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The Secondary Market for Gift Cards and the Role of Corporate Bankruptcy Risk

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Abstract

The website, Plastic Jungle, is taking advantage of the rapidly growing gift card phenomena by creating a secondary market that enables consumers to buy, sell, and exchange gift cards online at a discount. This paper examines the relationship between this secondary gift card market and the corporate bankruptcy risk of companies with gift cards listed on the market. When a company issues a gift card, the card is unsecured debt and the cardholder becomes an unsecured creditor to the company. This paper investigates whether the cardholder acts similarly to other unsecured creditors or as someone who is merely holding another form of cash. As was expected, this paper finds evidence indicating the spot price on the gift card is correlated to some forms of bankruptcy risk. Specifically, the gift cardholders act like unsecured creditors in terms of excess stock returns, CDS price, and the idiosyncratic risk of companies.

I. Introduction

Pieces of plastic known as gift cards are commonly considered to be great presents for birthdays and during the holiday season. Gift cards are not only gaining popularity in the eyes of consumers, but also the companies and governments that regulate their distribution and use. The attractiveness and availability of these pieces of plastic has grown significantly since 2004. The primary reason why gift cards have risen to the top of consumers' holiday wish lists is that these cards allow the recipient to select their own gift[1]. According to the National Retail Federation, the average consumer spent $139.91 on gift cards in 2009, and that number is expected to rise to $145.61 in 2010 furthermore total gift card spending is expected to reach $24.78 billion[2].

While the popularity of gift cards is growing, the deeper implications surrounding these cards are also beginning to surface. The motivation of buying a gift card is to allow the eventual recipient to choose the merchandise that he or she truly desires opposed to the buyer attempting to appease the taste of the recipient blindly. For example, a grandmother purchases a gift card for her only grandson for his fifteenth birthday. While the grandmother thinks she is merely allowing her grandson the freedom to choose his own birthday present, she is essentially giving her grandson unsecured debt. Her grandson is now an unsecured creditor to the company that issued the gift card. Each gift card is considered unsecured debt of the company, as the company is obligated to provide goods and services up to the face value on the card at the point of redemption. However when a company, who has issued gift cards, files for bankruptcy, suddenly, the cardholder or unsecured creditor is at risk. There have been many cases in which companies have filed for bankruptcy leaving gift cards to become worthless pieces of plastic.

[1] http://grifinancial.com/id154.html
[2] http://www.nrf.com/modules.php?name=News&op=viewlive&sp_id=1032

For example, Linens 'N' Things and Sharper Image filed for Chapter 11 bankruptcy and left gift card holders with millions of unredeemed gift cards in hand[3]. The legal implications concerning these cases will be addressed in the following section.

Current economic conditions have led to investigations concerning the potential exposures gift cardholders have toward corporate bankruptcy risk. Examples of cardholders being left with worthless gift cards are gaining publicity and websites such as Plastic Jungle have taken advantage of this newfound awareness by creating an online location that allows customers to exchange, buy, or sell gift cards at a discount from face value. Since the volume of unredeemed gift cards is growing and cardholders are gaining status in a legal capacity, Plastic Jungle offers another alternative to the risks associated with holding gift cards. The website acts as a secondary market, which enables consumers to exchange gift cards at varying spot prices daily and ensures they will not be left with unredeemable gift cards. Deloitte & Touche reports there is currently an estimated market of $30 billion in unused gift cards that are still valid, which implies there is an estimated $300 dollars of unused gift cards in every household in the United States. There are several secondary gift card websites, but consumers are attracted to Plastic Jungle, because it is a convenient and secured environment that guarantees all transactions[4].

Plastic Jungle lists gift cards on the website at a discount, meaning that the face value on each card is of greater or equal value than the purchase price of each card. The discount that accounts for this difference can be considered the spot price of the card. There may be companies with multiple gift cards listed on Plastic Jungle; however, each card issued by the same company will have the same spot price, and these spot prices ranging from 0 to 25 percent

[3] Bloomberg News (2008)
[4] There are other website that exchange gift cards such as Swapagift and Card Avenue; however, Plastic Jungle is perceived to be the industry-leader

are determined by Plastic Jungle, not the individual sellers. Once Plastic Jungle establishes a discount for a company, the discount does not vary with the common measures of bankruptcy probability. The implications for determining the discount depend on various pricing methodologies that Plastic Jungle will not to disclose. The gift cards can also be new or used, so the face values will vary. If the card has inactivity fees (a fee that companies charge if the card has not been used for a certain period of time) Plastic Jungle takes this into consideration when selling the card; therefore, the inactivity fee is already deducted from the original face value of the card. Also, the expiration date is taken into consideration. Plastic Jungle does not list any cards on their website that expire in the short term[5]. Both consumers and companies can sell the gift cards to Plastic Jungle, and it is a set market unlike other bargaining websites such as EBay.

This paper will investigate the relationship between Plastic Jungle and corporate bankruptcy risk. The null hypothesis is that people who are using these cards view them essentially as cash opposed to unsecured debt and act accordingly. Plastic Jungle is a website that is open to any potential consumer, and as previously explained each gift card represents unsecured debt. Hence, Plastic Jungle is a market for publicly trading unsecured debt. Since the Plastic Jungle market moves everyday in terms of volume, these gift cards represent frequently traded unsecured debt. The website also has achieved simplicity for creditors in comparison to unsecured debt trading in other facets. In order to investigate whether consumer sentiment towards gift cards can implicate potential future bankruptcy risk, the historical data from the Plastic Jungle website would need to be collected. The historical data would allow a model that includes time effects to investigate whether a change in the discount for gift cards issued by a particular company is caused by a change in consumer sentiment and therefore forecasts the financial health for the company. Unfortunately, this information was not available; therefore,

[5] http://www.plasticjungle.com/pjweb/control/pjGuarantee

this paper questions if the spot price on each gift card is correlated to the company's bankruptcy risk in a cross-sectional analysis. This analysis investigates that while consumers may be thinking that the gift cards are just another form of cash, they may actually be acting in the same way as other unsecured creditors holding other forms of unsecured debt.

The cross sectional analysis has other sources of motivation as well. Indirect costs of bankruptcy are more difficult to measure, but usually have a larger effect on the company. For example, reputational hit and loss of customers is an indirect bankruptcy cost. The spot prices of the gift cards could be a way to measure the consumer sentiment towards a company. If a consumer does not take advantage of buying a gift card at a discount it implies the consumer is not interested in the products or services provided by the issuer of the gift card. While this paper will investigate the indirect costs of bankruptcy, it focuses on proving consumers holding gift cards are acting the same as other unsecured creditors, not just as consumers holding cash.

This paper will proceed as follows. Section II is a review of the academic literature on the role of gift cards in a legal setting and measures of bankruptcy risk. Section II describes the data. Section III illustrates the methods used to analyze the data. Section IV presents the results of the models. Section V concludes the paper and provides areas for potential future studies.

II. Literature Review

Accounting for Gift Cards

There is currently no standard method of accounting for companies to disclose nonbank gift card revenues. There are several possible accounting treatments for unredeemed gift cards, because gift cards have various expiration periods. At the initial purchase of the gift card, the company receives payment for the face value of the card and is obligated to deliver merchandise

up to the face value on to the cardholder; therefore, the company carries a contingent liability equal to the face value of the gift card. The company is not allowed to recognize the revenue from the gift card until it delivers the merchandise to the cardholder or the gift card expires[6].

The expiration periods of gift cards vary; while some gift cards have no expiration other cards are subject to the company's policy or state laws to determine an expiration date. The problem pertains to gift cards with no expiration date. The unredeemed gift cards with no expiration date are subject to "breakage" by the company to avoid carrying an indefinite obligation. The term "breakage" classifies cards that have been sold, but will most likely not be redeemed in the future. There are several reporting treatments accepted for estimating the card breakage. The most common treatment is using trends in the redemption patterns of previously sold cards to determine when a gift card liability may be removed from the company's books. To help prevent companies from establishing premature breakage terms - after a certain period, the value of the gift card becomes unclaimed property. This time period depends on the jurisdiction and applicable state law. In some jurisdictions, this means the unclaimed property can revert to a governmental body instead of being forfeited to the company.

There is a lack of transparency in gift card accounting. Only, roughly one-third of companies provide a footnote in their financial statements disclosing the recognition of breakage. The current method of accounting allows each company to have a considerable amount of discretion over when, where, and how to record gift card revenue, which can cause financial statement readers including investors to be misinformed. For this reason, FASB is attempting to determine more concrete methods in order to account for gift cards[7].

[6] Stickney, Weil, and Schipper (2009), pg. 153
[7] The CPA Journal Online

Law on Gift Cards

Legislation and regulations concerning gift cards are in the process of being amended due to the heightened publicity surrounding the risk of holding gift cards for long periods of time. On August 22, 2010 the Credit Card Accountability, Responsibility, and Disclosure Act (more commonly referred to as the Card Act) became effective and included regulations that will be applied to retail gift cards. Title IV of the Credit Card Act now mandates that gift cards cannot expire for at least five years after the date of purchase, or from the last time additional money was added to the card. Furthermore, inactivity fees can only be applied if the card is inactive for more than a year and the company must make certain disclosures to consumers. This allows all gift cards to have a guaranteed life of at least five years and makes each card eligible for the secondhand market.

As corporate bankruptcies grow, consumers face exposure in the form of holding gift cards. Companies are going out of business, and gift cards are at risk of becoming worthless. When a company seeks bankruptcy protection, the proceeds from the gift cards become part of the company's assets, assuming, as is common in practice, the company did not create a segregated account to set aside the proceeds. When a company enters bankruptcy in the United States, it has three options for filing, including liquidation of assets (Chapter 7), reorganizing the company (Chapter 11), or debt repayment with special payment plans (Chapter 13)[8]. For the majority of cases, the best outcome for a company is to repay the debt obligations and emerge from bankruptcy with the company still intact. This is not always possible, because some companies are unable to find a bidder to reorganize the company or are unable to repay their creditors without liquidating their assets. During the bankruptcy proceedings, the judge

[8] Parrino and Kidwell (2009)

determines whether the gift cards will be redeemable during the period of bankruptcy protection. The judge makes this decision by reviewing the financial statements of the company, the list of creditor claims against the company, and the recommendation of the attorneys. The problem is that gift card holders are low in the prioritized list of creditors, especially when the liquidation of assets accumulates less than expected. In the case of bankruptcy, gift card holders are considered unsecured creditors as the gift card is considered to be debt. An unsecured creditor is behind administrative priority claims, priority unsecured creditors (such as taxes and unfunded pension claims) and secured creditors in the order of receiving any distribution from the debtor. The unsecured creditors usually obtain a distribution in proportion to the size of their debt from the assets of a company after higher priority creditors have been paid. In most bankruptcies, the unsecured creditors realize the smallest amount of their claims compared to other creditors and sometimes receive nothing.

For example, Linens 'N' Things and Sharper Image filed for bankruptcy leaving millions of unredeemed gift cards in consumers' hands. Linens 'N' Things received court approval to continue its gift card program during bankruptcy reorganization in order to maintain customer goodwill as the company had more than $100 million in unredeemed cards due to customers. However, the bankruptcy filings following the initial court approval indicated that the company did not maintain sufficient cash reserves to fund the outstanding gift cards. Therefore, when Linens 'N' Things was unable to find a bidder to continue operations, the company was forced to liquidate. During liquidation, each individual store had discretion in determining whether they would accept gift cards and if they were accepting the cards, the customer was required to redeem the full face value of the card at one time. Contrary to Linens 'N' Things, Sharper Image gift cardholders were unable to redeem the gift cards during liquidation. In this case, Sharper

Image was sued by class action plaintiff's, when thousands of consumers had an estimated $20 million of unredeemed gift cards outstanding. At an individual level, the gift cardholders would have almost no incentives to hire counsel and prosecute the claims for such small amounts; however, the class certification streamlined the repayment process and more efficiently protected the rights of the cardholders.

Corporate Bankruptcy Risk

In the traditional practice of predicting corporate bankruptcy, the majority of predictive models are based off of market indicators and accounting financial ratios that measure a company's probability of default. A company is considering in default, when it is no longer able to pay interest payments on their liabilities to their creditors. Prior research has established reliable bankruptcy risk indicator models with statistically significant power; however, there is no absolute model that predicts the probability of bankruptcy. Due to the technologic advances which makes a company's financial information more accessible and the current economic turmoil the desire for accurate bankruptcy measures has increased. Three highly regarded bankruptcy models will be discussed: the Altman Z-Score, the Shumway Model, the Distance to Default.

Edward Altman created the Z-Score model that was used to assess the bankruptcy risk of corporations (2000). He used five common accounting standards to predict default. These variables included liquidity (WC/TA), cumulative profitability (RE/TA), asset productivity (EBIT/TA), market financial leverage (ME/TL), and capital turnover (S/TA)[9]. Altman assumed that each ratio is linearly related to the bankruptcy risk of the company, and by using all five of the ratios, all of the credit-relevant aspects of the company have been considered. The results of this model are based on an index that concludes that a high z-score indicates a low bankruptcy

[9] Altman (2000)

risk, and there are three zones of discrimination that compose the total index. Any number above 2.99 indicates the company is in the "safe" zone and any number below 1.80 indicates the probability of default is extremely high, and the company is in the "distress" zone. Therefore any number between 1.80 and 2.99 indicates the company is in the "grey" zone. This model was initially tended to predict only manufacturing companies, it is now commonly used in many industries with index variations.

Another model created by Tyler Shumway (1999) investigated corporate bankruptcy using a hazard model opposed to a single-period model in order to more accurately predict bankruptcy[10]. He found market variables such as past excess stock returns and market size to be more statistically significant than some accounting ratios commonly used at the time. He proves that using Zmijewski accounting metrics are more statistically significant than Altman's five accounting metrics. Zmijewski's accounting metrics include return on assets (NI/TA), debt (TL/TA), and the current ratio (CA/CL). By adding market variables such as past stock returns, market size, and idiosyncratic standard deviation of stock returns to the Zmijewski accounting ratios, he created he Shumway model. This model corrects for period at risk and allows for time-varying covariates. Although Tyler Shumway begins to account for the time adjustment for bankruptcy models, there could be other sources that indicate the level of a company's bankruptcy risk.

A third model used by Morningstar, is the Distance to Default model (2009). This model is less focused on the accounting aspects of a company's balance sheet, and focuses on the equity as a call option[11]. The hypothetical call option on the company's assets uses the book value of liabilities as the strike price and the market value of the assets as the market price. This model

[10] Shumway (1999)
[11] Warren (2009)

measures the probability that this call option will be become worthless: value of the company's assets is less than the value of the liabilities. Meaning when a company is unable to pay their creditors using their assets and maintain operations, then the company is considered in bankruptcy. This is model is restricted to evaluating publicly traded companies.

There is existing research on corporate bankruptcy that incorporates market and accounting metrics; however, there is limited research on the secondary market of unused gift cards, because websites such as Plastic Jungle are relatively new. Therefore there has been less time to research the affects of this market. Incorporating the information on Plastic Jungle with currently upheld bankruptcy prediction models could improve the ability for consumers and companies to determine where the health of a particular company is heading. This paper will use the Z-Score and Shumway models to measure bankruptcy risk, as these models are reputable, have been used in prior research, and the data for each public company listed on Plastic Jungle is collectable for these models.

III. Data

Plastic Jungle

All the data associated with the Plastic Jungle website was collected on October 23rd 2010. Each company on the website was recorded along with the associated spot price, number of cards listed, the face value on each card, and the current purchase price of the card. The total dataset was then restricted to only include the domestic, publicly traded companies. There were 1,103 gift cards originally listed on the website at the time the data was collected, but there are only 949 included for this paper. The companies that are included in this dataset are in listed in Table I.

Bankruptcy Measures

This study uses bankruptcy measures that are commonly used in everyday practice including Altman's z-score, Zmijewski's model, and Shumway's model. The *COMPUSTAT* database, a reputable database that holds the accounting and market information on active and inactive publicly held companies, and the Center for Research in Security Prices (*CRSP*) dataset, a dataset that maintains the most comprehensive collection of security data available for the NYSE, AMEX, and NASDAQ Stock Market, were used to acquire all of the following data. The accounting bankruptcy measures are from the most recently released financial reports reported in these databases before October 23rd, 2010. The data was available on the databases before the Plastic Jungle data was collected, ensuring that the data was available to the public along with the gift cards. The summary statistics are indicated in Table II.

The Altman z-score is one measure of bankruptcy risk that is compiled based on five accounting ratios. The first ratio included working capital to total assets (WC/TA), retained earnings to total assets (RE/TA), earnings before interest and taxes to total assets (EBIT/TA), market equity to total liabilities (ME/TL), and sales to total assets (S/TA). These ratios were then used to determine the overall Z-score for each company shown in equation (1).

(1)

= Working Capital / Total Assets
= Retained Earnings / Total Assets
= EBIT / Total Assets
= Market Value of Equity / Total Liabilities
= Sales / Total Assets
Z = Overall Index

The index measures the bankruptcy risk of corporations by valuing z-scores in three categories. The "safe" zone includes z-scores above 2.99, the "grey" zone includes z-scores

between 1.8 and 2.99, and the "distress" zone includes z-scores below 1.80. Essentially, the higher the z-score the lower the bankruptcy risk of a corporation. There are a total number of 79 different companies that are included in this dataset, and only 57 of the 79 companies are in the safe zone.

The Zmijewski independent variables used in the Shumway model include three other accounting ratios, net income to total assets (NI/TA), total liabilities to total assets (TL/TA), and current assets to current liabilities (CA/CL). As with the Altman variables, these variables were compiled using *COMPUTSTAT* and the summary statistics are reported in Table II.

Unlike the Zmijewski and Altman variables, the Shumway model includes market indicators to estimate the bankruptcy risk of various companies. Unlike the static accounting metrics, the data used for the market indicators is gathered from the financial reports in *CRSP* released no less than sixth months prior to the date of interest. This creates a realistic lag to ensure the data is observable by the market. The relative size of each company relative to the total size of the New York Stock Exchange (NYSE) and American Stock Exchange (AMEX) is one independent variable. This variable is calculated by taking the logarithm of the market capitalization of each company over the total market capitalization of the NYSE and AMEX. The logarithm is used in order to make the variable stationary. This variable is included, because market capitalization is an important indicator to bankruptcy as the market equity of a company with high bankruptcy risk will be discounted by traders. Another market indicator is a company's past excess returns. The company's past excess stock returns are calculated using the return of the company in 2009 minus the value-weighted NYSE/AMEX index return in 2009. Each company's annual excess returns are then calculated by cumulating the monthly excess returns. This variable indicates that a company that generates returns above the market will have

lower bankruptcy risk, as it indicates they are outperforming the market. Shumway's final market-driven independent variable is the idiosyncratic standard deviation of each company's stock returns. This variable is indicated as Sigma in Table II. The variable is calculated by regressing each stock's monthly returns in 2009 against the value-weighted NYSE/AMEX index return, sigma is the standard deviation of the residual of this regression. Sigma indicates that as a company has more variable and inconsistent cash flows, or operating leverage, the company will have a higher bankruptcy risk.

This study also includes other explanatory variables that have not been included in the bankruptcy models explained above. The market price of the five year CDS associated with each company is also included as an explanatory variable. This information is available through Bloomberg; however, only seventeen companies in this dataset have a CDS contract. The CDS can be used as a measure of bankruptcy risk, because a CDS transfers credit exposure from a buyer to a seller. Therefore, the higher the risk of default on the original entity implies a higher price to the buyer. The last bankruptcy measurement variable is the trading age of each company. This is a variable, as there is no other indicative alternative to measure how long a company has been a viable entity. Although some studies have proved that there is no duration dependence in bankruptcies, there is a reputation aspect associated with the duration of a company. This paper is attempting to account for the reputational aspect by using the trading age of the company as a variable.

This paper includes several measurements of bankruptcy into one model. Since, each of these measurements are attempting to measure the same thing, bankruptcy, there is some concern for high correlation between variables. There is a correlation matrix in Table III, which shows that the variables are not all highly correlated. Although they are each attempting to measure the

bankruptcy risk, they each measure this in various facets, and therefore they are not highly correlated. There are two variables, relative size and the five year CDS price, which show high correlation; however, as indicated later in the paper including these variables separately produces qualitatively and quantitatively similar results.

Control Variables

The dependent variable is the spot price on the gift card recorded from Plastic Jungle. The demand for each of the gift cards on the secondary market is not solely based on the financial standing of the company. There are other factors that contribute to the desirability for each card. Thus, the bankruptcy risk associated with each company is not the only aspect that needs to be calculated in this paper, but also the desirability for each card. These factors will be used as controls in each regression. The first control variable is the number of locations that each company has in the United States. This information is available through Bloomberg, and for the companies without the information on Bloomberg, the information was found through each company's annual reports. The number of locations is used in order to account for the accessibility of the companies. The desirability of a gift card depends on whether the consumer is in an area that has a location, so there is even an option to redeem the card. There are also several binary variables. The NAICS codes, taken from *CRSP*, for each company were used to classify each company into certain industries, including retail, clothing, food, hobby, and manufacturing. Another binary variable, online, indicates whether a gift card can be redeemed online, and represents the convenience factor of the gift card. This information was found through each company's individual website. The final binary variable, card value, measures whether the face value on the card was a whole number. This variable explains whether the card was new or used, if the seller of the card sold the card immediately or if the seller sold the card

after making at least one purchase from the company. This can be considered a measure of satisfaction. All of the control variables were included in each regression illustrated in the next section.

IV. Results and Analysis

The purpose of this paper is to determine whether the spot price on each gift card is correlated to the bankruptcy risk of the company. In order to capture the characteristics of each individual card, and avoid estimation errors such as using the averages for face values or purchase price, the following regressions will consider a total sample size of 949. Each spot price on every gift card will be used as a dependent variable. In order to support the hypothesis it is important that every gift card is treated like unsecured debt and not merely averaged together to fit the mold of the company. For each of the following regressions, I use a multiple variable linear regression including control variables such as the number locations the company owns in the United States, the online binary variable, the card value binary variable, and four binary variables to control for the industry. The following is the basic regression model:

Here and are the market model parameters estimated from the ordinary least squares (OLS) regression. When I ran my regressions with the large sample size, the results were not valid, because the standard errors are correlated across cards for each company. The regressions that were being run took each gift card into effect separately; however, there is a large variation in terms of the number of cards that each company has listed on the website. Some companies have only one card listed on Plastic Jungle, whereas one company, Home

Depot, has 183. In order to account for this problem with the standard errors and correct for the correlation, clustered standard errors are used. The clustered standard errors are type I heteroskedasticity and autocorrelation-consistent (HAC) standard errors and allow the errors to be correlated within each cluster, but assume they are uncorrelated between clusters. In this paper, each company will represent one cluster, and the company is determined by the GV Key of each company taken from *CRSP*, as seen bellow in the basic regression model:

For the following regressions, the various bankruptcy measures were used separately in order to observe how the discount on the gift cards is affected by each measure individually.

The first set of regressions focus on whether the z-score of a company has a relationship with the discount on that company's issued gift cards. Ideally, as the z-score of a company decreases, it should indicate the company is experiencing declining financial health, and we expect to see a higher discount. Table IV shows the regression output for the Altman determinants of the discount rate. Corroborating with the initial hypothesis there is a negative relationship between the z-score and discount on the gift cards, significant at the 10% level. This indicates that a company with a low z-score especially a company in the "distress" zone will have high discount listed on their issued gift cards. Model (2) – model (4) are included to determine whether the components of the z-score are also statistically significant. Model (2) indicates that the signs for the (RE/TA) and (ME/TL) are moving in the right direction; however, the other three variables represent a positive relationship. The addition of the age variable, that represents trading age, in model (4) and model (5) also shows a negative relationship to the discount, and is significant at the 5% level. This relationship signifies that younger companies

will have a higher discount on their gift cards. This shows that the duration of a company has significance in the discount and that can be attributed to the reputational benefits of age or the stabilization that comes with experience.

Table V shows the regression output for the Shumway determinants in relation to the discount rate. The market variables were used in model (1), and the relative size proves to have a significant negative relationship with the discount at the 5% level; however, sigma and excess returns do not have coefficients in the correct direction. Although, excess returns in statistically significant in this model, the coefficient is in the wrong direction. This implies that when a company has high excess returns, the company will have a high discount rate. This is not intuitive, as high excess returns should represent higher stability and profitability for a company. Model (4) includes all the variables in Shumway's bankruptcy model, and this model explains 64% of the variation in the discounts. In this model, age is significant at the 1% level, along with the total liabilities to total assets metric. The TL/TA ratio concludes that a company with high leverage will have a higher discount on their issued gift cards, which is instinctive as high levels of debt increase the likelihood of bankruptcy.

Combining both the Shumway and Altman determinants provide the regression results displayed in Table VI. The first model indicates the z-score with some of the Shumway market variables. The second model shows the relative size of the firm and one accounting variable in relation to the discount. The relative size of the firm is significant at the 1% level; however, in this case, there is omitted variable bias and therefore more explanatory variables need to be added to the regression. The remaining models in Table V, experiment with using various components of the z-score with market indicators. In model 3, two of the accounting metrics, TL/TA and WC/TA, and relative size are significantly significant at the 5% level. The WC/TA

explanatory variable signifies that a company that efficiently uses its assets to generate earnings will have a high discount on their gift cards, which is not expected. From these regressions, it can be determined that using the z-score index is superior to merely using the components within the index. The components within the index are not as telling as the individual component and do not explain the entire story. Furthermore, there is higher correlation with the other accounting metrics included in the Shumway model at the individual level, and therefore, there is higher risk of correlation within the eventual overall model if the individual z-score components are used opposed to the overall z-score index.

Including the CDS prices in the regressions truncates the sample size, but the clustered standard errors allow this paper to evaluate the CDS price as an explanatory variable in addition to the previous explanatory variables. As you can see in Table VII, the regressions were run again using the clustered standard errors and taking into account the CDS price. The first model indicates the relative bankruptcy risk variables discussed previously including the CDS. After adding the z-score in the second model, the coefficient on all of the variables are in the correct direction, which implies that this Model is a better fit than Model (1). As previously mentioned, there is potential concern regarding high correlation between relative size and the CDS price. Model (3) illustrates that by removing the relative size variable from the second model there is no significant change in the overall validity of the model. The other explanatory variables are still moving in the correct direction and maintain the same levels of statistical significance. Model (4) takes the age variable out of the regression and adds back the relative size variable, which causes the CDS price to have a significant positive relationship with the discount at the 1% level. The removal of age is supported by the fact that age is not stationary, and was not statistically significant in model (1) or model (2). The final model was tested using for

multicollinearirty using the Variance Inflation Factor (VIF), and there is no multicollinearity problem to speak of. Model (4) is the final regression model in this paper, and shows the correlation between the spot price of the gift card and bankruptcy metrics such as sigma, relative size, excess returns, z-score, and the CDS price.

Models (1) – (4) in Table VII represent the coefficients as the regression output reports. However, in order to interpret the coefficients correctly with the impact on the discount, the marginal effect is also indicated in the last model in Table VII. Model (4b) uses the coefficients in model 4 to construct marginal effect coefficients as shown in equation (2) below for each coefficient:

(2)

Model 4b indicates that sigma has a positive statistically significant relationship with the discount on the cards at the 1% level. Sigma is the idiosyncratic standard deviation of the stock returns on the company. This positive 1.185 beta signifies that if a company has higher volatility or idiosyncratic risk, then the discount will be larger on their listed cards. As the standard deviation of the idiosyncratic risk increases by one relative to the discount, the discount will increase by 1.185 percent. The relative size of the company has a negative relationship with the discount, and although this is not statistically significant, it intuitively makes sense. A company with a small market capitalization will be more at risk to volatility in the economy and the company's market equity will be discounted by traders. The smaller the relative size of a company compared to the size of the NYSE and AMEX, the higher the discount on the card. An excess return has a negative relationship with the discount on the card significant at the 1% level. When a company has high excess returns it indicates that the company is outperforming the market, and therefore when a company has high excess returns there will be a lower discount on

the card. The CDS price also has a positive significant relationship at the 1% level. The CDS price is an indicator of the amount of risk associated with credit exposure to the company. As the credit risk of a company increases, the CDS price will increase. The CDS price can also be thought of as the price of insurance against the company. The regression shows that a company with an increased CDS price will have a higher discount. As the standard deviation of the CDS price increases by one relative to the discount, the discount will increase by 1.27 percent. Although the z-score is not a significant variable, it still has explanatory power. A company that has a lower z-score, an index indicator of bankruptcy risk, will have a higher discount on their issued gift cards. Therefore, we can conclude that we can conclude that the z-score and relative size have explanatory power in terms of the discount. In addition to these variables, there is statistically significant evidence that proves excess stock returns, the idiosyncratic standard deviation of stock returns, and the five-year CDS price of a company are correlated to the spot price on gift cards on the Plastic Jungle market.

V. Conclusion

This paper investigates the cross-sectional impact of corporate bankruptcy risk and the spot prices of gift cards on the Plastic Jungle market. I use the Altman Z-Score model and the Shumway model to measure corporate bankruptcy risk, and I use controls to account for the desirability of the gift cards beyond the financial health of the company. This paper finds the spot prices on the gift card are correlated to some forms of corporate bankruptcy risk, which concludes that in some ways consumers trading gift cards behave in the same way as other unsecured creditors trading other forms of unsecured debt. It proves that a consumer does not

just hold a gift card with the mindset that the gift card is cash rather the consumer is aware of some of the risks that he or she is assuming while holding the card.

This paper also opens several other areas for future study. If the historical data for Plastic Jungle were acquired, then it would be possible to expand this paper to investigating whether these discounts have predicative power in terms of corporate bankruptcy. This information could also expand upon the role of consumer sentiment and indirect bankruptcy costs in terms of Plastic Jungle. I find that consumers act like unsecured creditors in terms of excess returns, CDS price, and the idiosyncratic risk of companies; however, future research could prove whether the consumers are influenced by these bankruptcy measurements or if the bankruptcy measurements are affected by consumers.

References:

Altman, Edward I. Predicting Financial Distress of Companies: Revisiting the Z-Score and Zeta Models . PhD Thesis. New York City : Stern School of Business , 2000.

Bohn, Jeff and Peter Crosbie. "Modeling Default Risk: Modeling Methodology." Moody's KMV Report (2003): 10-14.

Conroy, Victoria. "Financial News ." January 2009. Retailer Bankruptcies Hit Gift Card Sales . <http://www.vrl-financial-news.com/cards--payments/cards-international/issues/ci-2009/ci413/retailer-bankruptcies-hit-gift.aspx>.

Forsyth, Timothy B. and Ronald E Marden. "Gift Cards and Financial Reporting: Unwrapping the Uncertainties of Revenue-Recognition and Other Issues." The CPA Online (2007).

Gennaioli, Nicola and Stefano Rossi. "Judicial Discretion in Corporate Bankruptcy." Working Paper Series. 2009.

Grannis, Kathy. "Gift Givers Listening to Recipients As Gift Card Spending Expected to Rise ." 2010. National Retail Federation . 2010 <http://nrf.com/modules.php?name=News&op=viewlive&sp id=1033>.

Hart, Jon and Melanie Hill. "Fighting Over the Balance Left on Unused Gift Cards." The Wall Street Journal (2003).

Huges, Sarah Jane. Federal Payroll, Gift, and Prepaid Card Developments: FDIC Deposit Insurance Elgibility and the Credit CARD Act of 2009. Research. Bloomington, 2010.

Kile, Charles O. "Accounting for Gift Cards ." Journal of Accountancy (2007).

Miller, Warren. "Comparing Models of Corporate Bankruptcy Predicition: Distance to Default vs. Z-Score." Morningstar Journal (2009).

Orgel, Marty. "Not Worth the Plastic They're Printed On." March 2008. Market Watch . <http://www.marketwatch.com/story/bankruptcies-often-leave-consumers-holding-worthless-gift-cards>.

Parrino, Robert and David Kidwell. Fundamentals of Corporate Finance. Hoboken: John Wiley & Sons, Inc. , 2009.

Plastic Jungle . 2006-2010. October 2010 <http://www.plasticjungle.com/>.

Retailer Bankruptcies Hit Gift Card Sales . January 2009. <http://www.vrl-financial-news.com/cards--payments/cards-international/issues/ci-2009/ci413/retailer-bankruptcies-hit-gift.aspx>.

Schipper, Katherine and Clyde P Stickney. Financial Accounting: An Introduction to Concepts, Methods, and Uses. 13. Mason: South-Western Cengage Learning, 2009.

Shumway, Tyler. Forecasting Bankruptcy More Accurately: A Simple Hazard Model. PhD Research . Ann Arbor, 1999.

Timberlake, Cotten. "Gift Card Users May Be Short-Changed by Bankruptcies." May 2008. Bloomberg. <http://www.bloomberg.com/apps/news?sid=a1YldRLJNYH4&pid=newsarchive>.

Unknown. "Fact Sheet: Reforms to Protext American Credit Card Holders." May 2009. The . White House: President Barack Obama <http://www.whitehouse.gov/the_press_office/Fact-Sheet-Reforms-to-Protect-American-Credit-Card-Holders/>.

Wooldridge, Jeffrey M. Introductory Econometrics: A Modern Approach . Thomson Learning , 2000.

Tables:

Table I: Companies Included in Dataset

Company	Spot Price	Average Face Value	Company	Spot Price	Average Face Value
1-800-FLOWERS	25%	50.00	Hewlett Packard	6%	100.00
A.C. Moore	16%	205.86	Home Depot & Expo	8%	233.88
Abercrombie & Fitch	12%	100.00	iTunes	8%	21.67
Aeropostale	12%	61.12	Jack in the Box	11%	25.00
American Apparel	14%	150.36	Jamba Juice	15%	77.78
American Eagle Outfitters	14%	173.41	JC Penny	0%	100.00
Ann Taylor	15%	504.04	Johnston and Murphy	12%	56.43
Barnes & Noble	9%	43.45	Jos. A. Bank	12%	518.74
Bath & Body Works	13%	120.33	Kohls	14%	262.44
bebe	10%	63.78	Lacoste	10%	433.33
Big 5 Sporting Goods	10%	125.08	Lowe's	9%	226.73
Bon-Ton Department Store	10%	314.77	Lucky Brand Jeans	15%	227.13
Border Books	15%	95.27	Macy's	11%	250.02
Buckle	10%	71.08	McCormick & Schmick's	12%	75.00
Budget Rental Car	5%	25.00	Mens Wearhouse	14%	257.02
Build a Bear Workshop	15%	50.00	New York and Company	10%	84.68
Cabelas	12%	75.00	Office Depot	9%	121.93
Cache	10%	92.96	P.F. Chang's	9%	40.00
California Pizza Kitchen	10%	100.00	PacSun	15%	172.78
Capital Grille	10%	83.33	Peet's Coffee & Tea	8%	25.00
Cheesecake Factory	9%	50.00	Petsmart	8%	115.05
Chico's	10%	299.22	Pier 1 Imports	15%	141.85
Childrens Place	10%	224.69	Radio Shack	9%	121.81
Chipotle	10%	53.13	Red Lobster	8%	45.00
Coldwater Creek	12%	392.89	Rubio's	10%	132.50
Columbia Sportswear	10%	300.00	Ruths Chris Steak House	14%	87.50
Darden Resturants	10%	50.00	Sony	10%	250.00
Denny's	11%	50.00	Sport Chalet	12%	72.67
Dick's Sporting Goods	15%	205.75	Staples	8%	154.60
Dillard's	10%	67.51	Starbucks	9%	25.00
Dress Barn	10%	230.79	Steve Madden Shoes	10%	200.00
DSW	8%	366.17	Sunglass Hut	12%	62.65
Ethan Allen	10%	1000.00	Target	4%	25.00
Express	21%	223.17	The Great Indoors	8%	155.41
Finish Line	10%	25.00	The Limited	11%	147.23
Foot Locker	20%	50.00	Victorias Secret	10%	163.19
Game Stop	11%	25.00	West Elm	8%	266.12
Gap	8%	50.00	Williams Sonoma	14%	100.00

Table II: Summary Statistics

Variable	Source	Obs	Mean	Std. Dev.	Min	Max
Discount	Plastic Jungle	949	11.185	4.315	0	25
WC/TA	COMPUSTAT	949	0.187	0.146	-0.150	0.612
RE/TA	COMPUSTAT	949	0.234	0.573	-2.717	1.354
EBIT/TA	COMPUSTAT	949	0.081	0.095	-0.170	0.483
ME/TL	COMPUSTAT	949	2.169	2.033	0.041	12.764
S/TA	COMPUSTAT	949	1.700	0.402	0.508	2.815
Z-Score	Generated	949	3.818	1.839	-1.426	11.625
Excess Returns	CRSP	949	0.057	0.087	-0.031	0.372
Sigma	CRSP	949	0.018	0.008	0.009	0.185
Relative Size	CRSP	949	-3.528	0.926	-5.581	-1.612
NI/TA	COMPUSTAT	949	0.039	0.085	-0.384	0.290
TL/TA	COMPUSTAT	949	0.581	0.180	0.178	1.408
CA/CL	COMPUSTAT	949	1.809	0.689	0.160	5.140
Age	Bloomberg	949	16.951	10.017	0	53
CDS	Bloomberg	439	143.236	173.788	0	703.66
US Locations	Bloomberg	949	1154.527	883.170	0	11128

Table III: Correlation Matrix

	Discount	WC/TA	RE/TA	EBIT/TA	ME/TL	S/TA	Z-Score	Sigma	Relative Size	NI/TA	TL/TA	Age	CDS
Discount	1												
WC/TA	0.39	1											
RE/TA	0.52	0.29	1										
EBIT/TA	-0.44	0.04	-0.40	1									
ME/TL	-0.19	-0.02	0.15	0.67	1								
S/TA	-0.29	-0.21	0.14	-0.28	-0.02	1							
Z-Score	-0.07	0.16	0.52	0.37	0.83	0.37	1						
Sigma	0.52	-0.07	0.70	-0.26	0.22	0.17	0.43	1					
Relative Size	-0.67	-0.35	-0.46	0.81	0.62	-0.14	0.28	-0.25	1				
NI/TA	-0.47	-0.01	-0.41	0.98	0.67	-0.35	0.33	-0.26	0.83	1			
TL/TA	0.21	0.03	-0.07	-0.73	-0.96	0.02	-0.79	-0.17	-0.67	-0.72	1		
Age	0.05	0.63	0.22	-0.25	-0.42	-0.09	-0.18	-0.25	-0.40	-0.27	0.47	1	
CDS	0.58	0.18	0.48	-0.94	-0.62	0.20	-0.29	0.28	-0.92	-0.95	0.71	0.36	1

Table IV: Altman Determinants

Variables	(1)	(2)	(3)	(4)
Z-Score	-0.283*			
	(0.155)			
Age			-0.211**	-0.213**
			(0.0988)	(0.0918)
Working Capital / Total Assets		10.30**	15.05***	14.89***
		(4.479)	(5.163)	(5.180)
Retained Earnings / Total Assets		-1.245		-0.0733
		(1.112)		(1.019)
EBIT / Total Assets		1.944		-3.771
		(9.829)		(7.202)
Market Value of Equity / Total Liabilities		-0.469**	-0.816***	-0.693**
		(0.221)	(0.207)	(0.287)
Sales / Total Assets		1.315		0.138
		(1.408)		(1.287)
Constant	11.01***	8.258***	15.38***	15.21***
	(2.119)	(2.690)	(3.208)	(3.353)
Observations	949	949	949	949
R-squared	0.283	0.371	0.495	0.499

Note: Regression includes controls for the US Locations, the binary variables online and card value in addition to four control industry variables. Robust standard errors are reported in parentheses, adjusted to allow for correlation (clustering) within the company, *** denotes 1% confidence, ** denotes 5% confidence, * denotes 10% confidence.

Table V: Shumway Determinants

Variables	(1)	(2)	(3)	(4)
Excess Returns	3.778	5.907		6.617
	(6.091)	(4.646)		(4.883)
Sigma	-42.89	-23.55		1.204
	(26.19)	(14.98)		(17.49)
Relative Size	-2.525**	-2.179**	-2.232***	-1.135
	(0.955)	(0.861)	(0.710)	(0.702)
Age		-0.110**	-0.104	-0.158***
		(0.0542)	(0.0639)	(0.0535)
Total Liabilities / Total Assets		6.467	6.237*	11.22***
		(4.081)	(3.683)	(4.123)
Net Income / Total Assets		6.491		-2.596
		(6.405)		(4.879)
Current Assets / Current Liabilities				2.521***
				(0.772)
Constant	1.742	0.637	1.065	-1.806
	(2.728)	(4.643)	(3.733)	(3.600)
Observations	949	949	949	949
R-squared	0.459	0.584	0.560	0.640

Note: Regression includes controls for the US Locations, the binary variables online and card value in addition to four control industry variables. Robust standard errors are reported in parentheses, adjusted to allow for correlation (clustering) within the company, *** denotes 1% confidence, ** denotes 5% confidence, * denotes 10% confidence.

Table VI: Altman and Shumway Determinants

Variables	(1)	(2)	(3)	(4)	(5)
Z-Score	-0.230				
	(0.149)				
Relative Size		-2.041***	-1.679**	-2.293***	0.253
		(0.741)	(0.773)	(0.794)	(0.902)
Sigma					-2.244
					(14.22)
Excess Returns	21.36***				
	(3.433)				
Age	-0.187***				-0.176***
	(0.0686)				(0.0574)
Market Value of Equity / Total Liabilities		-0.0869	0.353	0.545*	
		(0.165)	(0.290)	(0.289)	
Total Liabilities / Total Assets			11.53**	10.03**	4.787
			(4.953)	(4.985)	(2.979)
Retained Earnings / Total Assets			-0.467	-0.183	
			(0.564)	(0.570)	
Working Capital / Total Assets			8.206**		
			(3.375)		
Constant	13.11***	3.455	-5.846	-6.149	9.682***
	(2.909)	(3.085)	(4.713)	(5.511)	(3.444)
Observations	949	949	949	949	949
R-squared	0.633	0.479	0.606	0.576	0.661

Note: Regression includes controls for the US Locations, the binary variables online and card value in addition to four control industry variables. Robust standard errors are reported in parentheses, adjusted to allow for correlation (clustering) within the company, *** denotes 1% confidence, ** denotes 5% confidence, * denotes 10% confidence.

Table VII: Final Regression

Variables	(1)	(2)	(3)	(4)	Marginal Effect (4b)
Sigma	1,302***	1,463***	1,441***	1,648***	1.185***
	(375.6)	(404.5)	(455.7)	(328.6)	
Relative Size	-1.205	-1.724		-2.258	-0.187
	(3.016)	(2.849)		(2.654)	
Excess Returns	-166.3	-190.9	-153.2	-236.2***	-1.835***
	(137.7)	(127.1)	(104.7)	(79.00)	
CDS	0.0525	0.0570*	0.0537*	0.0685***	1.065***
	(0.0332)	(0.0316)	(0.0292)	(0.0194)	
Age	-0.126	-0.0861	-0.132		
	(0.136)	(0.123)	(0.128)		
Z-Score		-0.358	-0.246	-0.460	-0.076
		(0.271)	(0.411)	(0.321)	
Constant	17.32	19.47	14.80	24.64	24.640
	(25.15)	(24.05)	(19.75)	(19.39)	
Observations	439	439	439	439	439
R-squared	0.895	0.898	0.895	0.896	0.896

Note: Regression includes controls for the US Locations, the binary variables online and card value in addition to four control industry variables. Robust standard errors are reported in parentheses, adjusted to allow for correlation (clustering) within the company, *** denotes 1% confidence, ** denotes 5% confidence, * denotes 10% confidence.