Assets (NCA%), and Accounts Payable turnover (Payables Turnover) were all significant ( $p < 0.05$ ). Following ASC 606 adoption, disclosing firms exhibited significantly larger reductions in mean liquidity and payables turnover ratios than non-disclosing firms. For disclosing firms, the average Quick ratio, Current ratio, NCA%, and Payables turnover between periods changed by -0.35, -0.70, -14.14%, and -5.55, respectively. In contrast, the average Quick ratio, Current ratio, NCA%, and Payables turnover among non-disclosing firms between periods changed by +0.05, -0.20, -4.01%, and +7.24, respectively. Table 5 (Appendix) shows that the mean difference-in-differences for these variables were -0.40, -0.49, -10.13%, and -12.79, respectively.

We furthered the difference-in-differences analysis by controlling for retail versus restaurant sectors. Table 6 (Appendix) provides summary results. Here, we observed that the mean difference-in-differences for the retail sector mirrored the combined sector results. However, unlike the combined sector results, we found that the restaurant sector's mean difference-in-differences for Cash & Equivalents Turnover (Cash & Equiv. Turnover) and Cash Flow per Share (CF/Share) were the only significant ( $p < 0.05$ ) variables. In this case, restaurants disclosing breakage exhibited significantly larger cash turnover and cash flow per share reductions than those that did not. Table 6 (Appendix) shows that the mean difference-in-differences for these variables were -33.10 and -30.77, respectively.

In the combined model (Table 5), four variables distinguish firms that disclose gift card breakage from those that do not. At the sector level (Table 6), these variables are predictive for retail firms, while two are predictive for restaurants.

The liquidity findings contradict the signaling theory but support the agency theory. Firms with lower liquidity might disclose gift card breakage to reduce information asymmetry and provide transparency. The significant difference in cash turnover does not support signaling theory, as firms with better cash management would typically disclose to signal efficiency. The significant negative difference in payables turnover for disclosing firms suggests less efficient cash management, supporting agency theory.

The significant negative difference in CF/Share indicates that disclosing firms have lower cash flow per share, supporting agency theory but contradicting signaling theory. The results also show that ASC 606 adoption had a greater impact on liquidity and payable turnover for disclosing retail firms and on cash turnover and cash flow for disclosing restaurant firms compared to their non-disclosing counterparts.

We further investigated our theoretical expectations on voluntary breakage disclosure using logistic regression for 2013-2022. The model examined the predictive power of various financial ratios, including profitability, efficiency, liquidity, leverage, turnover management, market prospects, and size, on the likelihood of firms voluntarily disclosing gift card breakage. Voluntary disclosure was the response event.

The overall model fit was significant ( $p < 0.001$ ). However, we observed mixed results on the goodness-of-fit test statistics: the Pearson test was insignificant ( $p = 0.409$ ), while the Deviance test was significant ( $p < 0.001$ ). The model demonstrated modest predictive power, as indicated by Cox & Snell and Nagelkerke pseudo-R-squares of 10.3% and 13.8%, respectively (Table 7, Appendix). The results indicated an overall correct classification rate of 61.8%, suggesting that the model provided modest predictive power.

Next, we examined the significant ( $p < 0.05$ ) coefficients in Table 7 (Appendix), starting with profitability ratios. The negative coefficient on ROIC (-0.013) implies that higher ROIC decreases the likelihood of disclosing brokerage. This finding is contrary to our signaling theory expectation; signaling theory would suggest that firms with higher ROIC would disclose to signal strength. However, the results may support an agency perspective. Firms with lower ROIC might face greater scrutiny from shareholders



and potential investors due to concerns about their efficiency in generating returns from invested capital. By disclosing gift card breakage, these firms can provide more transparency about their financial practices and performance, thereby reducing information asymmetry.

The positive coefficient for efficiency % (0.000) aligns with the expectation that more efficient firms are better positioned to manage and voluntarily disclose breakage. The positive coefficient on NCA% (0.033) also aligns with expectations. The results suggest that firms with better liquidity may voluntarily disclose breakage to signal managerial prowess and address agency issues, demonstrating sound financial management. However, these results for liquidity contrast with those found earlier, highlighting a nuanced relationship between liquidity and voluntary disclosure.

Similarly, the mixed results for the turnover management ratios highlight the complexity of the relationship between operational efficiency and voluntary disclosure practices. Contrary to expectations, negative coefficients for Total Asset Turnover (-0.302), Inventory Turnover (-0.005), Accrued Expense Turnover (-0.017), and Property, Plant, & Equipment Turnover (PP&E Turnover) (-0.013) suggest that firms with lower turnover in these areas are more likely to voluntarily disclose breakage. These results appear contrary to both signaling and agency theory. In contrast, we expected the positive correlations for Cash & Equivalents Turnover (0.008) and Accounts Payable Turnover (Payables Turnover) (0.016) which indicate that firms with faster cash turnover and payables cycles might be more inclined to disclose, potentially to signal cash flow management strength and reduce information asymmetry on agent performance.

### **Robustness Tests**

We further investigated the intervention effect of ASC 606 on voluntary breakage disclosure. We conducted robustness tests using two logistic regression models to compare firm behavior during the pre- and post-ASC 606 adoption periods. The first model (Model 1) included only firms that disclosed gift card breakage, while the second (Model 2) included only non-disclosing firms. ASCPeriod was the response event. Independent variables included profitability, efficiency, liquidity, leverage, turnover management, market prospects, and size ratios. Table 8 (Appendix) provides summary results.

Both models exhibited significant model fit ( $p < 0.001$ ). The Deviance and Pearson goodness-of-fit tests were insignificant for Model 1, suggesting that the data fit the model well. However, the Deviance and Pearson test statistics were significant ( $p < 0.05$ ) for Model 2, indicating that the data may not fit as well as desired.

When examining the predictive power of the two models, firms that disclosed gift card breakage (Model 1) demonstrated greater explanatory power between the pre- and post-ASC 606 adoption periods. In Table 8 (Appendix), the Cox & Snell and Nagelkerke pseudo-R-squares for disclosing firms were 35.5% and 47.4%, respectively, compared to 25.2% and 33.7% for non-disclosing firms. This indicates that ASC 606 has had a more pronounced impact on firms that disclose gift card breakage, highlighting how accounting standards may affect voluntary disclosures.

The overall correct classification rates in Table 8 (Appendix) provide further evidence of the difference in predictive power. The model for disclosing firms had an overall correct classification rate of 78.2%, while the rate for non-disclosing firms was 75.2%. This suggests that the model more consistently classified correctly firms disclosing gift card breakage, reinforcing the value of voluntary disclosure in enhancing the accuracy of financial models.

Examining the significant ( $p < 0.05$ ) explanatory variables in Table 8 (Appendix), firms that disclosed gift card breakage showed negative coefficients between the pre- and post-ASC 606 adoption periods for ROS (-0.246), Total Asset Turnover (-2.555), and Cash & Equivalent Turnover (-0.008). Efficiency % (0.000) and Receivable Turnover (0.002) had modest, positive coefficients. Conversely, non-disclosing firms exhibited more mixed results, with negative coefficients for ROIC (-0.026), EBITDA% (-0.124), Current ratio (-1.026), Total Asset Turnover (-1.560), and BV/Share (-0.031). We observed positive coefficients for ROA% (0.118), Efficiency % (0.000), Quick ratio (0.880), and CF/Share (0.144). These findings underscore the nuanced financial behaviors of disclosing versus non-disclosing firms. Disclosing firms in the pre-ASC 606 period appear to maintain their disclosing behavior into the post-ASC 606

environment, even if they exhibit weaknesses in profitability and certain turnover ratios. This transparency can enhance stakeholder trust and provide a clearer picture of a firm's financial position, despite the observed changes in certain metrics. In contrast, ASC 606 did not sway non-disclosing firms in the pre-ASC 606 period to change disclosure activities in the post-ASC 606 period, even though swings in their financial positions were more pronounced.

As a final test of the intervention effect of ASC 606, we developed a logistic regression model focusing on firms that changed their disclosure behavior during the sample period (N = 17 firms, or 170 firm years). These changes included transitions from non-disclosure to disclosure, or vice versa. The independent variables included profitability, efficiency, liquidity, leverage, turnover management, market prospects, and size ratios. We controlled for ASC 606 using the categorical variable ASCPeriod, which was set to 1 for 2018-2022 and 0 otherwise. Table 9 (Appendix) provides summary results.

The model exhibited a significant fit ( $p < 0.001$ ), though the goodness-of-fit test statistics showed mixed results: the Pearson test was insignificant ( $p = 0.077$ ), while the Deviance test was borderline significant ( $p = 0.042$ ). The model demonstrated reasonable predictive power, with Cox & Snell and Nagelkerke pseudo-R-squares of 29.7% and 39.6%, respectively (Table 9, Appendix). Overall, the model correctly predicted 73.5% of the cases.

Significant predictors ( $p < 0.05$ ) included Total Asset Turnover, Inventory Turnover, PP&E Turnover, and ASCPeriod. Consistent with previous regression results, the coefficients showed mixed effects. Total Asset Turnover had a positive coefficient (2.231), while Inventory Turnover and PP&E Turnover had negative coefficients of -0.014 and -0.424, respectively.

Importantly, the categorical variable ASCPeriod displayed a strong effect with an odds ratio of 15.116, derived as ( $\exp^{2.716}$ ). Post-ASC 606 adoption, firms had odds of disclosing breakage approximately 15 times higher than in the pre-ASC 606 period. This suggests that the revised accounting standard significantly influenced voluntary gift card breakage disclosure behavior, particularly among those firms with strong total asset turnover ratios, or lower inventory and PP&E turnover ratios.

## Conclusion

Based on the preponderance of evidence across all models, we can reject the null hypothesis for statements one, two, three, five, and six, indicating there are significant differences between firms that voluntarily disclose breakage in their annual reports and those that do not, based on their profitability, efficiency, liquidity, turnover management, and market prospects-related characteristics. However, we accept the null hypothesis for statements four and seven, indicating no significant difference between the two groups based on leverage or size (firm size). This highlights that while certain financial metrics influence the decision to voluntarily disclose breakage information, others do not significantly influence the likelihood of disclosing gift card breakage. Table 10 provides a summary of the results by hypotheses.

**TABLE 10**  
**INDEPENDENT VARIABLES, THEORETICAL PREDICTIONS AND RESULTS**

Hypothesis	Independent Variable	Prediction		Results	
		Agency Theory	Signaling Theory	Agency Theory	Signaling Theory
H1	Profitability	+	?	+	-
H2	Efficiency	+	+	+	+
H3	Liquidity	?	+	+	+/-

Hypothesis	Independent Variable	Prediction		Results	
		Agency Theory	Signaling Theory	Agency Theory	Signaling Theory
H4	Leverage	+	?	N	N
H5	Turnover Management	+	+	+/-	+/-
H6	Market Prospect	+	+	+	-
H7	Firm Size	+	+	N	N

+ = positive association; - = negative association; +/- = mixed association; ? = uncertainty about the relationship  
N = no support

## DISCUSSION

This study aimed to examine whether signaling or agency theory explains voluntary gift card breakage disclosure in retail and restaurant company annual reports and whether firm-specific characteristics influence the likelihood of this disclosure.

We conducted two-sample t-tests to compare the means of various financial metrics between firms that voluntarily disclose gift card breakage and those that do not. Three (Current, NCA%, and Cash & Equiv. Turnover) of the twenty-four ratios displayed significant differences in the mean ( $p < 0.05$ ), suggesting they provide predictive power in classifying firms that voluntarily disclose gift card breakage versus those that do not. Firms with lower liquidity (indicated by a lower current ratio and a lower proportion of net current assets relative to their total assets) and lower cash and equivalents turnover may be more likely to disclose gift card breakage. Further, our difference-in-differences model compared the means of financial metrics pre- and post-ASC 606 by firms that disclose gift card breakage and those that do not. We found significant differences in three liquidity ratios (Quick, Current, and NCA%) and one turnover management ratio (Payables Turnover). In all cases, following ASC 606 adoption, disclosing firms exhibited significantly larger reductions in mean liquidity and payable turnover ratios than non-disclosing firms. This further suggests that firms disclosing gift card breakage exhibit notable and larger differences in liquidity and turnover management.

While the direction of the significant ratios either supported or contradicted our theoretical expectations, the significant liquidity ratios align with Adhikari and Duru's (2006) findings. They observed that lower liquidity (e.g., current ratio) was common among firms voluntarily disclosing free cash flow metrics. Adhikari and Duru suggest that companies disclose free cash flow to shift stakeholder focus to favorable financial performance when liquidity is weak. In contrast, our two-sample t-tests and difference-in-differences results suggest that restaurants and retailers disclose gift card breakage to mitigate information asymmetry concerns regarding their liquidity positions, supporting agency theory. Additionally, while the liquidity results contradict traditional signaling theory, they may indicate that breakage disclosure acts as a "bad news" signal. Firms with weaker financial health might disclose to preemptively address potential concerns from investors and stakeholders. By being transparent about their challenges, these firms aim to build trust and mitigate the negative impact of their financial weaknesses.

The direction of the significant turnover ratios (Payables Turnover and Cash & Equiv. Turnover) ran contrary to Fu et al. (2023) and Lan et al. (2013). However, the Fu et al. and Lan et al. studies focused on Chinese firms across multiple sectors. Our results align with Kaufinger (2015), who found that weaker turnover management among retail firms was associated with breakage recognition. The significant

negative difference in payables turnover supports agency theory, indicating less efficient cash management and the need to address potential agency problems.

T-tests and difference-in-difference comparisons do not fully capture the relationship between multiple independent variables and a binary outcome, such as the likelihood of voluntary disclosure. To address these limitations, we employed logistic regression to compare disclosing firms with non-disclosing firms. Although the overall model provided modest predictive power, the Cox & Snell pseudo-R-square (10.3%) and Nagelkerke pseudo-R-square (13.8%) were comparable to other pseudo-R-square values in voluntary disclosure studies, such as Adhikari and Duru (2006) (14%), El-Gazzar et al. (2008) (12%), and Watson et al. (2002) (3% - 20%). Additionally, our correct classification rate of 61.8% falls within the range (55% - 91%) observed by Watson et al. (2002).

Nine variables (ROIC, Efficiency %, NCA%, Total Asset Turnover, Inventory Turnover, Payables Turnover, Accrued Expenses Turnover, PP&E Turnover, and Cash & Equiv. Turnover) displayed significant differences ( $p < 0.05$ ), suggesting they provide predictive power. We observed mixed coefficients on these variables: Efficiency %, NCA%, Payables Turnover, and Cash & Equiv. Turnover in the expected direction, but ROIC, Total Asset Turnover, Inventory Turnover, Accrued Expenses Turnover, and PP&E Turnover in the opposite direction. We discuss these results and their implications in the following paragraphs.

First, the results for the ROIC ratio were unexpected, indicating that firms with lower returns on invested capital are more likely to disclose gift card breakage. Specifically, for each one-unit decrease in ROIC, the odds of a firm disclosing breakage increase by approximately 1.34% (since  $1 - 0.987 = 0.013$ ). According to agency theory, this is an effort to reduce information asymmetry between managers and shareholders. Firms with lower ROIC might face greater scrutiny from shareholders and potential investors due to concerns about their efficiency in generating returns from invested capital. By disclosing gift card breakage, these firms can provide more transparency about their financial practices and performance, thereby reducing information asymmetry.

Interestingly, these unexpected results align with established literature. Adhikari and Duru (2006) found significant negative relationships between return on sales (ROS) and voluntary disclosure of free cash flow, suggesting that less profitable firms are more likely to disclose to mitigate negative perceptions. Similarly, Ji et al. (2015) identified a negative relationship between return on assets (ROA) and internal control weakness disclosures, indicating that firms with lower ROA might disclose weaknesses to signal transparency and improve stakeholder trust. Therefore, the factors influencing voluntary disclosure of breakage may be like those for free cash flow and internal controls, where firms with lower performance metrics use disclosure to manage stakeholder perceptions and reduce information asymmetry.

Second, the positive coefficient on the efficiency ratio (Efficiency %) aligns with expectations and supports both agency and signaling theories. According to signaling theory, firms with higher efficiency (higher revenue per employee) are more likely to disclose information voluntarily to signal their strong operational performance and attract investors by showcasing their ability to generate high revenue with fewer resources. Additionally, higher efficiency can reduce agency costs by demonstrating effective management and resource utilization. Consequently, retail firms should prioritize enhancing their operational efficiency to support their gift card disclosure practices.

However, these results differ from Watson et al. (2002), who found no evidence of a relationship between efficiency and voluntary ratio disclosure in the UK. We can attribute this discrepancy to differences in market environments or regulatory frameworks. Despite this, the findings suggest that efficient firms are better positioned to leverage disclosure as a strategic tool to enhance their market position and stakeholder relationships. By voluntarily disclosing breakage, these firms can signal their operational competence, build investor trust, and potentially gain a competitive advantage.

Third, the positive coefficient on NCA% suggests that firms adept at managing liquidity relative to the size of their operations are more likely to voluntarily disclose breakage. In the retail sector, managing liquidity is crucial due to the high volume of transactions and the need to maintain optimal inventory levels. Retail firms that effectively manage their liquidity can ensure smooth operations, even during fluctuating sales, signaling strong managerial skills. Furthermore, effective liquidity management and voluntary

disclosure can help mitigate agency issues by aligning the interests of management with those of shareholders, reducing conflicts, and enhancing overall corporate governance.

Unlike other studies that use the current ratio as a proxy for liquidity (Adhikari & Duru, 2006; Almusli & Qeshta, 2014; Bhatia & Dhamija, 2015; Lan et al., 2013; Masum et al., 2021; Shalutha & Priyadarshanie, 2020; Watson et al., 2002), our significant finding ( $p < 0.05$ ) is based on net current assets as a percentage of total assets (NCA%). Benjamin (1939) argued that this ratio is superior to the current ratio for evaluating liquidity, especially when the size of an organization has changed, which is plausible given our 10-year study horizon. Therefore, our use of NCA% may differentiate our findings from other studies, particularly those that did not find statistically significant associations between liquidity and voluntary disclosure (e.g., Almusli & Qeshta, 2014; Bhatia & Dhamija, 2015; Lan et al., 2013; Shalutha & Priyadarshanie, 2020; Watson et al., 2002). By focusing on NCA%, we highlight the importance of a more dynamic measure of liquidity that accounts for changes in firm size over time. This approach provides a more accurate reflection of a firm's ability to manage its short-term obligations relative to its total assets, thereby offering a clearer picture of its financial health and operational efficiency. Consequently, retail firms should prioritize enhancing their liquidity management practices to support their voluntary breakage disclosure efforts, fostering greater transparency and trust with stakeholders.

Finally, the mixed results in turnover ratios underscore the complexity of the relationship between operational efficiency and voluntary disclosure practices among retailers and restaurants. Unlike other literature that supports a positive relationship between turnover management and voluntary disclosure (e.g., Fu et al., 2023; Lan et al., 2013), we propose that each turnover ratio provides unique insights into a firm's operations. Consequently, how stakeholders perceive these metrics can influence the decision to disclose or withhold information. For instance, the negative coefficients on Total Asset Turnover ( $-0.302$ ,  $p = 0.02$ ) and Inventory Turnover ( $-0.005$ ,  $p = 0.02$ ) may indicate that stakeholders perceive firms with high asset and inventory turnovers are already efficient and thus firms may not feel the need to disclose additional information to signal their efficiency. These firms might believe that their operational efficiency is already evident through their high turnover ratios, reducing the necessity for further voluntary disclosure. Conversely, the positive coefficients on Payables Turnover ( $0.016$ ,  $p = 0.01$ ) and Cash & Equiv. Turnover ( $0.008$ ,  $p = 0.00$ ) suggest that efficient management of cash and payables signals good liquidity management, which firms might want to highlight through voluntary disclosure. By disclosing these metrics, firms can signal their strong turnover management and operational competence, thereby enhancing stakeholder trust and reducing information asymmetry. The differences in coefficients for various turnover ratios suggest that stakeholders should compare firms within the same industry to understand how well they manage specific aspects of their operations. This comparative analysis can provide deeper insights into a firm's relative performance and strategic disclosure practices. It highlights the importance of considering each firm's unique context and operational metrics when evaluating their voluntary disclosure decisions.

To further investigate the impact of ASC 606 on voluntary disclosure, we modeled disclosing and non-disclosing firms separately. Disclosing firms exhibited a stronger contrast in financial performance, as evidenced by the increased explanatory power of the model when comparing pre-and post-ASC 606 periods. By and large, disclosing firms maintained their transparency in the post-ASC 606 environment, even if they showed weaknesses in ROS and certain turnover ratios like Total Asset Turnover or Cash & Equiv. Turnover. This ongoing transparency can enhance stakeholder trust and provide a clearer picture of the firm's financial position, despite changes in certain metrics. Conversely, non-disclosing firms from the pre-ASC 606 period did not change their disclosure practices in the post-ASC 606 period, even though their financial positions experienced more pronounced fluctuations, as indicated by the number of significant ratios. This lack of change suggests that these firms may be less responsive to regulatory shifts or less inclined to adopt voluntary disclosure practices, potentially increasing information asymmetry and stakeholder uncertainty.

We also examined firms that changed their disclosure behavior during the sample period, including transitions from non-disclosure to disclosure, or vice versa. The odds of disclosing breakage post-ASC 606 were approximately 15 times higher than in the pre-ASC 606 period, indicating a strong influence of the

revised accounting standard on voluntary disclosure behavior. This significant increase underscores the impact of ASC 606 in encouraging firms to adopt more transparent practices.

Like other ASC 606-related studies conducted under a mandatory disclosure system, our results suggest that voluntary disclosure post-ASC 606 adoption provides benefits by reducing information asymmetry. Therefore, retailers and restaurants should consider increasing their level of voluntary breakage disclosure, particularly for firms with variations in operational efficiency. Enhanced disclosure can improve stakeholder trust, provide a more accurate reflection of financial health, and potentially offer a competitive advantage in the market.

The findings of our analysis have important implications for information asymmetry in the context of retail and restaurant firms. Firms that voluntarily disclose gift card breakage reduce information asymmetry by providing more comprehensive and transparent financial information. This allows investors and other stakeholders to make more informed decisions, as they can access data that insiders might otherwise withhold. Further, when firms disclose gift card breakage, they signal their commitment to transparency and good governance. This can enhance investor confidence, as stakeholders are less likely to suspect that the firm hides adverse information. Moreover, the analysis highlights the importance of operational efficiency and financial management in voluntary disclosure. Firms that manage resources effectively and disclose this information can reduce information asymmetry by showcasing their operational strengths. Finally, adopting ASC 606 and its impact on voluntary financial reporting practices seems to have also further reduced information asymmetry.

## **STUDY LIMITATIONS AND FUTURE RESEARCH**

Four factors limit the study results. First, the regressed coefficients provided mixed results. Several insignificant coefficients showed positive or negative relationships between voluntary disclosure and financial performance for firms that chose to disclose breakage. While these coefficients were insignificant, additional research with a larger sample of retail firms may clarify the relationship between disclosure and financial performance.

Second, the number of years in the post-adoption period limits the study. The ASC 606 adoption period observations for each firm covered the years 2018 through 2022. Including more observations from the post-adoption period could provide greater insight into the strength of the results, especially because Covid-19 impacted the years 2020–2022.

Third, our sample of 79 US publicly traded firms classified as "retail" or "restaurants and bars" limits the applicability of our results to other industries that use gift card sales as part of their business models, such as the entertainment, travel, or health and wellness industries. For example, movie theater businesses or airlines may experience significantly different levels of breakage than restaurants or retail establishments. In such cases, the ability to signal investors of positive earnings performance may not be possible. Expanding the sample to include other industries that use gift card sales, such as entertainment, travel, or health and wellness, could provide more comprehensive insights.

Finally, we did not consider the concept of materiality with regards to gift card breakage. Materiality can moderate disclosure decisions (Heitzman et al., 2010), so management may not report or voluntarily disclose immaterial breakage because management deems its value inconsequential to stakeholders' decisions. It is highly possible that certain firms we classified as non-disclosing did so not because of information asymmetry, but merely due to their understanding of the materiality concept. Incorporating materiality would be an interesting addition to this study.

## **SUMMARY AND CONCLUSIONS**

This study investigates the application of signaling and agency theories to explain voluntary gift card breakage disclosure in the annual reports of retail and restaurant companies. It also examines the influence of firm-specific characteristics on the likelihood of such disclosures. Leveraging the implementation of

ASC 606, which clarified the recognition practices for unexercised contractual rights but did not mandate breakage disclosures, the study explores why firms voluntarily disclose these values.

Building on existing corporate voluntary disclosure literature, this study focuses on financial disclosures related to gift card breakage. It examines seven firm characteristics: profitability, efficiency, liquidity, leverage, turnover management, market prospects, and firm size, using financial ratios as proxies. We ground the hypotheses in agency and signaling theories, which address information asymmetry between managers and stakeholders. The study employs two-sample t-tests, difference-in-differences, and logistic regression models to evaluate disclosure likelihood. The sample includes 79 US publicly traded firms classified as “retail” or “restaurants and bars,” with data spanning 2013-2022. We categorized firms as disclosing or non-disclosing based on their annual report disclosures of gift card breakage.

The study identifies significant differences in certain profitability, efficiency, liquidity, turnover management, and market prospects-related financial ratios between firms that disclose gift card breakage and those that do not. These findings suggest that these financial characteristics influence the decision to voluntarily disclose breakage information. Although the logistic regression model’s explanatory power is modest, it is comparable to other voluntary disclosure research, indicating the need for further research to identify additional variables or firm characteristics that may influence voluntary UCR disclosure in the retail and restaurant sectors. However, firms that disclosed gift card breakage showed stronger financial performance contrasts post-ASC 606, indicating that these firms continued to disclose breakage to signal their financial performance and reduce information asymmetry considering the new standard. Additionally, firms that changed their disclosure behavior were 15 times more likely to do so after ASC 606 adoption.

The study extends CVD research by examining gift card breakage disclosures through agency and signaling theory lenses. The results support the presuppositions of both theories, suggesting that firms disclose breakage to reduce agency problems and signal their financial health and operational efficiency to the market. However, the study’s limitations highlight the need for further research to clarify the relationship between voluntary disclosure and financial performance across different industries and over longer periods. Future research could expand the sample to include other industries where UCR is prevalent or incorporate materiality to determine whether firms choose not to disclose breakage due to its immateriality rather than information asymmetry. Additionally, the study reports mixed coefficients for several variables, indicating both positive and negative relationships between voluntary disclosure and financial performance. Further research with a larger sample size could help clarify these relationships.

The conclusions of this study have important implications for various stakeholders. The findings suggest that ASC 606 significantly impacts financial reporting practices, particularly in disclosing gift card breakage. Regulators can use these insights to evaluate the effectiveness of ASC 606 and consider adjustments to enhance transparency and compliance. Furthermore, companies may reconsider their disclosure practices considering these findings. Firms that currently do not disclose gift card breakage might evaluate the benefits of increased transparency, such as improved investor confidence and potentially better market valuation. Likewise, the significant financial ratios identified in this study (e.g., ROIC, efficiency %, total asset turnover) can serve as key indicators for investors and analysts. Understanding these metrics can help assess firms' transparency and financial health, leading to more informed investment decisions.

The study extends corporate voluntary disclosure research by examining gift card breakage disclosures through the lenses of agency and signaling theory. It provides a foundation for further research into other aspects of ASC 606 and its effects on different industries and voluntary disclosure practices. Using logistic regression and difference-in-differences models offers methodological insights that researchers can apply to similar research in accounting and finance.

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APPENDIX

**TABLE 4**  
**TWO-SAMPLE T-TESTS COMPARING DISCLOSING VS. NON-DISCLOSING FIRMS**  
**(ALL YEARS)**

	Disclosing Firms			Non-Disclosing Firms			t-value
	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.	
<b>Profitability</b>							
ROS	5.75	5.94	9.77	6.33	5.74	9.18	-0.86
ROA	5.83	6.28	12.69	3.16	6.25	63.15	0.80
ROE	5.37	11.99	157.03	2.45	15.73	138.09	0.28
ROIC	17.59	16.10	30.95	9.73	18.46	134.39	1.10
EBITDA %	9.44	9.67	10.35	9.86	9.31	12.21	-0.52
Tax Rate %	24.93	26.15	44.45	6.40	27.30	327.60	1.08
<b>Efficiency %</b>	163,390	139,235	116,480	128,302	139,540	1,037,072	0.64
<b>Liquidity</b>							
Quick	0.66	0.52	0.54	0.72	0.49	0.73	-1.29
Current	1.53	1.39	0.75	1.67	1.53	0.98	-2.23*
NCA%	12.28	9.97	15.26	15.14	15.18	18.74	-2.33*
<b>Leverage</b>							
LTDE	0.73	0.17	14.88	1.53	0.18	14.44	-0.76
TDE	0.75	0.23	14.92	1.61	0.24	15.28	-0.80
Interest Coverage	78.70	8.10	465.00	82.30	14.80	334.10	-0.13
<b>Turnover Management</b>							
Total Asset Turnover	1.74	1.75	0.73	1.69	1.62	0.68	0.95
Receivables Turnover	84.04	56.99	87.10	107.30	52.40	292.30	-1.47
Inventory Turnover	32.22	6.44	53.71	26.39	4.76	57.06	1.47
Payables Turnover	26.71	14.36	52.36	24.50	16.67	25.16	0.77
Accrued Exp. Turnover	27.25	23.18	18.67	25.24	21.80	14.39	1.71
PP&E Turnover	45.50	5.30	449.00	7.58	6.63	5.33	1.74
Cash & Equiv. Turnover	29.49	16.05	39.67	41.74	17.71	70.59	-2.95*
<b>Market Prospects</b>							
CF/Share	9.20	3.30	45.96	1.11	3.66	77.44	1.75
BV/Share	15.97	8.27	44.10	15.14	11.50	22.91	0.33
<b>Size</b>	6.18	6.18	0.90	6.23	6.18	0.54	-0.96

\* significant,  $p < .05$ ; For derivations of each ratio, refer to Table 3.

**TABLE 5**  
**DIFFERENCE-IN-DIFFERENCES MODEL: DISCLOSE VS. NON-DISCLOSE**

	Disclosing Firms		Non-Disclosing Firms		Difference-in-Differences	
	Pre-ASC 606 Mean	Post-ASC 606 Mean	Pre-ASC 606 Mean	Post-ASC 606 Mean	Mean	t-value
<i>Firm Years (n)</i>	<i>173</i>	<i>194</i>	<i>222</i>	<i>201</i>		
<b>Profitability</b>						
ROS	7.96	4.88	6.02	5.46	-2.51	-1.86
ROA	1.16	4.95	5.89	5.77	3.91	0.62
ROE	1.00	3.70	1.10	10.07	-6.27	-0.30
ROIC	6.50	12.60	18.48	16.61	7.97	0.59
EBITDA %	10.54	9.26	9.91	8.92	-0.29	-0.18
Tax Rate %	-7.50	18.71	29.49	19.89	35.81	1.11
<b>Efficiency %</b>	58,136	190,873	148,541	179,790	101,488	1.00
<b>Liquidity</b>						
Quick	0.90	0.55	0.63	0.68	-0.40	-4.43*
Current	2.04	1.34	1.62	1.42	-0.49	-4.17*
NCA%	22.62	8.48	14.18	10.17	-10.13	-4.37*
<b>Leverage</b>						
LTDE	0.42	2.53	0.71	0.76	2.06	0.98
TDE	0.38	2.71	0.75	0.74	2.34	1.09
Interest Coverage	118.20	50.30	113.40	40.46	5.04	0.09
<b>Turnover Management</b>						
Total Asset Turnover	1.92	1.48	1.87	1.60	-0.16	-1.67
Receivables Turnover	109.00	105.80	88.86	78.72	6.94	0.23
Inventory Turnover	22.26	30.08	32.77	31.62	8.97	1.14
Payables Turnover	27.43	21.88	23.27	30.51	-12.79	-2.14*
Accrued Exp. Turnover	26.72	23.92	28.46	25.92	-0.26	-0.11
PP&E Turnover	7.67	7.50	19.24	74.50	-55.43	-1.18
Cash & Equiv. Turnover	47.24	36.84	33.21	25.38	-2.57	-0.32
<b>Market Prospects</b>						
CF/Share	-2.97	4.74	4.03	14.91	-3.17	-0.36
BV/Share	17.22	13.30	14.99	17.04	-5.97	-1.16
<b>Size</b>	6.15	6.29	6.06	6.31	-0.11	-1.07

\* significant,  $p < .05$ ; For derivations of each ratio, refer to Table 3. The difference-in-differences column reports the mean differences between firms disclosing and non-disclosing.

**TABLE 6**  
**DIFFERENCE-IN-DIFFERENCES MODEL: DISCLOSE VS. NON-DISCLOSE BY SECTOR**

	Difference-in-Differences Restaurant Sector		Difference-in-Differences Retail Sector	
	Mean	t-value	Mean	t-value
<b>Profitability</b>				
ROS	-3.26	-1.30	-2.62	-1.63
ROA	-1.27	-0.53	5.60	0.61
ROE	-2.99	-0.10	-9.51	-0.35
ROIC	-4.20	-0.55	12.25	0.63
EBITDA %	-0.23	-0.01	-0.85	-0.44
Tax Rate %	3.58	0.28	47.68	1.02
<b>Efficiency (Efficiency %)</b>	-60,773	-1.75	176,914	1.20
<b>Liquidity</b>				
Quick	-0.29	-1.59	-0.44	-4.35*
Current	-0.22	-1.16	-0.48	-3.59*
NCA%	-4.12	-1.38	-8.99	-3.69*
<b>Leverage</b>				
LTDE	1.99	0.46	1.97	0.83
TDE	2.15	0.48	2.31	0.96
Interest Coverage	10.25	0.63	23.71	0.28
<b>Turnover Management</b>				
Total Asset Turnover	-0.01	-0.02	-0.17	-1.51
Receivables Turnover	7.04	0.46	15.04	0.35
Inventory Turnover	-2.26	-0.12	4.10	0.79
Payables Turnover	-29.84	-1.78	-8.39	-2.97*
Accrued Exp. Turnover	-1.36	-0.47	2.15	0.71
PP&E Turnover	-177.26	-1.18	0.00	0.00
Cash & Equiv. Turnover	-33.10	-2.35*	9.68	0.99
<b>Market Prospects</b>				
CF/Share	-30.77	-2.04*	8.54	0.77
BV/Share	-13.09	-0.90	-3.01	-0.88
<b>Size</b>	-0.17	-1.01	-0.03	-0.18

\* significant,  $p < .05$

For derivations of each ratio, refer to Table 3. The difference-in-differences column reports the mean differences between firms disclosing and non-disclosing for the pre- and post-ASC 606 periods.



**TABLE 7**  
**LOGISTIC REGRESSION: DISCLOSE VS. NON-DISCLOSE**  
**(ALL YEARS)**

Variable	Expected Sign		B	Wald	p-value
	Agency	Signaling			
Constant			-0.703	0.57	0.45
ROS	+	?	0.034	3.80	0.05
ROA	+	?	0.012	0.54	0.46
ROE	+	?	0.000	0.49	0.48
ROIC	+	?	-0.013	4.39	0.04*
EBITDA %	+	?	-0.008	0.40	0.53
Tax Rate %	+	?	-0.001	0.58	0.45
Efficiency %	+	+	0.000	10.84	0.00*
Quick	?	+	0.164	0.46	0.50
Current	?	+	-0.306	0.86	0.35
NCA%	?	+	0.033	4.69	0.03*
LTDE	+	?	-0.175	2.31	0.13
TDE	+	?	0.177	2.48	0.12
Interest Coverage	+	?	0.000	0.16	0.69
Total Asset Turnover	+	+	-0.302	5.11	0.02*
Receivables Turnover	+	+	0.001	0.98	0.32
Inventory Turnover	+	+	-0.005	5.81	0.02*
Payables Turnover	+	+	0.016	6.40	0.01*
Accrued Exp. Turnover	+	+	-0.017	9.46	0.00*
PP&E Turnover	+	+	-0.013	5.70	0.02*
Cash & Equiv. Turnover	+	+	0.008	14.23	0.00*
CF/Share	+	+	-0.012	2.45	0.12
BV/Share	+	+	0.003	1.28	0.26
Size	+	+	0.130	1.02	0.31
N (firm years)			790		
Chi-square			86.04		0.00*
Pseudo R					
Cox & Snell			10.3%		
Nagelkerke			13.8%		
Goodness-of-Fit					
Pearson			774.39		0.41
Deviance			1005.16		0.00*
Correctly Predicted <sup>±</sup>			61.8%		
* significant, p < .05 ± based on a 50% cut off. For derivations of each ratio, refer to Table 3.					

**TABLE 8**  
**LOGISTIC REGRESSION: PRE- VS. POST-ASC 606 BY FIRM TYPE**

Variable	Model 1 Disclosing Firms		Model 2 Non-Disclosing Firms	
	B	p-value	B	p-value
Constant	2.761	0.24	1.445	0.25
ROS	-0.246	0.00*	0.008	0.89
ROA	0.077	0.08	0.118	0.00*
ROE	-0.001	0.74	0.000	0.68
ROIC	0.011	0.50	-0.026	0.01*
EBITDA %	0.052	0.14	-0.124	0.02*
Tax Rate %	0.001	0.39	-0.005	0.16
Efficiency %	0.000	0.00*	0.000	0.01*
Quick	-0.804	0.11	0.880	0.02*
Current	0.045	0.95	-1.026	0.04*
NCA%	-0.022	0.46	0.014	0.54
LTDE	-0.295	0.57	-0.022	0.92
TDE	0.274	0.58	0.019	0.93
Interest Coverage	0.000	0.66	-0.000	0.51
Total Asset Turnover	-2.555	0.00*	-1.560	0.00*
Receivables Turnover	0.002	0.01*	0.001	0.74
Inventory Turnover	0.003	0.37	-0.005	0.15
Payables Turnover	-0.003	0.80	0.010	0.18
Accrued Exp. Turnover	-0.015	0.21	0.010	0.22
PP&E Turnover	0.068	0.09	-0.001	0.34
Cash & Equiv. Turnover	-0.008	0.01*	-0.004	0.22
CF/Share	0.034	0.30	0.144	0.00*
BV/Share	-0.013	0.20	-0.031	0.00*
Size	0.360	0.28	0.283	0.11
N (firm years)	367		423	
Chi-square	160.890	0.00*	123.067	0.00*
Pseudo R				
Cox & Snell	35.5%		25.2%	
Nagelkerke	47.4%		33.7%	
Goodness-of-Fit				
Pearson	388.56	0.05	451.23	0.04*
Deviance	346.68	0.43	462.29	0.02*
Correctly Predicted <sup>±</sup>	78.2%		75.2%	
* significant, p < .05 ± based on a 50% cut off. For derivations of each ratio, refer to Table 3.				

**TABLE 9**  
**LOGISTIC REGRESSION: FIRMS CHANGING DISCLOSURE BEHAVIOR**

<b>Variable</b>	<b>B</b>	<b>Wald</b>	<b>p-value</b>
Constant	-1.634	0.173	0.677
ASCPeriod (1 = post-ASC)	2.716	18.453	0.00*
ROS	-0.021	0.147	0.70
ROA	0.022	0.254	0.61
ROE	-0.001	0.125	0.72
ROIC	-0.031	2.54	0.11
EBITDA %	0.086	1.903	0.17
Tax Rate %	0.003	0.556	0.46
Efficiency %	0.000	1.254	0.26
Quick	1.367	1.792	0.18
Current	-1.575	1.431	0.23
NCA%	0.085	2.508	0.11
LTDE	-1.162	1.295	0.26
TDE	1.918	3.747	0.05
Interest Coverage	0.003	2.107	0.15
Total Asset Turnover	2.231	8.863	0.00*
Receivables Turnover	0.004	1.043	0.31
Inventory Turnover	-0.014	5.364	0.02*
Payables Turnover	0.020	1.59	0.21
Accrued Exp. Turnover	0.013	0.36	0.55
PP&E Turnover	-0.424	10.164	0.00*
Cash & Equiv. Turnover	-0.002	0.047	0.83
CF/Share	-0.073	1.063	0.30
BV/Share	0.053	2.358	0.13
Size	-0.525	0.762	0.38
N (firm years)	170		
Chi-square	59.917		0.00*
Pseudo R			
Cox & Snell	29.7%		
Nagelkerke	39.6%		
Goodness-of-Fit			
Pearson	169.91		0.08
Deviance	175.66		0.04*
Correctly Predicted <sup>±</sup>	73.5%		
* significant, p < .05 ± based on a 50% cut off. For derivations of each ratio, refer to Table 3.			