DEFAULT RISK, CREDIT MARKET LIQUIDITY, AND CORPORATE EVENTS

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ABSTRACT

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Prior literature examining bond excess returns around corporate events assumes that creditor wealth effects are driven by changes in the default risk of the firm. I revisit these bond event studies using data from 2002 through 2014, explore intra-firm individual bond reactions, and refine the analyses using changes in credit default swap (CDS) spreads. CDS spreads (price-weighted firm aggregate cash bond prices) show small increases (large increases) in default risk of acquiring firms, no change (large increases) for common equity repurchasing firms, and large decreases (no change) for seasoned equity offering (SEO) firms. I isolate liquidity effects around these events by examining changes in the CDS-bond basis and contrast with introduction of the "basis credit ratio" (BCR) comparing basis to cash bond spread changes. Firm aggregate median BCRs show variation in the CDS-bond basis contributes between 50.8% and 69.6% of changes in bond spreads, suggesting that credit market liquidity risk around these corporate events is economically large relative to default risk.

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PREFACE

I can thank no one more than my parents, Donald and Kathleen Shohfi. I thank them for their inexhaustible patience and for never giving up on me. If nothing else, I hope that this dissertation makes my father proud and honors his memory. I know that he has been an invisible hand guiding me throughout this process. I thank my mother for her constant support and incredible strength through adversity. I am so very fortunate to have such kind, hard-working, and wonderful parents. I owe everything to them.

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1 Introduction

Firm managers frequently make decisions to engage in corporate transactions which influence the asset composition, leverage, and risk profile of the firm. The economic magnitude of these events is simply enormous. According to SDC, from 2002 through 2014, public firms proposed acquisitions, common share repurchases announcements, and seasoned equity offerings (SEOs) within the United States that represent a total equity transaction value in excess of $12.2 trillion. While these corporate events immediately influence shareholders, potential effects and wealth interactions with equity can also manifest in the debt securities of the transacting firm. For instance, Billett, King, and Mauer (2004) find that acquirer bonds generally experience negative returns. Maxwell and Stephens (2003) document similar negative results for firms announcing common equity repurchases, while Eberhart and Siddique (2002) show positive returns to bondholders in months during seasoned equity offerings (SEOs). These prior studies assume that excess returns to bondholders are driven by a change in default risk due to the event: Maxwell and Stephens (2003) state that "if there is truly a wealth transfer from bondholders to shareholders, it must be due to an increased probability of default on the bonds." Similarly, Eberhart and Siddique (2002) note that "an SEO should benefit a firm's bondholders at the expense of its shareholders, ceteris paribus, because an SEO reduces the firm's default risk."

In frictionless markets, there would be no need to distinguish default and non-default components of returns to creditors around corporate events. Relaxing this unrealistic assumption, Longstaff, Mithal, and Neis (2005) note that the distinction between default risk and other factors is "of key importance from a corporate finance perspective because the presence of non-default components in corporate spreads could directly affect capital

structure decisions as well as the timing of debt and equity issuances." More precise measurement of changes in default risk around acquisitions, repurchases, and SEOs provides investors and firm managers with the direct consequences of these events to creditors unobscured by liquidity and other non-default factors.

There are several important reasons why prior bond event studies may fail to accurately capture changes in default risk. The first is methodological: many prior corporate bond event studies use only monthly return data, increasing the probability that returns are influenced by information unrelated to the event being examined. This use of monthly bond returns can lead to biased results, as documented by Bessembinder, Kahle, Maxwell, and Xu (2009). The use of corporate credit rating changes around corporate events is also problematic. Credit ratings are intentionally slow moving, lag behind information reflected in credit markets, and are biased by rating agency conflict of interest and analyst subjectivity.

The second reason relates to shortcomings of the cash bond market and subsequent evolution in the pricing of credit. Specifically, supply constraints and other frictions in the corporate bond market limit price discovery. Longstaff, Mithal, and Neis (2005) find that, although the majority of corporate bond spreads are comprised of default risk, a significant component of these spreads is not related to corporate credit risk but is driven primarily by bond illiquidity and time series variation. The introduction of daily credit default swap (CDS) spreads gives the researcher ability to directly measure event related changes in default risk. CDS spreads conveniently provide a single, constant maturity security measurement of default risk rather than requiring time-consuming aggregation across potentially hundreds of heterogeneous individual debt issues for a given firm. More importantly, as noted by Blanco, Brennan, and Marsh (2005) and Das, Kalimipalli, and Nayak (2014), credit default swaps have replaced cash bonds as the primary source of

price discovery in credit markets. With a better credit measurement security and a timelier event window less impacted by unrelated factors, the effect of these corporate events on firm default risk can be measured more accurately.

Using Bloomberg credit market data, I examine both bond returns and CDS spread changes around acquisitions, common equity repurchases, and seasoned equity offerings from 2002 through 2014 to reexamine the direct consequences of these events to creditors as well as potential interactions with shareholders. If both markets are effectively capturing only default risk, corporate events that exhibit negative (positive) bond returns will also exhibit increases (decreases) in CDS spreads.

I find that acquirer bond returns are negative and highly significant, while non-parametric tests indicate that CDS changes are statistically weaker and economically less significant. The mean spread increase in excess of CDS indices for acquirers is only 0.9 basis points (bps), compared to pre-acquisition spread levels exceeding 150 bps. Acquirer default risk increases, but this increase is only a small component of changes observed in the cash bond market.

I also find bond returns around common equity repurchase announcements to be negative and highly significant. While this result could support a repurchase-driven leveraging effect transferring wealth from bondholders to shareholders, CDS spread changes are indistinguishable from zero and do not support a repurchase related increase in default risk. Stripped of liquidity effects, repurchases incur no change in default risk, indicating a counterbalance between signaling benefits and increased leverage.

SEOs also exhibit differences between the two credit markets. Examining 436 SEOs with bond returns and 153 with CDS spread changes from 2002 through 2014, I find that bond returns are not significantly different from zero, yet CDS spreads exhibit significant

mean *declines of* 16.6 basis points. This result, along with multivariate tests showing that larger SEOs are associated with significant declines in CDS spreads, confirms the deleveraging effect of prior studies. However, controlling for other factors, equity CARs are positively (negatively) correlated with bond returns (CDS spread changes), providing support for a signaling hypothesis as well. Creditors primarily benefit from the deleveraging effect of SEOs, but this reduction in default risk is slightly moderated by the negative signals present in equity returns.

I find strong evidence that a measure of bond market illiquidity, the age of a firm's credit rating, significantly lowers bondholder returns around all three events. Despite the bond market's negative reactions to acquisitions and repurchases, little to no post-event decline in firm credit rating is observable. Contrary to prior studies, negative covenants specific to these events do not explain variation in either cash bond returns or CDS spread changes. These results suggest that time-varying credit market liquidity, not the presence of event related covenants, has greater impact on creditor wealth during these events. I also examine the influence of indenture characteristics (calls, puts, collateralization, and seniority) on individual bond returns. For instance, I find weak evidence that senior bonds perform better (worse) for acquirer (target) firms, secured bonds outperform during repurchases, and putable bonds become less valuable following SEOs.

I also present analysis of corporate event-level changes in the CDS-bond basis (i.e., non-default spread change differences between bond and CDS markets). I find that the CDS-bond basis changes around acquisitions, repurchases, and SEOs are weakly statistically significant but economically large, particularly in relation to changes in cash bond spreads. I introduce the basis credit ratio (BCR), the ratio between event window changes in the CDS-bond basis and overall bond spreads respectively, in order to better

understand the importance of liquidity and identify when cash bond reactions to events are less likely to reflect changes in firm default risk. BCR is consistently negative and highly significant, indicating that very large portions of total bond spread changes are driven by factors unrelated to default risk. Median BCRs in the primary sample show that liquidity changes make up 51.1%, 69.6%, and 50.9% of the cash bond spread change for acquisitions, repurchases, and SEOs respectively.

The drivers of even small CDS-basis changes are important on a scale this large: acquisitions, repurchases, and SEOs with traded CDS contracts represent over *$77 trillion* in total debt value over a 13 year period.[1] Changes in the CDS-bond basis are an economically large component ($39.9 billion in total liquidity driven wealth changes from 2002 through 2014) relative to excess bond spread variation ($10.6 billion in wealth changes). However, the basis point discrepancy between these credit markets, consistent with limits to arbitrage in credit markets documented in the literature by Bai and Collin-Dufresne (2013), is not large relative to transactions costs. Additionally, with the exception of the financial crisis period, CDS-based creditor wealth effects are generally much smaller than those experienced by shareholders, providing evidence that equity is influenced far more by changes in firm characteristics introduced by these corporate events.[2]

As pointed out by Bessembinder, Kahle, Maxwell, and Xu (2009), the requirement of traded CDS contracts does bias my samples towards larger firms and, as a result, I provide direct CDS-bond subsample comparison when applicable. I also provide, to the

[1] Total long and short term debt by event type for firms with traded CDS contracts (all firms), the primary sample in my study, is $34.74 trillion ($41.46 trillion) for acquisitions, $31.34 trillion ($53.83 trillion) for common equity repurchases, and $10.935 trillion ($15.415 trillion) for seasoned equity offerings. More information on a transaction level basis is available in Table 3.

[2] For example, while acquirer equity returns in my primary sample are not significantly different from zero, the bottom quartile of deals in the 2002-2014 sample period of my study destroyed $465 billion of acquirer equity value. Similarly, shareholders of the top (bottom) return quartile of common equity repurchasing (SEO issuing) firms gained (lost) a total of $335 ($85) billion.

best of my knowledge, the first examination of the representativeness of CDS event studies from a firm industry perspective. Surprisingly, financial firms are generally underrepresented while utilities are overrepresented, primarily in seasoned equity offerings. In aggregate, by performing event studies on spreads of credit default swaps, the most appropriate financial instrument, these results provide new information regarding the default-risk-related impact of acquisitions, repurchases, and SEOs on corporate security holders with potentially different interests.

The remainder of the paper is organized as follows. Section 2 discusses measurement of credit changes around corporate events, introduces the basis credit ratio, and summarizes the various drivers of bondholder returns around such events documented in prior literature. Section 3 describes the corporate event and credit market data during the sample period. Section 4 investigates individual and firm aggregate cash bond returns, changes in CDS spreads, changes in the CDS-bond basis, and the basis credit ratio around acquisitions, common equity repurchases, and seasoned equity offerings. Section 5 analyzes the default and liquidity related economic impact of these events to creditors and contrasts to shareholder effects. Section 6 presents robustness checks as well as industry considerations and selection biases for CDS event studies. Finally, section 7 provides a brief conclusion.

2 Creditors and Corporate Events

2.1 Measuring Corporate Credit Changes

Changes in firm default risk around corporate events have traditionally been measured using cash bond returns. Market innovations have introduced new financial instruments that more directly measure changes in credit quality. In particular, the use of credit default swap (CDS) contracts has grown substantially since the start of the 21st

century. After reaching a peak notional outstanding value of $33.142 trillion in 2008, the single name (i.e. individual firm) CDS market has declined to a total of $10.845 trillion in 2014, an amount still 191% larger than just ten years prior.[3] This relatively new financial tool allows banks and other financial intermediaries to hedge credit risk on their books from debt instruments issued by both firms and government entities. Empirical results from Longstaff, Mithal, and Neis (2005) indicate that, because cash bond spreads contain both interest rate risk and substantial liquidity components, CDS market spreads present the most direct available measure of default risk. Unlike cash bonds, which can be very difficult to short sell and often incorporate significantly large illiquidity premiums, credit default swaps are in zero net supply. These differences help to explain the findings of Blanco, Brennan, and Marsh (2005) who find that the CDS market leads the cash bond market and CDSs contribute *80%* of price discovery in bond prices. The emergence of CDSs as the best source of credit quality measurement has been driven by changes in institutional behavior. For example, Acharya and Johnson (2007) show that CDS prices incorporate inside information within financing banks before leveraged buyouts (LBOs) and Das, Kalimipalli, and Nayak (2014) provide evidence that many credit investors have shifted away from corporate bond to CDS markets. Bessembinder, Kahle, Maxwell, and Xu (2009) note that, because CDS contracts use a reference entity (firm, government, etc.) and not an individual debt security, CDS spreads conveniently aggregate debt instruments into a single variable, offering a more convenient tool for firm-level analysis.

CDS spreads also offer advantages relative to traditional credit agency-produced ratings. Corporate credit ratings are slow to respond to new information, may reflect substantial biases, and can be generally inconsistent over time. In fact, Flannery, Houston, and Partnoy (2010) suggest that CDS spreads might eventually serve as a

[3] See *Statistical Release: OTC Derivative Statistics at end-June 2014*, Bank for International Settlements (BIS) Monetary and Economic Department (http://www.bis.org/publ/otc_hy1411.pdf).

substitute for agency-produced credit ratings. Flannery, Houston, and Partnoy (2010) conclude that "CDS spreads reflect information more quickly and accurately than credit ratings." In Tang's (2009) credit rating refinement context, a continuous, market-based measure of credit quality like CDSs will likely reduce informational asymmetries relative to a slowly updating, agency-generated, and discrete credit rating. Time series variation in credit ratings may also be of concern. For example, Alp (2013) finds that rating standards are not constant over time and can vary substantially between investment and speculative grade issues. With biases and conflicts of interest in the debt ratings of structured fixed income products being notorious and still pervasive,[4] recent work by Fracassi, Petry, and Tate (2015) using credit analyst fixed effects also finds substantial biases in the ratings and yields of new and existing *corporate* bond issues. The authors link analyst biases to cash bond market prices and establish a connection to financing decisions made by firm managers. These decisions are likely to be optimal if based on default risk measurements with less bias. However, despite the reduction in bias due to the many market driven advantages associated with CDSs, few corporate finance studies have made extensive use of CDS spread data.

Additional credit rating agency-based biases are prevalent in bond markets. Kisgen and Strahan (2010) note that participants in cash bond markets face credit ratings-based regulations. For instance, many institutional investors are prohibited from holding bond issues that are not rated investment grade by one of the three primary credit rating agencies (Fitch, Moody's, and Standard & Poor's). However, to the best of my knowledge, no such restriction for participants in the credit derivative markets exists. Bond market participants, therefore, have incentives to anticipate changes in credit ratings. This is especially the case for downgrades, given that Hull, Predescu, and White

[4] See, for example, "*Credit Ratings Still Broken, Experts Say, Offer a Fix*", McClatchy Washington Bureau. July 9th, 2014 (http://www.mcclatchydc.com/2014/07/09/232835/credit-ratings-still-broken-experts.html).

(2004) find that negative credit rating revision events outnumber positive ones 4.5 to 1. The larger sample results of Hand, Holthausen, and Leftwich (1992) suggest that downgrades are more costly to bondholders (as well as stockholders) than upgrades are rewarding. In comparison, relatively small impact of ratings downgrades on CDS spreads are documented by Hull, Predescu, and White (2004). If credit rating agencies have not recently revised or reiterated a firm's rating prior to a corporate event (i.e., the credit rating is older or "stale"), this lack of current information may lead to lower bond prices (higher spreads) driven by an increased probability of a negative credit rating revision. Given these market structure liquidity components of cash bond spreads, index-adjusted bond returns may be capturing something in addition to, or instead of, meaningful changes in default risk related to corporate events.

Window length selection and time series variation are also highly influential in credit event studies. Specifically, many previous corporate events in the literature, including Billett, King, and Mauer (2004) (acquisitions), Maxwell and Stephens (2003) (equity repurchases), and Eberhart and Siddique (2002) (seasoned equity offerings), use only monthly data. Monthly returns increase the probability that extraneous firm developments may be driving results. Several prior studies, including Hand, Holthausen, and Leftwich (1992), attempt to address this issue by examining only smaller, "non-contaminated" subsamples. Bessembinder, Kahle, Maxwell, and Xu (2009) formally show that using daily bond data increases the power to detect abnormal returns compared to monthly data. Following this methodology, I use daily bond and CDS Bloomberg data from 2002 through 2014 to examine the announcement impact of acquisitions, common equity repurchases, and seasoned equity offerings (SEOs) on the creditors of transacting firms.

Unlike shareholders, bondholders generally do not have the ability to vote on these corporate transactions. The presence of protective covenants embedded within the outstanding debt of a firm, however, may influence creditor returns or prevent transactions from being proposed by management. For example, Reisel (2014) finds evidence that negative covenants reduce the cost of debt issuance. Using Bloomberg individual bond indenture data, I construct firm level, bond-price-weighted variables for merger restriction, payout policy restriction, and limited indebtedness covenants.[5] If a corporate event changes the value of such bond characteristics as puts, calls, collateral, and seniority, differences among a firm's bond returns can result. For instance, investors might sell junior or unsecured and buy senior or secured bonds within a firm if a corporate event increases default risk.

I also examine potential influence of bank debt (term loans and revolvers) usage on event-related changes in bond prices and CDS spreads respectively. This is relevant given that Norden and Wagner (2008) find that CDS spreads incorporate substantial information regarding private lending from banks and other financial intermediaries.[6] While bank debt is not part of the deliverable for a triggered CDS contract, defaults on bank loans can trigger a credit event and can influence firm default risk expressed in both cash bond and CDS spreads.[7]

Substantial time series variation is also seen in changes in both credit default swap spreads and cash bond prices. Increasing correlation among CDS markets, noted by the contagion effect of Jorion and Zhang (2007), suggests that credit time trends may be

[5] Bank debt covenant data from Nini, Smith, and Sufi (2009) are not available after 2005 nor do the authors include merger restriction covenants and are therefore not incorporated within my study.

[6] Financial intermediaries may be strategically involved in both private lending *and* CDS speculation. For anecdotal evidence, see "Blackstone Unit Wins in No-Lose Codere Trade: Corporate Finance" via Bloomberg (http://www.bloomberg.com/news/2013-10-22/blackstone-unit-wins-in-no-lose-codere-trade-corporate-finance.html).

[7] For more information regarding the role of bank loans in CDS credit event triggers, see "The Debate over Restructuring" in *ABC of CDS: The Credit Guide to Credit Default Swaps* via GFI Group (http://www.gfigroup.com/portal/pdfs/ABCofCDS.pdf).

important in years subsequent to earlier corporate bond event studies. The importance of this time series variation echoes the spread decomposition work of Longstaff, Mithal, and Neis (2005) in the cash bond market. Das, Kalimipalli, and Nayak (2014) note that CDS liquidity and price discovery were lower during the instrument's nascent period; they examine subsample periods to control for this time series variation. Longstaff (2010) specifically documents financial contagion during the financial crisis, thus I incorporate a 2007-2009 financial crisis indicator variable when small sample sizes do not permit the use of year fixed effects.

2.2 CDS-Bond Basis and the Basis Credit Ratio

Corporate cash bond spreads reflect more than simply credit risk of the underlying firm. De Wit (2006) and Bai and Collin-Dufresne (2013), among others, refer to this difference between the CDS spread and cash bond implied credit spread as the "CDS-bond basis."

$$\text{CDS-Bond Basis}_t = \text{CDS Spread}_t - \text{Bond Spread}_t \tag{1}$$

Longstaff, Mithal, and Neis (2005) find that individual bond and aggregate credit market liquidity are both important components of the CDS-bond basis. Time fixed effects and appropriate bond benchmarks can address the former, while a firm specific measure across all outstanding bond issues (i.e. price-weighted bid-ask spread) is needed for the latter. Bai and Collin-Dufresne (2013) show that the basis is usually negative and that its variation is principally explained by bond market liquidity risk, with smaller contributions from bond collateral quality and time-varying credit market conditions (funding costs and counterparty risk). Nashikkar, Subrahmanyam, and Mahanti (2011) show that firm-specific variables, such as firm leverage and asset tangibility, and individual bond characteristics, including covenants, influence average quarterly CDS-bond bases. Though

tax components of corporate spreads in cash bonds may not be present in CDS spreads, Longstaff, Mithal, and Neis (2005) also find that the effects of taxes are generally miniscule in comparison to liquidity.

Liquidity premiums in CDS markets, though economically small, are also shown to be statistically significant by Bongaerts, De Jong, and Driessen (2011). Comparably, individual corporate bond liquidity risk is recently shown by Lin, Wang, and Wu (2011) to be an economically significant component of expected bond returns. It follows that analyses of the liquidity driven differences between these two markets around corporate events should address measures of liquidity in both credit markets and potential interaction.

<Insert Figure 1>

Recognizing far greater illiquidity in the cash bond market and assuming CDS markets more accurately measure default risk, one can easily visualize events during which cash bond market participants may erroneously attribute changes in bond prices/spreads to increases or decreases in firm default risk. Figure 1 exhibits simulations of these scenarios. Image (a) shows little variation in the CDS-bond basis: bond z-spread and CDS spread move with near identical slope during the event window and express the same increase in default risk. Image (b) illustrates a negative liquidity shock decreasing the CDS-bond basis, while a credit shock increases bond and CDS spreads. The bond spread, however, has steeper slope during the event window and suggests a greater increase in default risk. Image (c) shows a negative liquidity shock decreasing the basis and increasing the bond spread but leaving default risk expressed in CDS spreads unchanged.

<Insert Table 1>

In order to better quantify default changes expressed in bonds following a corporate event, I introduce the basis credit ratio (BCR):

$$\text{Basis Credit Ratio}_{t-i,t+j} = \frac{\Delta\text{CDS-Bond Basis}_{t-i,t+j}}{\Delta\text{Bond Spread}_{t-i,t+j}} \tag{2}$$

The BCR captures the magnitude of non-default (predominantly liquidity-based) CDS-bond basis changes around the event relative to total bond spread changes. If the BCR is not different from zero, changes in the CDS-bond basis are negligible and bonds will accurately reflect changes in default risk. If the BCR is positive, we are more likely to observe the expected relationship between default risk and bond spreads (i.e. when bond spreads are increasing (decreasing), CDS spreads are also increasing (decreasing)). In situations where the BCR is negative or undefined, the expected relationship can reverse: increases (decreases) in bond spreads can be associated with decreases (increases) in default risk. If BCRs are between -1 and 0, the ratio describes the magnitude of liquidity (and other non-default) changes to total bond spread changes. Table 1 presents a summary matrix using the BCR to describe how meaningful changes in default risk are in each scenario. In short, the BCR provides a simple, firm aggregate measurement of how specific corporate events, such as acquisitions, repurchases, and SEOs, influence firm creditors in manners unrelated to default risk.

2.3 Acquisitions

Positive target bond and equity returns around acquisitions have been well-documented throughout the literature by Mandelker (1974) and others. Asquith, Bruner, and Mullins (1983) find positive returns to acquiring shareholders, while more recent evidence from Moeller, Schlingemann, and Stulz (2005) indicates economically large acquiring firm equity losses. Acquirer bond returns, however, have received less attention

in the literature. Assuming that acquirer equity returns are generally non-positive, observable benefits to creditors (positive returns to bondholders or declines in CDS spreads) may support an intra-firm wealth transfer hypothesis. If creditors experience wealth declines along with shareholders, an acquirer wealth destruction hypothesis across both debt and equity (or, alternatively described, an inter-firm wealth transfer from acquirer to target security holders) is applicable. Empirical studies of debt instruments around acquisitions can provide more insight.

One important work from Billett, King, and Mauer (2004), documents significant positive wealth effects to target bondholders, and significantly negative, though arguably economically insignificant, excess returns for acquirer bondholders from 1979 through 1997. Furfine and Rosen (2011) use Expected Default Frequency (EDF), a statistic developed by Moody's KMV, and find that mergers increase corporate default risk. These credit rating agency-produced data, however, introduce potential conflict of interest. Billett, King, and Mauer (2004) suggest that the magnitude of bond returns declines in the 1990s and attribute this result to the widespread introduction of event restriction covenants (ERC).

Other firm and deal characteristics documented in the literature may also strongly influence corporate credit quality. For example, Chang (1998) finds higher acquirer equity returns for deals involving private targets. Fuller, Netter, and Stegemoller (2002) find that acquisitions involving private firms represent over 80% of total takeover activity. The authors suggest that acquiring shareholders capture private target illiquidity discounts and other benefits. With respect to payment form, Travlos (1987) finds weak evidence of differences between stock and cash payment in acquiring bondholder returns, but the results of Billett, King, and Mauer (2004) indicate no difference in bondholder reaction with respect to form of payment. Acharya, Davydenko, and Strebulaev (2012)

show that exogenous declines (increases) in cash levels (i.e., those that are not a response to changes in credit), result in higher (lower) bond spreads. In an acquisition context, acquiring firms with improving credit gain better access to future financing via capital markets and may therefore choose to pay with more cash on hand.

Additional deal characteristics may also impact acquiring firm credit. For instance, acquirers may realize lower cost of credit in Amihud and Lev (1981) resulting from asset diversification in deals between firms of different industries. Penas and Unal (2004) examine any bondholder wealth effects specific to the financial industry, including acquisitions resulting in "too-big-to-fail" status. Almeida and Campello (2007) note that pledgeable assets, or tangibility, support more borrowing and thus credit spreads may widen to anticipate increased post-merger leverage levels. Klock, Mansi, and Maxwell (2005) find that strong antitakeover provisions lower a firm's cost of debt while Masulis, Wang, and Xie (2007) find that stronger governance (i.e., weaker antitakeover provisions) benefits acquiring shareholders in M&A transactions. Furfine and Rosen (2011) observe that higher idiosyncratic acquirer volatility and greater options compensation for acquiring CEOs both contribute to greater deal related incremental default risk. Hoberg and Phillips (2010) find that acquirers in more competitive product markets experience greater equity returns around deal announcement, especially when purchasing targets in less competitive markets. Given these findings, an analysis of acquisition-related changes in credit quality should also include controls for asset tangibility, corporate governance, equity volatility, executive compensation, CEO optimism/overconfidence, and product market fluidity. Both Harford, Klasa, and Walcott (2009) and Uysal (2011) examine the role of excess leverage and acquisitions. That is, it is important to control for the possibility that shareholders of post-acquisition firms moving to more (less) optimal

leverage ratios will benefit more (less). From the credit perspective, deals resulting in "too much" combined firm leverage may lead to increased default risk.

2.4 Common Equity Repurchases

Unlike acquisitions, event studies of common equity repurchases generally involve only characteristics of the single transacting firm. More importantly, while an acquisition may have either leverage-increasing or -decreasing effects, depending on a variety of deal characteristics, completed repurchases mechanically increase firm leverage. Repurchases are, in essence, partial leveraged buyouts of firms' shareholders, with the degree of leverage used determined both by the repurchase size and the source of financing (cash or debt). Ceteris paribus, the leveraging effect of equity repurchases will increase default risk of the firm, resulting in higher CDS spreads. Maxwell and Stephens (2003) describe this effect as wealth redistribution from bondholders to shareholders that is influenced by greater repurchase size and lower firm credit quality. To protect creditors from this type of wealth redistribution, some corporate bonds include covenants restricting form and size of payouts to shareholders.

Maxwell and Stephens (2003) also find support in cash bond returns for the signaling hypothesis of common equity repurchases. Early studies by Vermaelen (1981) and Dann (1981) find that positive equity returns around repurchase event windows are driven by positive information signaling by firms. Ikenberry, Lakonishok, and Vermaelen (1995) present evidence that the equity market's response to this signal is influenced by firm valuation, emphasizing the need to control for market-to-book ratio and lagged firm equity returns. Dann (1981) also analyzes bondholder returns but finds little evidence of signaling gains, or losses, to bondholders. With pure wealth redistribution, changes in total firm asset value will be zero around repurchases. However, since both Dann (1981)

and Maxwell and Stephens (2003) find increases in total firm value, these results do not rule out a signaling effect.

Additional factors that drive equity returns around repurchases may also influence creditors. For instance, Chen and Wang (2012) find that, despite financial constraints, managerial hubris induces repurchases that do not increase shareholder wealth. Similarly, firms with high levels of managerial (Fenn and Liang (2001)) and non-managerial (Kahle (2002)) stock options compensation engage in repurchases with less positive equity market reactions that can potentially increase default risk. Agency issues also follow from Berger, Ofek, and Yermack (1997), who find that more entrenched managers prefer lower leverage ratios and this may therefore influence repurchase decisions. Grullon and Michaely (2002) find that repurchases and dividends function as substitutes, suggesting that the presence of a recurring dividend yield can also influence market reaction to repurchases. Product market competition can also influence repurchase returns. Specifically, Massa, Rehman, and Vermaelen (2007) provide evidence of repurchase mimicking among rivals in highly competitive industries. Finally, liquidity issues around open market repurchases are also important to consider. Barclay and Smith (1988) show that information-asymmetries-related components of equity bid-ask spreads widen around repurchases. To address any liquidity-driven explanation of credit quality changes around corporate transactions, any analysis of differences reflected in bonds and CDSs should consider liquidity levels and interactions between the two markets, emphasizing the informative role of BCRs.

2.5 Seasoned Equity Offerings

Contrary to common equity repurchases, seasoned equity offerings (SEOs) mechanically increase equity and deleverage the capital structure of the firm. The impact of this change around SEOs is examined by Eberhart and Siddique (2002) in both

equity and bond markets. The authors find that the deleveraging effect of SEOs reduces default risk and results in a wealth transfer from shareholders to bondholders. Similarly, Elliott, Prevost, and Rao (2009) examine a sample of 99 SEOs with bond returns from 1990 through 2002 and find significantly positive returns that also support a "leverage risk reduction hypothesis." This deleveraging effect can also be described in the context of the near-term cash motivation of SEOs introduced by DeAngelo, DeAngelo, and Stulz (2010). An infusion of much-needed cash from the equity issuance should, all else equal, decrease the probability of and/or delay the firm's default, with an expected result of higher bond prices and lower CDS spreads.

<Insert Table 2>

SEOs also exhibit a strong informational signal. The seminal work of Myers and Majluf (1984) behind pecking order theory supports the signaling hypothesis of seasoned equity offerings (SEOs). The "rational investor reaction to [SEOs] is 'bad news'"; consistent with this Masulis and Korwar (1986) and subsequent studies document strongly negative announcement equity returns to SEO issuing firms. If this signaling hypothesis dominates the effects of deleveraging, creditors of the SEO issuing firm should experience negative wealth effects similar to shareholders. Bond covenants may also play a role in SEOs: if a firm is unable to issue new debt primarily because of the presence of limited debt negative covenants, this may influence the choice to issue equity and the strength of the signal received by credit and equity markets. Similar to common equity repurchases, extensive literature necessitates the incorporation of a wide variety of factors influencing SEOs, including market-to-book ratio, lagged firm stock return, product market competition, operating cash flow, asset tangibility, and manager-agent related variables. To summarize, I present hypotheses and related literature for both equity and credit wealth effects around acquisitions, repurchases, and SEOs in Table 2.

3 Data

3.1 Corporate Event and Control Data

I obtain all merger and acquisition, common equity repurchase, and seasoned equity offering transaction level data from SDC Platinum. Applicable accounting and Standard and Poor's credit ratings data are from Compustat and I retrieve stock price and volatility data from CRSP and OptionMetrics respectively. Since the International Swaps and Derivatives Association (ISDA) did not standardize credit default swap contracts until 1999 and the earliest Bloomberg/Markit CDS data are available for 2001, I only consider transactions, both completed and withdrawn, from 2002 through 2014. I begin filtering the initial SDC samples by eliminating all internal assets sales (acquisitions with the same target and acquirer CUSIPs) and all transactions involving firms outside of the United States. To limit the study to corporate events of sufficiently large economic impact, I remove all acquisitions, repurchases, and SEOs under $1 million dollars and those transactions with values less than 0.5% of a firm's market capitalization. For acquisitions, these filters reduce the raw SDC sample to an initial *All Deals* sample of approximately 13,850 deals from 2002 to 2014.

<Insert Table 3>

Summary statistics for acquirers and public targets in the *All Deals* sample are reported in column group (3) and (4) respectively of Panel A in Table 3. Similar sample descriptive statistics are available in Panel B and C for 8,066 repurchases and 6,551 SEOs respectively. I also provide sample statistics for primary samples in column (2) and CDS-bond subsamples in column (1). The primary samples include all initial sample

transactions for which a firm has a CDS ticker listed on Bloomberg.[8] This CDS ticker requirement results in 1,481 total merger and acquisition transactions, 1,342 repurchases in Panel B, and 525 SEOs in Panel C. The requirement of both CDS and bond event data further reduces the size of the CDS-bond subsamples.

I adjust *Total Assets* and *Market Cap* by the CPI index and report both in millions of 2014 dollars. Not surprisingly, both variables increase when moving from larger to smaller samples with available credit market data. To incorporate the impact of available debt capacity and leverage targets, I calculate excess leverage as the difference between observed and predicted leverage according to Uysal (2011).[9] *S&P Rating* is a numerical translation of the Standard and Poor's firm level credit rating according to Odders-White and Ready (2006).[10] The highest rating, AAA+, receives a score of 36 while the lowest rating, D, takes a score of 12. The *Investment Grade Rating* indicator variable takes a value of 1 if *S&P Rating* is greater than or equal to 25 (BBB-) and 0 if it is 24 (BB-) or below. *S&P Rating Age* is the number of days elapsed from the date of the firm S&P rating issue or reiteration to the event announcement date. A full list of variable definitions for event specific controls discussed in section 2 is provided in the appendix.

Comparing characteristics across samples, for acquisitions in Panel A, excess leverage is approximately twice as high in the CDS-bond subsample compared to the primary and full sample. Since the CDS-bond subsample also exhibits increased asset and market equity values, many of the differences (lower implied volatility, higher operating cash flow

[8] CDS ticker availability for the primary sample is equivalent to the *CDS Traded* variable definition in Saretto and Tookes (2013). If CDS spread quotes are available during the event, the firm is considered to have *CDS Trading*. If bond prices are also available, the event is a member of the CDS-bond subsample.

[9] Regression results for target leverage, calculated with Newey and West (1987) standard errors, are available in Table 15 of the appendix.

[10] I use the numerical rating convention of Odders-White and Ready (2006), rather than that of BKM, because translating NR (1) below D (2) can be misleading. In the Odders-White and Ready (2006) numbering, NR (no rating) ratings are treated as missing. This is consistent with the idea that a firm with no rating is not necessarily of worse credit quality than one in default (D).

yield, etc.) between the bigger samples and this CDS-bond subsample are driven by larger firm size. In contrast to the 1979 through 1997 sample of Billett, King, and Mauer (2004) or BKM, the acquirers in the primary sample are larger by total assets (7.72%) and market capitalization (28.37%).[11] These larger primary sample acquiring firm sizes are likely due to the more restrictive deal filters used in this study, as well as the CDS availability bias noted by Bessembinder, Kahle, Maxwell, and Xu (2009). These sample representation differences also explain lower target leverage (0.258 versus 0.44 in BKM). Differences in acquirer leverage (0.267 versus 0.41) may be due to changes in aggregate mean firm leverage over the sample periods. Though acquirer unadjusted implied volatility (unreported) is 2% higher for acquiring firms in the primary sample than for those in BKM, much of this difference (1.2%) is explained by higher systematic volatility in the 2002 through 2014 period.[12] Mean E-Index for acquiring firms in the primary sample is 2.492, a number nearly identical to the 2002 firm average of 2.49 found in Bebchuk, Cohen, and Ferrell (2009).

Credit ratings between the study samples, adjusted for the numbering method, are similar both in level and difference between acquirers and targets. Median target ratings are three notches below acquirer ratings compared to two for BKM. Alleviating some of the CDS availability concerns of Bessembinder, Kahle, Maxwell, and Xu (2009), primary sample investment grade ratings are similar for acquirers in column (2) (0.810 versus 0.82), though somewhat lower for targets in column (4) (0.341 versus 0.63). Additional summary statistics for public targets are presented in column (4) of Panel A. Targets are smaller in total assets ($3.76 versus $24.9 billion in BKM) and market value ($1.85 versus $5.7 billion). Targets exhibit median excess leverage of -3%. Differences in target size

[11] BKM sample acquirer mean market capitalization is $16.6 billion in 2014 dollars with mean assets of $43.1 billion.

[12] CBOE S&P 100 Volatility Index (VOX) data only goes back to 1986 while BKM study the 1979 through 1997 period. The VOX averages 19.2% from 1986 through 1997 and 20.4% from 2002 through 2014.
See http://www.cboe.com/micro/vix/historical.aspx for more information.

and excess leverage are likely driven by increasingly frequent and relatively larger acquisitions of private firms (73% of targets in the primary sample) and the inclusion of public targets without long term debt. On aggregate, with the inseparable exception of firm size and CDS availability, descriptive statistics in Panel A of Table 3 are similar to those found in prior literature.

Turning to common equity repurchases, the larger size of firms with traded CDS contracts is again apparent. Repurchasing firms with bond returns in Maxwell and Stephens (2003) have mean market capitalization (total assets) of $8.35 ($21.92) billion in 2014 dollars. These firms are substantially smaller than those in my primary sample but are comparable to members of the *All Repurchases* sample. Interestingly, these size differences are not driven by the inclusion of financials (and utilities): mean market capitalization for industrial firms in the primary (CDS-bond) sample is $30.75 ($41.92) billion, similar to the firm equity sizes presented in Panel B of Table 3. While lower for the *All Repurchases* sample (2.677 versus 2.99 in Maxwell and Stephens (2003)), repurchasing firms in the primary sample have 20% higher market/book equity ratios. Both mean and median repurchase sizes relative to market capitalization are larger from 2002 through 2014 when compared to 1980 through 1997, as well as to the 1990-2007 Chen and Wang (2012) time period. Similar to the 1990-2007 period, open market repurchases (OMRs) represent over 90% of share repurchases. In fact, this proportion has increased to above 94% in all three of my repurchase samples, further indicating that OMRs continue to dominate as the preferred repurchase method.

With respect to seasoned equity offerings in Panel C, the primary sample of my study has mean credit rating very close (25.12) to the 1980-1992 sample mean BBB- (25) of Ebberhart and Siddique (2002). Market/book equity ratios are substantially higher in my primary sample (2.239 vs 1.30) but are comparable to the 2.1 ratio of the 1990-2002

sample of Elliott, Prevost, and Rao (2009). In comparison to this more recent study of 99 SEOs, my primary sample has a mean market capitalization that is 42% larger ($9.21 versus $6.57 billion in 2014 dollars), of slightly lower duration (5.54 versus 5.7), and with a higher proportion of investment grade issuers (0.70 versus 0.61). Comparing leverage is more difficult in the SEO case because the authors of the 1990-2002 study do not provide total debt, only total liabilities relative to assets. SEO size relative to firm market capitalization in my primary and CDS-bond subsamples is similar to the 1990-2002 time period, but the *All SEOs* sample has mean and median SEO size that are nearly twice as large. While these comparisons do raise potential sample selection issues, particularly with respect to transacting firm size, the examination of different methods of measuring credit effects of acquisitions, repurchases, and SEOs is most economically meaningful for these largest events. Further discussion of sample representativeness, including industrial composition, is presented in section 6.

3.2 Credit Market Data

I obtain both cash bond and CDS data for the primary sample from Bloomberg. I employ Bloomberg data for several important reasons. The role of Bloomberg in credit market function is substantial: on April 17th, 2015, a two hour global outage across Bloomberg terminals forced the United Kingdom to delay a £3 billion debt offering.[13] Bloomberg users are able to access both cash bond and credit derivative pricing data in a single, convenient source. Data are easily accessible through the Open Bloomberg API via Bloomberg terminals available for use in most business schools.[14] Unlike dealer specific CDS data used in many prior studies, Das, Kalimipalli, and Nayak (2014) note that

[13] See *Bloomberg's Global Outage Paralyses Investors* via Financial Times at http://www.ft.com/intl/cms/s/0/2fc47e84-e4e3-11e4-bb4b-00144feab7de.html.

[14] I use RBloomberg, an R front end for Open Bloomberg Java API, to facilitate data collection. See http://findata.org/rbloomberg/.

Bloomberg has "an extensive coverage of CDS data and is widely recognized as a benchmark pricing source."[15]

Cash bond excess returns in the literature are calculated in excess of a credit quality appropriate bond benchmark index. For example, Billett, King, and Mauer (2004) use 18 different bond indices based on intermediate- or long-term maturity classification and nine Standard and Poor's bond ratings categories. To be consistent with the bifurcated credit quality of the hybrid CDS indices, I adjust investment grade (high yield) cash bond returns by the return of the Barclays Investment Grade (High Yield) Corporate Bond indices. These investment grade and high yield indices are further broken down into short (0-3 years), intermediate (3-10 years), and long (10+ years) maturity based indices.[16] Therefore, I calculate returns of individual firm bonds in excess of one of these six indices. Like the firm-level bond characteristic measures, firm-level bond excess returns are a weighted average based on the market value of each bond. I calculate aggregate firm p's bond returns for its n bonds as follows:

$$r_{\text{Bond}_{p,(t-i,t+j)}} = \sum_{q=1}^{n} \frac{\text{BondValue}_{p,q}}{\sum_{r=1}^{n} \text{BondValue}_{p,r}} \left(\frac{\text{BondPrice}_{p,t+j} - \text{BondPrice}_{p,t-i}}{\text{BondPrice}_{I,t-i}} - \frac{\text{BondIndex}_{g,m,t+j} - \text{BondIndex}_{g,m,t-i}}{\text{BondIndex}_{g,m,t-i}} \right) \quad (3)$$

Where each firm bond j with credit rating g has a maturity matched benchmark $\text{BondIndex}_{g,m}$.

For my analysis, I extend the standard [-1,+1] window generally used in the traditional event study literature to a longer [-5,+1] window due to permanent conditional information flow in credit instruments documented by Acharya and Johnson (2007).[17] As in BKM and most other bond event studies, all convertible bonds are removed to

[15] For a brief comparison of Bloomberg and Markit CDS spread data, see section 6.

[16] Excess bond returns are only available until April 1st, 2014 because Barclays was not willing to freely provide investment grade and high yield maturity matched index data after April 15th, 2014 for my analysis. For robustness, I provide credit rating level security returns and spread changes in Table 4A and Table 9A of the appendix respectively.

[17] Alternative event window specifications are presented in Table 14 of the appendix and discussed in section 6.

eliminate any contamination in prices from equity option components. *Number of Bond Issues* is the quantity of different bond issues in Bloomberg, regardless of price availability, matching the 6-digit CUSIP prefix of the transacting firm. *Bond Duration* is the change in price divided by the change in yield over the event window, both generated by Bloomberg. Like all of the cash bond variables, with the exception of *Number of Bonds, Bond Duration* is a weighted average for each acquiring firm observation based on the market value of each bond. *Cov Ratio: Limited Debt, Merger Restriction, and Payout Policy* are also weighted averages using Bloomberg's bond issue covenant indicator variables. While the higher mean and median values for *Cov Ratio: Merger Restrictive* support BKM's finding of widespread use of event restriction covenants (ERCs), a standard deviation of 0.29 in column (2) of Panel A in Table 3 suggests that there is indeed reasonable variation within this variable. *Cov Ratio: Limited Debt* and *Cov Ratio: Payout Policy* are less prevalent but exhibit similar levels of variation throughout all the transacting firm panels (B and C). A full list of bond characteristics captured from Bloomberg is available in the variable definitions section of the appendix.

I use several different variables to capture bond market liquidity. *Bond Relative Bid-Ask Spread* is a traditional liquidity measure calculated as the pre-event difference between ask and bid prices of a bond divided by the bid-ask midpoint. *Bond Trade Volume* is the number of trades across a firm's bonds reported to Bloomberg. I also calculate *Bond Age* to reflect off/on-the-run liquidity and *S&P Rating Age* to capture illiquidity related to the cash bond market's dependence on credit ratings. Because Houweling, Mentink, and Ton Vorst (2005) show limited differences between bond market liquidity proxies, I use only *Bond Relative Bid-Ask Spread* and *S&P Rating Age* primarily through my analyses.

Unlike heterogeneous bonds, credit default swaps are available on a set of standard maturities. Hull, Predescu, and White (2004) indicate that 85% of CDS quotes occur in the 5-year maturity. Since this liquidity concentration around maturity has persisted, I use 5-year CDS data exclusively throughout my study.[18] Prior to the event window, CDS spreads are quoted in basis points (*CDS Spread*) and I also obtain bid and ask CDS liquidity data from Bloomberg that are standardized into *CDS Bid-Ask Spread*. CDS pricing data are available for only 28.7% (425 observations) of acquiring firms in the primary sample. Cash bond data, however, are available for 879 acquirer observations (59.3%). For 1,340 public targets with some debt, CDS and cash bond data are available for 4.18% and 8.88% respectively. For common equity repurchases, CDS data and cash bond return data are available for 44.1% (592 observations) and 71.4% (958) of the primary repurchase sample. SEOs include bond data for 48.4% (254 observations) of the primary SEO sample, while CDS data represent 20.0% (105). As a reference point, Bessembinder, Kahle, Maxwell, and Xu (2009) present evidence suggesting that samples approaching 500 (120) observations have sufficient power to detect abnormal *price* shocks of ± 15 (50) basis points.[19]

Stock returns around these corporate events are calculated using Fama and French (1996) four factor value-weighted market index adjusted return, which is the standard convention in the merger and acquisition literature. However, CDS spread change adjustment procedures differ. My study follows the credit index adjustment methodology noted in Norden and Weber (2004). The best known United States centric CDS spread

[18] I use only CDS contracts referencing all senior debt obligations of the firm. Few firms, primarily financials, have active senior and subordinated CDS markets. Note that Table 3 indicates that over 90% of bond value for each transacting firm is unsubordinated. For more information about credit derivatives definitions, see *2014 ISDA Credit Derivatives Definitions* via International Swaps and Dealers Association (http://www2.isda.org/asset-classes/credit-derivatives/2014-isda-credit-derivatives-definitions/). CDS spreads are composite closing daily quote midpoints from the New York and London Bloomberg desks and several other dealer networks reporting to Bloomberg.

[19] Assuming duration of 5 and negligible non-linearity in the relationship between credit prices and spreads, this would be comparable to a change in credit *spread* of ±3 (10) basis points.

index, the Markit North American Investment Grade index, did not debut until October 2005. Its high yield counterpart, the Markit CDX North America High Yield index, was officially introduced the following month, but Bloomberg data availability for the index is not consistent until October 2009.[20] To adjust investment grade CDS changes prior to October 2005, I use the percentage change in the Bank of America Merrill Lynch (BAML) US Corporate Master Option-Adjusted Spread index. Similarly, prior to October 2009, high yield CDS changes are benchmarked by the percentage change in the BAML US High Yield Master II Option-Adjusted Spread index.[21] This produces both a hybrid investment grade and a hybrid high yield benchmark index used to adjust changes in single name CDS spreads relative to changes in the economy-wide corporate credit risk level. If a firm's credit rating is investment grade, its CDS spread change is adjusted by the change in the hybrid investment grade index. Otherwise, the excess CDS change is calculated relative to the hybrid investment grade index.[22] The CDS change is calculated as follows:

$$\Delta \text{CDS}_{t-i,t+j} = \left(\text{CDS Spread}_{i,t+j} - \text{CDS Spread}_{i,t-i}\right) - \left(\text{CDS Index}_{g,t+j} - \text{CDS Index}_{g,t-i}\right); \qquad (4)$$

where each firm's credit default swap CDS Spread_i has a credit rating-matched CDS Index_g. It is important to note that *positive* CDS spread changes (increased default risk) are analogous to *negative* cash bond excess returns and vice versa.

Because CDS spread changes and bond prices are not analogous, bond credit spreads must be calculated. To adjust for the term structure of interest rates, I retrieve the zero

[20] Bloomberg has some pricing data available for the Markit CDX North America High Yield index for 2007, but there are significant gaps in the data until October 2009.

[21] Both BofA Merrill Lynch Spread indices are obtained from the economic research database at the website of the Federal Reserve Bank of St. Louis at http://research.stlouisfed.org/fred2/categories/32297.

[22] Daily returns for these hybrid indices are significantly positively correlated (0.47, 0.01% level). An alternative index choice based on above/below median CDS spreads, rather than agency determined investment grade credit rating, is likely to produce similar results. Both parametric and non-parametric unreported tests show no significant difference in CDS excess returns between observations using the BAML versus CDX index.

volatility spread (z-spread) directly from Bloomberg data. Excess z-spread changes are constructed similarly to CDS spread changes but use only the BAML spread indices.[23] I also obtain the CDS-bond basis from Bloomberg, calculated as in formula (1) but incorporating an interpolated credit default spread (across the firm's CDS term structure) to match the maturity of an individual bond.[24] Detailed formulas for z-spread and CDS-bond basis calculation are available in variable definitions of the appendix. Similar to bond returns, I calculate individual z-spread and CDS-bond levels and changes as price-weighted firm aggregates. Consistent with Bai and Collin-Dufresne (2013), the basis is negative throughout each sample in Table 3, reflecting relative illiquidity in the cash bond market. The relative magnitude of liquidity driven to total spread changes can subsequently be measured with the basis credit ratio.

4 Empirical Results

4.1 Cash Bond Returns

I present firm aggregated bond returns and common stock excess returns over the [-5,+1] event window in Table 4. Panels A, B, and C display univariate statistics for acquisitions (both acquirers and targets), common equity repurchases, and seasoned equity offerings respectively. I display mean and median returns in percent and mark significant non-parametric cross-sectional differences after sample sizes. Due to asymmetric distributions of changes in both bond prices and CDS spreads, non-parametric

[23] Ideally, z-spread should be adjusted by maturity and investment grade/high yield spread indices similar to the bond price adjustment method. Again, Barclays was not willing to freely provide investment grade and high yield maturity matched spread index and no comparable replacement exists to the best of my knowledge.

[24] Z-spread and CDS-bond basis data are available in Bloomberg beginning from 2006. Elizalde, Doctor, and Saltuk (2009) and Bai and Collin-Dufresne (2013) recommend using the par-equivalent CDS spread (PECS) to calculate the CDS-bond basis because PECS calculation reflects the full CDS term structure. I do not use PECS for several reasons: 1) Bloomberg uses z-spread exclusively to derive the basis, 2) the full term structure of CDS spreads is not often available, especially in an event study window, 3) PECS calculations, by Elizalde, Doctor, and Saltuk (2009) own admission, are not straightforward, and 4) recovery rates are related to individual bond and firm characteristics for which controls are readily available. I also include controls for bond premium/discount that Elizalde, Doctor, and Saltuk (2009) note can influence basis trades.

univariate tests are emphasized throughout my study, as recommended by both Acharya and Johnson (2007) and Bessembinder, Kahle, Maxwell, and Xu (2009).

Median acquirer firm aggregate cash bond excess returns in column (1) of Panel A are exclusively negative and highly significant across each sample. CDS-bond subsample returns are significantly less (5% level) than those in the remainder of the full sample. Acquirer bondholder losses are moderated during the 2002-2006 period and exacerbated after 2010. Additionally, there are strong differences (0.01% level) in medians returns in firms with older S&P credit ratings. Differences between private/public target status and investment grade credit rating are insignificant.

<Insert Table 4>

I present target bond excess returns in column (2). Consistent with BKM, target bond returns are significantly positive across all three samples, increasing by 0.94% in the primary sample. Investment grade targets, targets with more recently updated credit ratings, and targets with below median bond relative bid-ask spreads (greater liquidity) perform better. Smaller sample sizes limit the power of some cross-sectional tests. Interestingly, the only negative cross-section, albeit insignificant, is for the six private firms with publicly traded bonds shown in the last two rows of Panel A.

Acquirer stock returns in column (3) of Table 4 are not different from zero in the primary or CDS-bond samples, but, consistent with Asquith, Bruner, and Mullins (1983), are significantly greater than zero in the full sample. Moving to the primary and CDS-bond samples, firm size increases greatly as median acquirer returns decrease to -0.092% and -0.370% respectively. These results are wholly consistent with prior period and size effect evidence from Moeller, Schlingemann, and Stulz (2004, 2005). Additionally, acquirer equity returns are lowest (0.183%) during the 2007-2009 financial crisis and

significantly lower, at the 0.01% level in non-parametric univariate tests, for acquisitions involving public, financial or utility, and investment grade targets. Target stock returns, consistent with prior literature, are exclusively positive and highly significant across every cross-section. Target returns exhibit cross-sectional differences over the three time periods, industry, and form of payment.

Univariate security excess return statistics for common equity repurchases are presented in Panel B of Table 4. Repurchasing firm bonds experience highly significant (0.01% level) excess returns of -0.403% to -0.357% and provide preliminary support for the leveraging hypothesis. Medians in the cross-section are significant at the 1% level or better in all but the specification with more recently revised S&P credit ratings, which are positive but insignificant. The presence of more liquid bonds and older credit ratings is associated with greater bondholder losses and emphasizes the role of credit market liquidity around repurchases.

Not surprisingly, mean (median) equity returns on [-5,+1] for repurchasing firms in column (2) of Panel B are significantly positive at 0.896% (0.882%) in the primary sample. This result is slightly lower than mean (median) repurchasing firm equity returns of 1.49% (1.10%) in Maxwell and Stephens (2003), however, the *All Repurchases* [-1,+1] mean (median) CAR of 1.5% (1%) in column (3) of Panel B in Table 3 is very similar. Equity returns in the primary sample are largest during the financial crisis and smallest in the 2002-2006 period just before. Non-parametric tests suggest that financial firms and utilities experience slightly lower stock returns when repurchasing shares than do industrial firms.

For seasoned equity offerings in Panel C of Table 4, firm aggregate bond returns in column (1) are generally indistinguishable from zero and fail to distinguish between

deleveraging and signaling effects. Only bonds in the full sample experience positive returns of 0.09%, albeit weakly significant at the 10% level. Similar to acquirers and repurchasing firms, bondholders of SEO issuing firms with more recently revised credit ratings experience significantly higher returns (1% level). Sample size is a particular concern given the lower number of SEO observations with bond return data (456) relative to acquisitions (1,225) and repurchases (1,131).

As expected, mean (median) stock return for firms issuing seasoned equity offerings is strongly negative at -1.837% (-1.838%) in the primary sample. Returns are 72 basis points higher than in the full sample, a difference that is significant at the 1% level. Every cross-sectional median equity return in Panel C of Table 4 is negative at the 1% level or better. SEO equity returns are lowest during the financial crisis and highest in the 2002-2006 prior period. Cross-sectional differences show that equity losses are exacerbated for both non-investment grade and industrial firms.

Disregarding liquidity effects, univariate cash bond results in Table 4 suggest that acquisitions increase acquirer default risk while target securities experience gains, consistent with inter-firm wealth transfer. Despite shareholder gains, repurchasing firm bondholders suffer losses, supporting the leveraging hypothesis. For SEOs, shareholder returns reflect negative signaling, while bondholder returns are mainly unchanged.

4.1.1 Acquisitions

Table 5 reports multivariate analyses of firm aggregate acquirer and target bond returns. Panel A includes results for acquisitions with public targets. The base specification in column (1) replicates much of the multivariate analysis of Billett, King, and Mauer (2004). Despite suffering from small sample size, *Cash Percentage of Payment* is significant at the 5% level. Specification (2) increases the sample size by changing

leverage and maturity variables; however the significance of cash is not persistent. Specifications (3) through (5) include event restriction covenant (ERC) variables. The coefficient on *Cov Ratio: Merger Restrictive* is insignificant and *opposite* the anticipated sign, casting doubt on the covenant-based explanation of time series variation in BKM. Specifications (3) and (4) incorporate bond market liquidity variables, but only *Log(S&P Credit Rating Age)* enters with the expected sign and significance (1% level). *Target Equity CAR* is included in specification (5) but enters insignificantly. An unreported specification shows similar results if target bondholder returns are used. With no relationship between acquirer bond returns and target securities after controlling for other factors, the wealth transfer hypothesis of acquirer creditors finds no support using cash bond market data.

<Insert Table 5>

Public target firm aggregate bond returns are analyzed in specifications (6) through (9) of Panel A. Confirming the coinsurance findings of BKM, target bonds benefit when the credit rating of the acquirer is higher. Unlike BKM, tender offer and hostile takeover variables are omitted as they are very rare events in the 2002-2014 sample period. The power of these specifications, however, is limited by small sample size given that 72.7% of primary sample acquisition targets are private.

Panel B of Table 5 shows analysis extended to both public and private targets. Specifications (1) through (4) are similar, with the exception of year fixed effects, industry fixed effects, and additional controls in the literature impacting acquirer equity returns. Validating the univariate statistics, only *Log(S&P Credit Rating Age)* enters significantly and remains consistent throughout each specification. Firm size (*Log(Market Cap)*), ex-ante acquirer risk (*Implied Volatility*), and industrial diversification (*Same Industry*

Dummy) enter with expected sign but are not generally statistically significant. Specification (5) introduces an interaction term for payment type and private target, while *Cov Ratio: Merger Restrictive* is again introduced in specification (6). Similar to public targets, ERCs show little benefit to bondholders during acquisitions.[25] Specification (7) again introduces traditional bondholder liquidity, while specification (8) finds a positive relationship with acquirer equity. Pervasive negative acquirer equity returns correlated (uncorrelated) with acquirer bondholder (target security) returns support the wealth destruction hypothesis.

Overall, multivariate analyses in Table 5 show significantly lower bondholder returns for acquirers with older credit ratings but no effect from merger restriction covenants. Acquirers making bigger deals and paying with more cash experience lower returns, but the wealth transfer hypothesis to target securities is not supported. Target bondholders benefit from coinsurance effects when an acquirer has higher credit ratings.

Table 6 documents individual bond returns around acquisitions. Specifications (1) through (5) explain variation in acquirer bonds with various fixed effects and additional controls. Older firm credit ratings are again associated with lower returns, however, several individual bond characteristics are also significant. The positive coefficient on *Bond Relative Bid-Ask Spread* suggests that individual bond returns are also responsive to traditional liquidity. Similarly, there is weak evidence that higher coupon (senior) bonds perform worse (better) than others. Deal size, industrial diversification, and eventual withdrawal all have the expected effect at varying levels of statistical significance.

[25] Since there is no way to observe deals that are not proposed due to the presence of merger restriction covenants, this result does not necessarily mean that merger restriction covenants are ineffective *during* mergers. An interaction term between withdrawn deal dummy and the merger restriction covenants variable is insignificant in an unreported specification. Since there are only approximately 30 withdrawn deals with bond returns, small sample size presents difficulties in determining whether or not the presence of merger restriction covenants leads to the withdrawal of deals detrimental to shareholders.

<Insert Table 6>

Multivariate results for individual target bonds are shown in specifications (6) through (8) of Table 6. While these specifications are limited by small sample size (less than 200 individual bonds), the results show similar negative effects from older credit ratings but higher returns for bonds with greater ex-ante liquidity.[26] Interestingly, specifications (7) and (8) suggest that only *target* bondholders benefit when event restriction covenants are present. In contrast to individual acquirer bonds, higher coupon and junior bonds perform better, the latter reinforcing the coinsurance effect. Similarly, putable target bonds may exhibit underperformance because coinsurance via acquisition makes default components of the put option less valuable.

Table 6 shows that both traditional and agency-based liquidity influence individual bondholder returns. The presence of merger restriction covenants benefits only bondholders of targets, not acquirers. Lower coupon and senior bonds outperform (underperform) for acquirers (targets), while put provisions weaken target bondholder gains. These results indicate that both firm-level and individual bond characteristics influence returns to acquirer bondholders.

4.1.2 Common Equity Repurchases

Drivers of firm aggregate bondholder returns around common equity repurchases are presented in Panel A of Table 7. Columns (1) through (3) display base specifications with various fixed effects and controls. Reiterating the univariate results, credit rating age enters negative and highly significant (1% level or better). Larger firms, higher ex-ante risk firms (*Implied Volatility*), and firms with shorter bond maturity experience greater bondholder losses. While negative abnormal cash bond returns around repurchases in

[26] In unreported specifications, I use bond age as an alternative traditional liquidity proxy for both acquirer and target bonds only to find similar results.

Table 4 support a leveraging effect, multivariate analyses of bond excess returns around equity repurchases may reveal a signaling effect. Coefficients on equity CAR in columns (4) and (6) of Table 7, however, are positive but of little to no significance. Similar to the firm aggregate acquirer bond results, coefficients of *Bonds Relative Bid-Ask Spread* and *Cov Ratio: Payout Policy* incorporated in specifications (4) through (6) are also insignificant.

<Insert Table 7>

Panel B examines individual bond returns around repurchases. Similar to Panel A, illiquidity from greater credit rating age lowers individual bond returns throughout each specification. Illiquidity effects of *Bond Relative Bid-Ask Spread* are also seen in specifications (4) through (6). There is weak evidence that bonds with limited debt covenants and collateral (*Bond Secured*) perform better. Given that an equity repurchase removes cash from the firm's assets and reduces overall firm collateral quality, it is not surprising to see bonds without specific collateral underperform. Subsequently withdrawn repurchases reduce returns by between 14 and 51 basis points, though the results are not statistically significant after the inclusion of firm fixed effects in specification (3). Finally, while negative univariate bond returns around repurchases in Table 4 suggest that a leveraging effect dominates, the positive and weakly significant signs on both *Repurchase Size* and *Equity CAR* s provide some evidence of a counterbalancing signaling effect.

Results in Table 7 indicate that lower credit rating-based and traditional liquidity reduce individual bond returns around common equity repurchases. Bonds of larger firms with riskier assets and shorter bond maturity underperform, while greater collateral backing of secured bonds provides protection. Bond and equity returns exhibit a positive

relationship, providing some support for counterbalance between signaling and leveraging effects.

4.1.3 Seasoned Equity Offerings

Table 8 displays SEO multivariate analyses of cash bond returns. Panel A reports firm aggregate bond returns and indicates the same effect for older credit ratings. *S&P Credit Rating* level itself is also consistently negative, providing weak support for univariate results in Table 4 that high yield firm bondholders see relative benefits of SEOs. Firms with higher market equity, leverage below target, and shorter bond maturity exhibit higher bond returns. Similar to the other two events, greater presence of related covenants (*Cov Ratio: Limited Debt*) does not influence bondholder returns. The coefficient on *SEO Size* is positive and highly significant. Given that SEO bondholder returns from Table 4 are generally not different from zero, it is not possible to attribute *SEO Size* to deleveraging or signaling using cash bond prices. The positive coefficients on *Equity CAR* in specifications (4) through (6), however, provide weak initial evidence of signaling. Please note that, with only 153 observations in specification (6), SEO sample sizes are substantially smaller than for the other two corporate events but are comparable to the 189 (1980-1992 time period) and 99 (1990-2002) observations in Ebberhart and Siddique (2002) and Elliott, Prevost, and Rao (2009) respectively.

<Insert Table 8>

Turning to individual bond returns around SEOs in Panel B, credit rating level and age effects are similar to Panel A. Putable bonds underperform in specification (6), an SEO deleveraging result analogous to acquisition coinsurance default risk reduction. *SEO Size* is again positive and highly significant throughout each specification. The signaling effect of *Equity CAR* in specifications (5) and (6) is stronger than the firm aggregate

specifications. However, given the persistent and strong influence of liquidity risk, particularly risk related to less recently revised or reiterated credit ratings found in all three events, examination of credit default swap spread changes may not agree with these cash bond results.

SEO multivariate results displayed in Table 8 indicate that larger issues lead to higher bondholder returns, consistent with the deleveraging effect. Embedded puts become less valuable with deleveraging. Coefficients on equity returns, however, suggest that a signaling effect may also be present. Bonds of firms with higher and less recently revised credit ratings underperform, while greater presence of limited debt covenants does little to protect bondholders.

4.2 Credit Default Swaps and the Basis Credit Ratio

To mitigate the influence of liquidity effects, excess credit default swap (CDS) changes are reported in column (1) of Table 9. Acquirer firms shown in Panel A1 exhibit statistically significant (at the 10% level or better) excess CDS spreads increases in all three samples. Assuming five year credit duration, this primary sample spread increase of 0.757 basis points translates into a default driven bond price change of -0.0378%, an amount less than 1/8 of -0.313% in Table 4. These results show that, while default risk does increase for acquirers, the change is very small relative to that implied by the cash bond market. Acquirer CDS spreads contract during the financial crisis and expand significantly in the following 2010-2014 period. Both deals with only cash payment and those involving public targets are also associated with higher CDS spreads. Unlike cash bond results, no significant cross-sectional non-parametric differences on *S&P Credit Rating Age* can be seen.

<Insert Table 9>

Column (2) of Table 9 displays firm aggregate changes in the CDS-bond basis. The basis increases by 0.59 basis points (significant at the 10% level) in the primary sample. Holding CDS spread constant, this implies a positive shock to bond market liquidity (i.e. the basis increases because bond spreads decline more than CDS spreads). Cross-sectional differences suggest that non-industrials and firms with more liquid CDS markets experience bigger increases around acquisitions. To examine the size of the basis change relative to the cash bond spread change, basis credit ratio (BCR) results are presented in column (3). Primary sample median BCR indicates that 51.1% of changes to bondholders are driven by liquidity. Median BCR is also exclusively negative in every cross-section and is significantly lower (at the 5% level) for non-industrial acquirers and those with no bank debt. Recalling Table 1, significantly negative BCR implies that an increase in default risk expressed by lower (higher) bond prices (spreads) is *less* likely. Consequentially, the presence of small increases in acquirer default risk can only be confirmed by directly examining CDS spread changes.

For completeness, I include CDS spread changes, CDS-bond basis changes, and BCR for target firms in Panel A2. Target CDS spreads are available during the event window for only 45 out of 1345 public targets with some debt. Median CDS spreads for targets decline significantly (at the 5% level or better), reiterating the cash bond results. Though changes in the CDS-bond basis and the BCR are not significant in any of the three samples, sample sizes are limited. Changes in the basis exhibit substantial time series variation and are significantly lower for investment grade targets.

Common equity repurchasing firm CDS spread and CDS-bond basis univariate statistics are presented in Panel B of Table 9. Contrary to cash bond returns in Table 4, none of the samples exhibit CDS spread changes different from zero in column (1). CDS spread increases occur in only two cross-sections: the 2002-2006 time period and

repurchases with above median bond trading volume. In short, there is no change in default risk around repurchases. Liquidity risk, however, is large and significant. Median CDS-bond basis changes in column (2) are significant (at the 5% level) in all three samples. The basis decreases more when ex-ante CDS spread levels and liquidity are higher. The magnitude of basis changes relative to total bond spread changes is substantial: BCRs in column (3) are statistically significant at the 1% level or better across all three samples. The results show that roughly 70% of bondholder wealth changes around repurchases are due to liquidity. This significantly negative BCR dispels the notion that repurchasing firm bondholder returns are due to increases in default risk.

Panel C presents univariate statistics for CDS spread and basis changes for seasoned equity offerings (SEOs). Spread changes are exclusively negative and often significant throughout the cross-sections. Column (1) shows that median (mean) CDS spread declines by nearly 3 (17) basis points in the primary sample. Similar to repurchases, CDS spreads decline more for firms with higher ex-ante CDS spread levels and liquidity. Mean decline in CDS spread is nearly five times larger for high yield issuers, though only 37 observations are present. Changes in the CDS-bond basis are negative but are generally insignificant. However, SEOs with both cash bond and CDS data are limited, as can be seen by some cross-sections with fewer than 40 observations. Median BCR is negative and relatively large (50.9% of total bond spread changes) and indicates that liquidity risk is comparable to default risk around SEOs.

<Insert Figure 2>

To contrast different measures of default risk and examine the role of liquidity, I present visual evidence in Figure 2. Columns (1), (2) and (3) show time series variation for Standard & Poor's credit ratings, 5 year credit default swap spreads, and cash bond z-

spreads respectively. To clarify, lower (higher) CDS/bond spreads (credit ratings) are associated with less default risk and vice versa. Acquirers and repurchases exhibit no change in credit rating during the 30 calendar days before and after the event, while SEOs exhibit a very small downtrend beginning 5 days after the issuance. In aggregate, credit ratings contain little to no timely information regarding the corporate event. Column (2) shows a small increase in CDS spread at acquisition date, consistent with univariate results. Repurchases exhibit a slight upward trend over the entire time series, but little change at repurchase date, while SEOs show a substantial downward trend in spreads along with a small decrease at the issue date. The variation within CDS spreads suggests that timely information about firm default risk is incorporated around these events. Lastly, column (3) displays time series of cash bond z-spreads. Acquisitions and repurchases contain substantial noise in the form of liquidity, while SEOs exhibit a similar downward trend despite this noise.

With differences between corporate credit measurements at center, the primary takeaway from Table 9 and Figure 2 is clear across all three transaction types: credit ratings (no noise, but no signal), cash bonds (signal with noise), and CDS spreads (signal with no noise) can provide very different results regarding changes in default risk around corporate events. Contrary to cash bond results in Table 4, Table 9 indicates that acquisitions slightly increase default risk, repurchases have no effect, and SEOs substantially reduce default risk.

4.2.1 Drivers of Firm Default Risk around Corporate Events

Similar to the bond return analyses in section 4.1, I present CDS spread multivariate specifications for acquisitions in Table 10. Contrary to bond analyses, I use log transformed pre-event CDS spreads in place of numeric credit ratings when CDS spread changes are the dependent variables. While CDS specifications have smaller sample size

than bond returns in Table 5, weakly significant coefficients on *Acquirer Equity CAR* again provide some support for wealth destruction (lower equity returns and greater default risk reflected in higher CDS spreads). Subsequently withdrawn deals also show increases in CDS spreads. For comparison purposes, I include specifications with excess z-spread changes in columns (5) through (8).[27] Surprisingly, coefficients on *Log(S&P Credit Rating Age)* are negative (opposite the direction of bond returns in Tables 5 and 6) but statistically insignificant. With the exception of *Relative Size* in columns (5) and (6) and *Implied Volatility* in specification (8), no significant coefficients are present.

<Insert Table 10>

Multivariate analyses of credit spreads around common equity repurchases are displayed in Table 11. Specifications (1) through (3) examine CDS spread changes and show that smaller, less risky firms with longer bond maturity see small, but mainly insignificant, increases in default risk. Open market repurchases and subsequently withdrawn repurchases show similar effects. *Equity CAR* and *Excess Leverage* are both insignificant, which, combined with the insignificant overall sample CDS spread changes, suggests that signaling and leveraging effects may be counterbalancing. Specifications (4) through (6) use excess z-spreads as the dependent variable and again show the consistent and significant (at the 5% level) liquidity effect of untimely credit ratings on increased cash bond spreads (lower returns).

<Insert Table 11>

Table 12 presents credit spread multivariate analyses for SEOs. Smaller sample sizes (only 94 observations with control data) are seen in specifications (1) through (3). Highly

[27] As previously noted, *Bond Premium/Discount* is added in these specifications to adjust for bond spread calculation method (z-spread versus PEC spread) with respect to basis trades.

significant coefficients *Equity CAR* and adjusted *Implied Volatility* suggest a signaling effect. However, significant univariate decreases in CDS spreads and *SEO Size* also support a general deleveraging effect and a relieving operating cash infusion of DeAngelo, DeAngelo, and Stulz (2010). Negative *Market/Book Ratio* coefficients provide weak support for market timing as well. Specifications (4) through (6) using bond spreads offer somewhat different results. While larger SEOs again have lower credit spreads, *Equity CAR* coefficients are positive and weakly significant. Greater presence of limited debt covenants, as was the case for the covenants specific to acquirers in Table 10 and repurchases in Table 11, has little impact on either CDS or cash bond spreads in Table 12. With respect to liquidity, older credit ratings and lower ex-ante bond bid-ask spreads both significantly increase bond spreads, but no analogous effect is seen from CDS liquidity.

<Insert Table 12>

Overall, multivariate spread change analyses in Table 10, 11, and 12 confirm wealth destruction effects around acquisitions, counterbalancing signaling and leveraging effects of repurchases, and predominantly deleveraging effects of SEOs partially offset by signaling. Both repurchasing and SEO-issuing firm z-spreads increase if older S&P credit ratings are present. Differences in the drivers of event related CDS and bond spread changes are observable. Bond spreads do not reflect eventual withdrawal of acquisitions and repurchases. For ex-ante riskier firms, only CDS spreads exhibit significant declines.

4.2.2 CDS-Bond Basis and Liquidity

Given the aforementioned differences between cash and derivative credit markets, how does liquidity in each market influence the CDS-bond basis? If event-related changes in CDS market liquidity are driving changes in the CDS-bond basis, then the widely

accepted notion that CDS markets better capture default risk may be called into question. Despite significant increases in CDS spread levels around leveraged buyouts, Acharya and Johnson (2007) find little LBO-related impact on CDS *bid-ask* spreads. To examine this possibility during acquisitions, repurchases, and SEOs, I present visual evidence in the form of time series multi-market spread and CDS-bond basis levels 30 calendar days prior to and after these corporate events in Figure 3.

<Insert Figure 3>

Column (1) of Figure 3 includes CDS and equity bid-ask spreads. There is substantial noise in each of the time series. CDS bid-ask spreads in row (a) appear to decline at the acquisition event but quickly revert back to prior levels. No change in CDS liquidity is observable around repurchases. SEO CDS bid-ask spreads appear to spike up but also revert. Column (2) displays overlays of CDS and firm aggregate bond-bid ask spreads. Bond spreads do not exhibit any observable change around the event date relative to noise in the entire time series and no correlation is easily seen between the two time series. In fact, unreported results show that bond and CDS bid-ask spreads are actually negatively correlated (uncorrelated) during acquisitions and repurchase (SEO) event windows. Column (3) of Figure 3 displays time series of the CDS-bond basis itself. While the basis appears to trend upward following an SEO, no movement around the event date can be found for repurchases and acquisitions. Similar to cash bond spreads in Figure 2, noise in the basis throughout the time series is substantial, suggesting than any changes in the CDS-bond basis during the event window may have significant idiosyncratic components.

<Insert Table 13>

To demonstrate this more formally, Table 13 further examines the drivers of the CDS-bond basis in a multivariate setting. Pooled regressions with event fixed effects are presented in columns (1) and (2).[28] Specification (2) includes firm level variables in prior literature known to impact the CDS-bond basis including collateral (*Asset Tangibility*), leverage, and firm-aggregated bond *Premium/Discount.* Surprisingly, *Log(S&P Credit Rating Age)* is insignificant in all specifications. Only relative bid-ask spreads in cash bond markets appear to have any influence CDS-bond basis: traditional bond market illiquidity drives the basis lower. This effect is largest during acquisitions in specifications (3) and (4) but consistent in sign through repurchases and SEOs. However, neither CDS nor CDS-bond market liquidity interaction have any consistent effect on event related changes in the CDS-bond basis.

Together, Table 13 and Figure 3 present multivariate analysis of CDS-bond basis changes and contrast time series with traditional liquidity measures. Similar to bid-ask spreads in transacting firm equity, cash bonds, and credit default swaps, the CDS-bond basis exhibits substantial time series variation. Importantly, only bond market liquidity significantly influences event related changes in the basis.

5 Economic Significance

5.1 Total (Bond Spread) versus Liquidity (CDS-Bond Basis)

Having demonstrated that corporate event related credit quality changes can differ in statistical significance based on the choice of credit instrument, better understanding the economic magnitude of these differences will be helpful to corporate creditors. In section 2.2 and section 4.2 respectively, I describe theoretically and show empirically how

[28] Following Hu, Pan, and Wang (2013), I also include a time noise risk factor in unreported specifications but find the results unchanged.

basis credit ratios (BCRs) during these events can explain the magnitude of CDS-bond basis changes relative to total bond spread changes. To examine this further, I scale excess z-spread and CDS-bond basis changes by firm book debt value and price-weighted duration of that debt to estimate overall cash bond and liquidity-only wealth effects for creditors.[29] The results are shown in Figure 4. Notice that liquidity variation in column (b) is generally larger than in column (a), particularly for acquisitions and repurchases. Disregarding 2009, mean cash bond wealth changes are essentially zero for acquisitions which liquidity wealth effects are slightly larger. In the case of common equity repurchases, excess changes in cash bond spreads from 2006-2014 reflect a net gain of $2 billion, while the net loss attributable to liquidity effects is *three times as large*. In the last row, liquidity losses underestimate default risk reduction SEO bond wealth gains during the financial crisis. In short, when accounting for firm liability size and sensitivity to credit spread changes, liquidity remains a massive component of creditor wealth effects.

<Insert Figure 4>

These economically large CDS-bond basis changes, however, are not inconsistent with limits to arbitrage in credit markets as documented by Nashikkar, Subrahmanyam, and Mahanti (2011) and Bai and Collin-Dufresne (2013). Consider the corporate credit spread change due to these corporate events in relationship to transaction costs. Schultz (2001) finds that round trip trading costs for corporate bonds average 27 basis points from 1995 to 1997. Even assuming that round trip transactions costs in the cash bond market have reduced by two-thirds in the last 15 years, costs exceed mean primary sample CDS-bond basis changes in column (2) of Panel B in Table 9 by 385%. Firms with greater numbers of bond issues will incur even higher transactions costs.

[29] Since market prices are not available for all firm debt instruments and firm issuance of multiple 6-digit CUSIP debt instruments is not uncommon (particularly for financial firms), using book value of debt is a more complete measure of economic significance.

Similarly, transactions costs in CDS markets relative to corporate event spread changes are also large. A recent working paper by Biswas, Nikolova, and Stahel (2015) finds that round trip effective spreads in single-name CDS transactions from dealers to non-dealer market participants range from 27.6 to 45.8 basis points. This cost is at least 1.6 (9.5) times the mean (median) SEO CDS spread change in column (1) of Panel C in Table 9. As a Bloomberg derived measure of CDS liquidity, median (mean) quoted bid-ask spreads in Table 3 for CDS contracts in the primary sample are 6.33 (10.883), 5.42 (11.306), and 10.72 (27.30) basis points respectively for acquisitions, repurchases, and SEOs. The magnitudes of these credit market bid-ask spreads represent the bulk of the CDS-bond basis changes in column (2) of Table 9. With respect to transactions costs in either market, corporate event related changes in CDS-bond basis are small and leave any potential arbitrage opportunities difficult to implement.

5.2 Default (CDS Spread) versus Equity

Comparing credit related bondholder to shareholder wealth effects around corporate events disregarding market frictions may lead to conclusions that the former are large relative to the latter. Changes in default risk captured by credit default swap spreads mitigate this issue. To explore this further, I present visual evidence in Figure 5 comparing CDS derived gains/losses to creditors and shareholders. Similar to the excess z-spread transformation in the previous section, I calculate *CDS Based Mean Credit Gain [Loss]* using CDS spread change and plot annual time series gains/losses in column (a). *Equity Value Gain [Loss]* is the transacting firm stock excess return times the pre-event announcement firm market capitalization (in 2014 dollars) presented in column (b).

<Insert Figure 5>

Much larger equity variation is observed in column (b) of Figure 5, with two notable extraordinary exceptions for acquisitions (2008) and SEOs (2009-2010). For acquisitions displayed in the first row, the mean loss to acquirer equity holders (creditors) for deals from 2002 to 2014 in the primary sample is \$128.5 (\$32.97) million. Not including 2008, a year skewed by extremely large financial deals including J.P. Morgan's acquisition of Bear Stearns and Bank of America's merger with Merrill Lynch, CDS-based acquisition-related wealth changes accruing to creditors result in a mean *gain* of \$16.23 million. For common equity repurchases, stockholders gain an average of \$254 million over the 2002-2014 period, while creditors experience a gain of only \$15.79 million. Like acquisitions, SEO observations are highly influenced by the financial crisis period. While there is more variability in column (b) of the third row in Figure 5, large gains to creditors occur primarily around 2009. For the entire time period, SEO issuing stockholders lose an average of \$168.9 million while creditors gain \$637.8 million. While this evidence may add further support for an SEO deleveraging wealth transfer effect, consider that financial slack from SEOs issued around the financial crisis provided substantial relief to creditors. Discarding 2009-2010 SEOs, mean losses to shareholders are \$171.7 million and creditors experience mean *losses* of \$19.75 million. Overall, across all three transaction types, this CDS-based evidence suggests that the economic magnitude of gains/losses to shareholders is generally much larger than creditor losses resulting solely from changes in default risk due to these corporate events.

6 Robustness

6.1 Additional Specifications

It is possible that the results presented herein are limited by credit rating benchmark granularity mismatching and/or event window selection. First, recall that

Markit corporate CDS indices are only available for investment grade and high yield, as opposed to credit rating level specific groups.[30] To be consistent across credit instruments, bond returns are also adjusted by investment grade/high yield indices with three maturity levels. Prior fixed income event studies, particularly Billett, King, and Mauer (2004), use as many as 9 credit rating dimensions. While multivariate tests control for both credit rating and bond maturity, this presents the possibility that more significantly negative cash bond excess returns, relative to CDS spread changes, may be driven by less specific benchmarks for a particular credit rating level. To address this possibility, I reproduce Table 4 to include credit rating cross-sections for excess bond returns; the results are displayed in Table 4A of the appendix. Similarly for Table 9, excess CDS spread changes, CDS-bond basis changes, and basis credit ratios by credit rating are included in Table 9A. Though some non-parametric significant differences between rating categories are shown, signs are generally consistent in each event column and there is no discernable pattern across event types suggesting a bias present in a specific credit rating category.

Because Hull, Predescu, and White (2004) find that the CDS market anticipates negative credit events, I also extend the event window to [-15,+15] and recalculate univariate statistics for cash bond returns, CDS spread changes, and CDS-bond basis changes. The results are similar; they are included in Table 14 of the appendix. I also include various cross-sections of returns on the standard [-1,+1] event window used throughout the literature. While differences between the cross-sections are generally less significant, the distinction between bond returns, CDS spread changes, and the relative

[30] Though prior forms of the Markit CDX index have existed since 2001, CDX investment grade (high yield) index historical data are available in Bloomberg from 2003 (2007). In 2009, S&P/ISDA launched investment grade and high yield corporate CDS indices with two additional sub-indices and introduced industry CDS indices the following year. For an extended history of CDS indices, see *Sector Credit Default Swap Indices* via ETF.com at http://europe.etf.com/europe/publications/journal-of-indexes/articles/8370-sector-credit-default-swap-indices.html?fullart=1&start=5

magnitude of CDS-bond basis changes (including unreported BCRs) are similar to those constructed on a [-5,+1] event window.

6.2 Representativeness

CDS spread and CDS-bond basis sample sizes, particularly for the SEO cross-sections, may limit the power of some empirical tests. As a test of robustness to small sample size, whenever possible, I replicate the regressions of Tables 5 through 8 and 10 through 13 using bootstrapped standard errors clustered on event year and find these untabulated results to be similar to those reported. There are also some corporate CDS contracts for which historical prices are not available via Bloomberg.[31] Addressing the academic market, Markit began providing CDS data directly via Wharton Research Data Services (WRDS) in January 2013. Markit, like Bloomberg, also uses quote and price aggregation among dealers and both are likely representative of overall CDS daily market activity.[32] However, my preliminary analysis suggests that, while Markit data include 50% more CDS reference entities than Bloomberg, the vast majority of these additional CDS contracts have infrequently updated quotes and limited price discovery. These incremental data points, therefore, will be less useful in an event study.

With respect to representation by industry, Bessembinder, Kahle, Maxwell, and Xu (2009) suggest that coverage in the CDS market is concentrated in utility firms (SIC code 49xx). Utilities represent 6.43%, 3.13%, and 20.57% of the primary samples of acquisitions, repurchases, and SEOs respectively. This compares to 4.19%, 1.54%, and 6.82% for full sample firms with some debt, suggesting utility overrepresentation is present for SEOs. For corporate events involving financial firms (SIC code 6xxx), primary sample (full sample) representations are 24.60%, 21.72%, and 30.10% (30.96%,

[31] There are also instances when historical CDS-bond basis data are available from Bloomberg but CDS spreads are not and vice versa.
[32] Das, Kalimipalli, and Nayak (2014) use both Bloomberg and Markit CDS inception date data and find no differences in their results.

27.53%, and 29.59%) respectively. However, significantly higher CDS spread changes are observable in the financial and utility cross section only for acquirers in Table 9 and financial and utility SIC code indicator variables added to specification (1) in Table 10 enter insignificantly (untabulated).

<Insert Figure 6>

To further explore any industry biases, I present relative frequency histograms of 2-digit SIC codes by corporate event in Figure 6. The first chart shows that primary sample acquisitions are substantially underrepresented in business services (SIC code 73, -5.73%). Repurchases have fewer depository institutions (i.e. commercial banks; 60, -11.01%). SEOs are underrepresented in chemicals (28, -5.9%) and business services (73, -5.01%) while overrepresented in utilities (49, 13.05%) and liquid energy pipelines (46, 5.13%). Representation extends beyond utilities in each of the events, emphasizing the need to control for industry effects when using CDS spreads in corporate event studies.

Substantial size reduction from the *All Events* to primary and CDS-bond samples suggests that the argument of Bessembinder, Kahle, Maxwell, and Xu (2009), in which CDS trading simply does not occur for a sufficiently high number of corporate entities, is somewhat applicable. If smaller firms with less liquid credit markets exhibit substantially different event-related credit returns than firms with traded CDS contracts, this will limit the generalizability of my results. However, the largest firms with public debt represent the greatest economic impact of corporate event activity and are increasingly predominant throughout single name CDS markets.[33] Additionally, if CDS liquidity declines, due to

[33] Saretto and Tookes (2013) show that the number of S&P 500 member firms with available debt information and active CDS markets increases from 23.4% in 2002 to 64.7% by 2010.

regulatory actions such as naked CDS bans,[34] then event studies using CDS data in future time periods may present even greater challenges.

7 Conclusion

Through the use of both cash bond returns and credit default swap (CDS) spread changes, I examine changes in default risk around acquisitions, common equity repurchases, and seasoned equity offerings (SEOs). Largely consistent with prior studies, firm aggregate price-weighted cash bond returns from 2002-2014 suggest significant increases in default risk resulting from acquisitions and common equity repurchases and no significant change from SEOs. The presence of event-specific covenants does nothing to influence excess bond returns. Rather, lower bondholder returns are driven by liquidity risk, both in traditional (bid-ask spreads, etc.) and market structure (credit rating age) forms.

The single instrument simplicity, lack of subjectivity, and enhanced liquidity of CDSs presents a far more useful tool than cash bonds for determining how corporate events influence default risk. CDS spreads exhibit small changes in default risk for acquisitions, no change around repurchases, and large decreases following SEOs. These results differ from cash bonds and provide support for acquisition wealth destruction, repurchase signal/leveraging counterbalances, and deleveraging effects of SEOs. As CDS contracts move to central clearing houses, resulting in greater levels of transparency and trading activity, it is likely that CDS-based corporate event studies will be even more widely available and informative.

While firm managers engage in these corporate transactions to optimize shareholder value, they must also evaluate deviations from optimal financing policy expressed by

[34] See *Analysis: 'Naked' CDS Ban and Eurozone Calm* via Reuters (http://www.reuters.com/article/2013/04/17/us-investment-nakedcds-idUSBRE93G05Q20130417).

changes in firm default risk. Misattributing largely uncontrollable credit market liquidity risk to default risk can thereby influence managerial decisions. To measure this liquidity effect, I examine changes in the CDS-bond basis and the basis credit ratio (BCR). Changes driven by liquidity are large relative to total bond spread changes (50-70%), emphasizing the need for managers and investors to more accurately identify event related changes in firm default risk.

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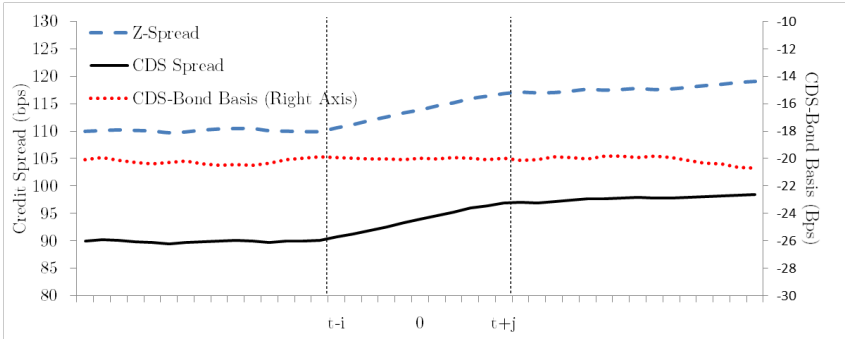
FIGURE 1

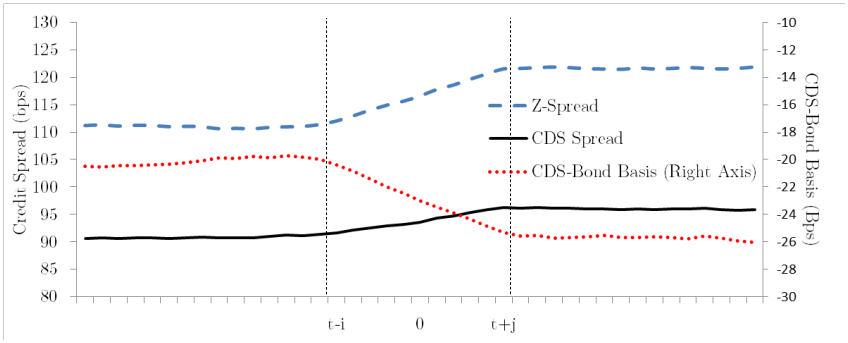
Impact of Credit Market Liquidity on Corporate Events

(a) Negative Credit Shock from Corporate Event *without* Change in CDS-Bond Basis



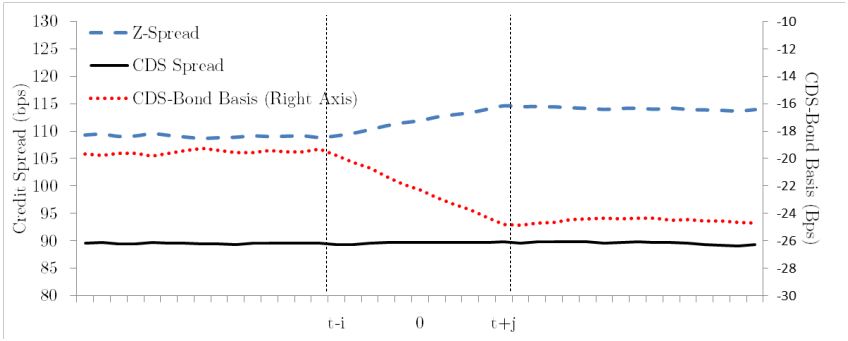
Negative Credit Shock (Pictured) $\rightarrow \Delta cds_t = cds_{t+j} - cds_{t-i} > 0 \quad \Delta zspr_t = zspr_{t+j} - zspr_{t-i} > 0$
Positive Credit Shock (Not Pictured) $\rightarrow \Delta cds_t = cds_{t+j} - cds_{t-i} < 0 \quad \Delta zspr_t = zspr_{t+j} - zspr_{t-i} < 0$
$\Delta basis_t = \Delta cds_t - \Delta zspr_t = 0$

(b) Negative Credit Shock from Corporate Event *with* Change in CDS-Bond Basis



Negative Bond Liquidity Shock (Pictured) $\rightarrow \Delta basis_t = \Delta cds_t - \Delta zspr_t <$
Positive Bond Liquidity Shock (Not Pictured) $\rightarrow \Delta basis_t = \Delta cds_t - \Delta zspr_t > 0$

(c) Absent Credit Shock from Corporate Event *with* Change in CDS-Bond Basis

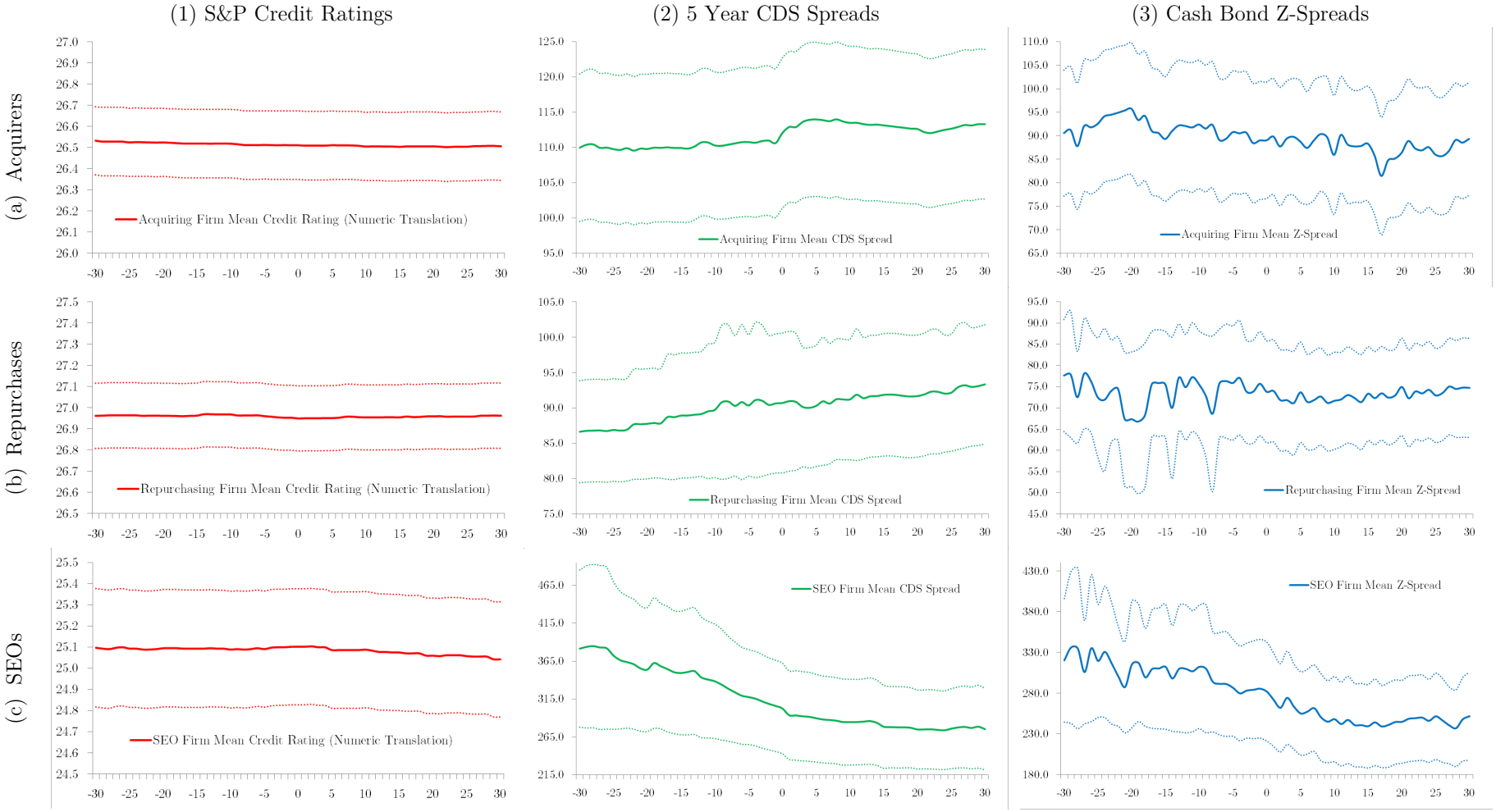


Negative Bond Liquidity Shock (Pictured) $\rightarrow \Delta basis_t = \Delta cds_t - \Delta zspr_t < 0$
$\Delta cds_t = cds_{t+j} - cds_{t-i} = 0 \quad \Delta zspr_t = zspr_{t+j} - zspr_{t-i} > 0$
Positive Bond Liquidity Shock (Not Pictured) $\rightarrow \Delta basis_t = \Delta cds_t - \Delta zspr_t > 0$
$\Delta cds_t = cds_{t+j} - cds_{t-i} = 0 \quad \Delta zspr_t = zspr_{t+j} - zspr_{t-i} < 0$

Time series in Figure 1 are simulated using CDS-bond basis, cash bond spread, and CDS daily spread noise of 0.25 bps, a CDS-basis bond liquidity shock of -5 basis points, and a CDS credit spread shock of +5 basis points on the event window [t-j, t+j].

Figure 2

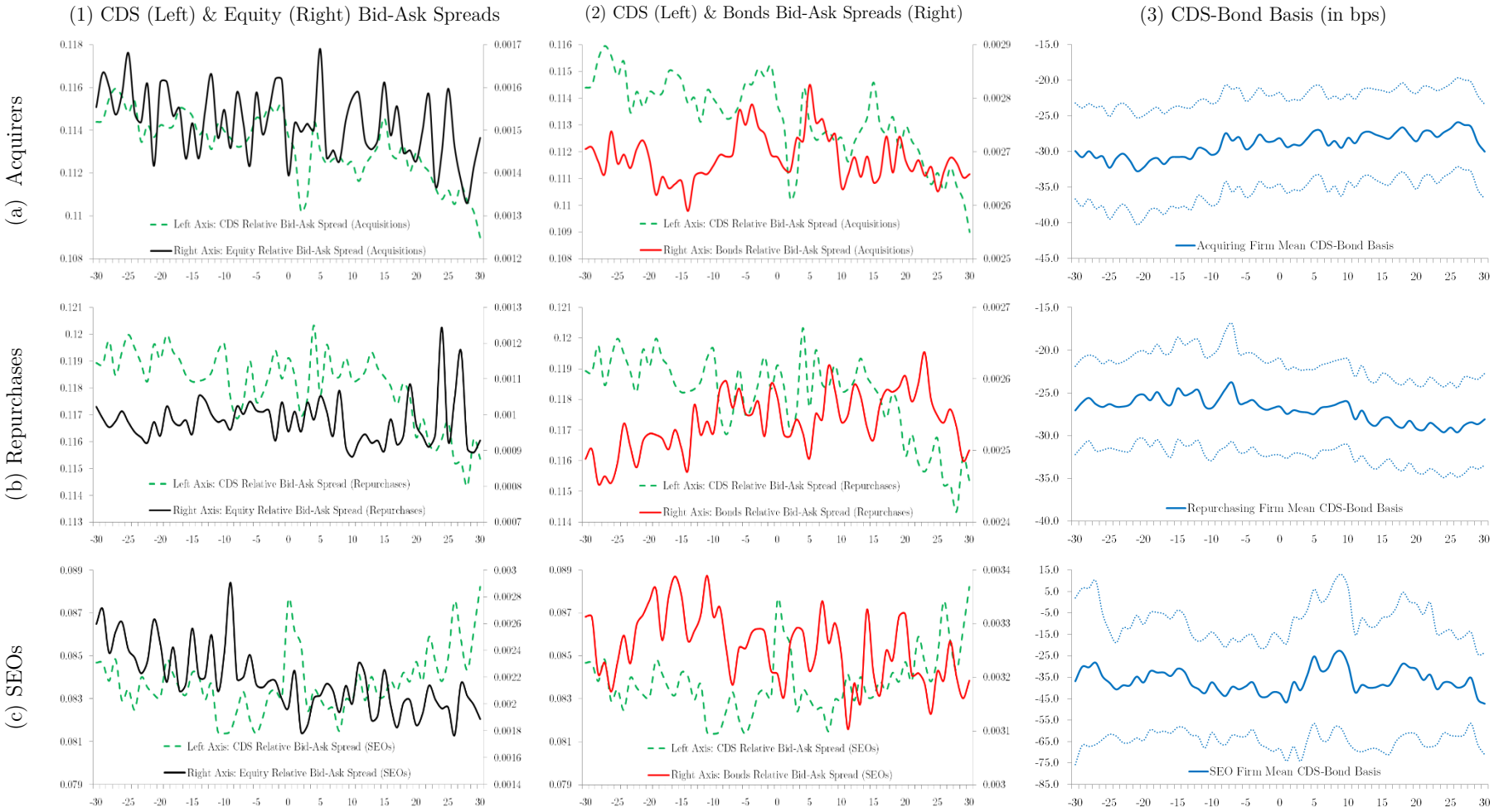
Credit Quality around Corporate Events



Column (1) displays calendar day time series (and 95% confidence intervals) of Standard & Poor's numerical credit rating (according to Odders-White and Ready (2006)) around (a) acquisitions (acquirers only), (b) common equity repurchases, and (c) seasoned equity offerings (SEOs) from 2002 through 2014 at transaction announcement date t = 0. Columns (2) and (3) display 5-year Credit Default Swap (CDS) spread and cash bond z-spread (zero volatility spread) levels respectively from Bloomberg in basis points. Only events with available Bloomberg CDS tickers (primary sample) in the 2002-2014 time period are displayed.

Figure 3

Liquidity around Corporate Events



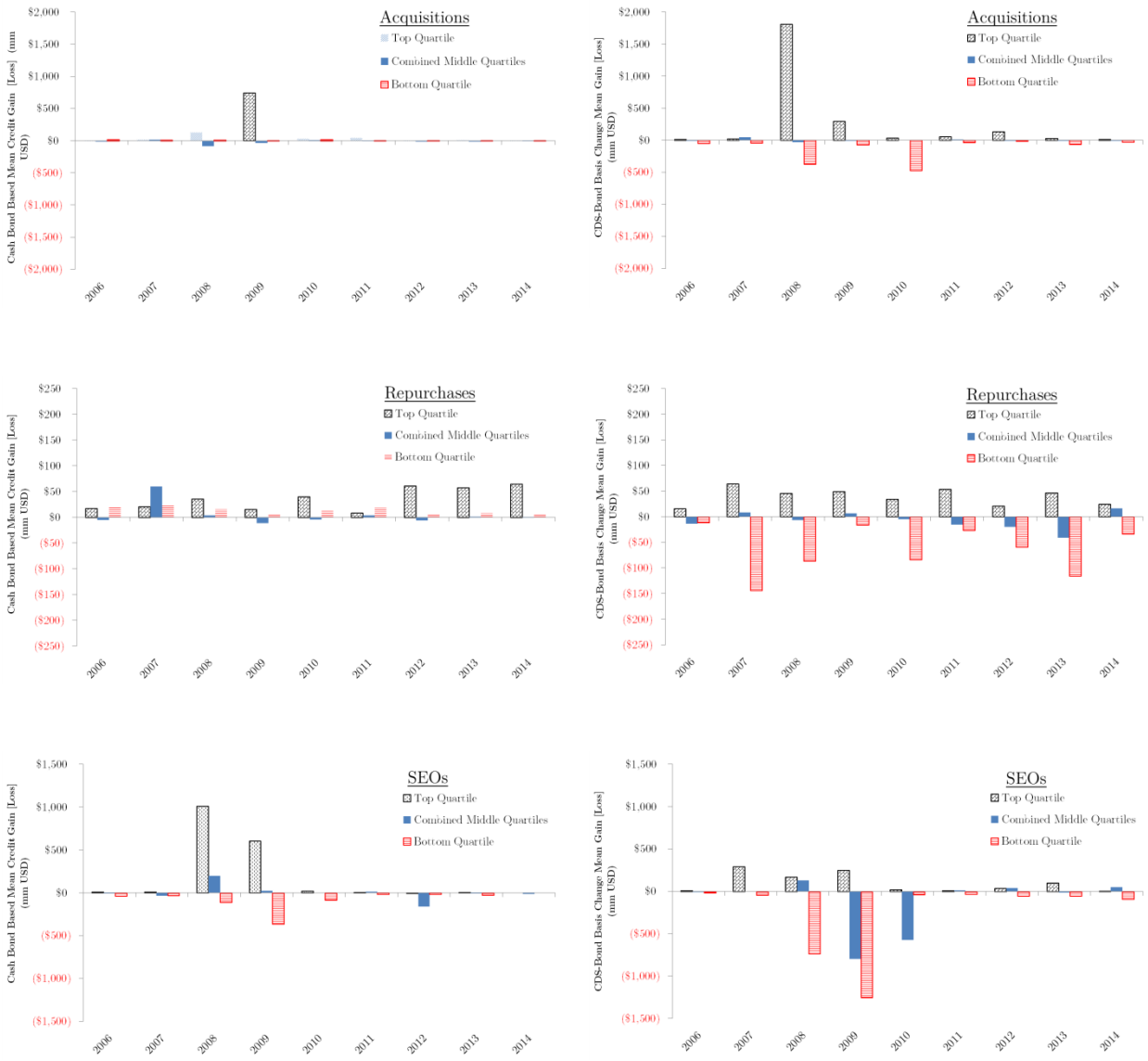
Column (1) displays relative bid-ask spread for both credit default swap (CDS) and equity markets around, (a) acquisitions (acquirers only), (b) common equity repurchases, and (c) seasoned equity offerings (SEOs) from 2002 through 2014 at transaction announcement date t = 0. Column (2) displays CDS and firm-aggregated bond relative bid-ask spreads. Column (3) shows the CDS-bond basis from Bloomberg in basis points, calculated as the interpolated CDS spread minus z-spread. Only events with available Bloomberg CDS tickers (primary sample) in the 2002-2014 time period are displayed.

Figure 4

Overall and Liquidity-Only Creditor Wealth Effects of Corporate Events by Year

(a) Overall: Cash Bond Z-Spread

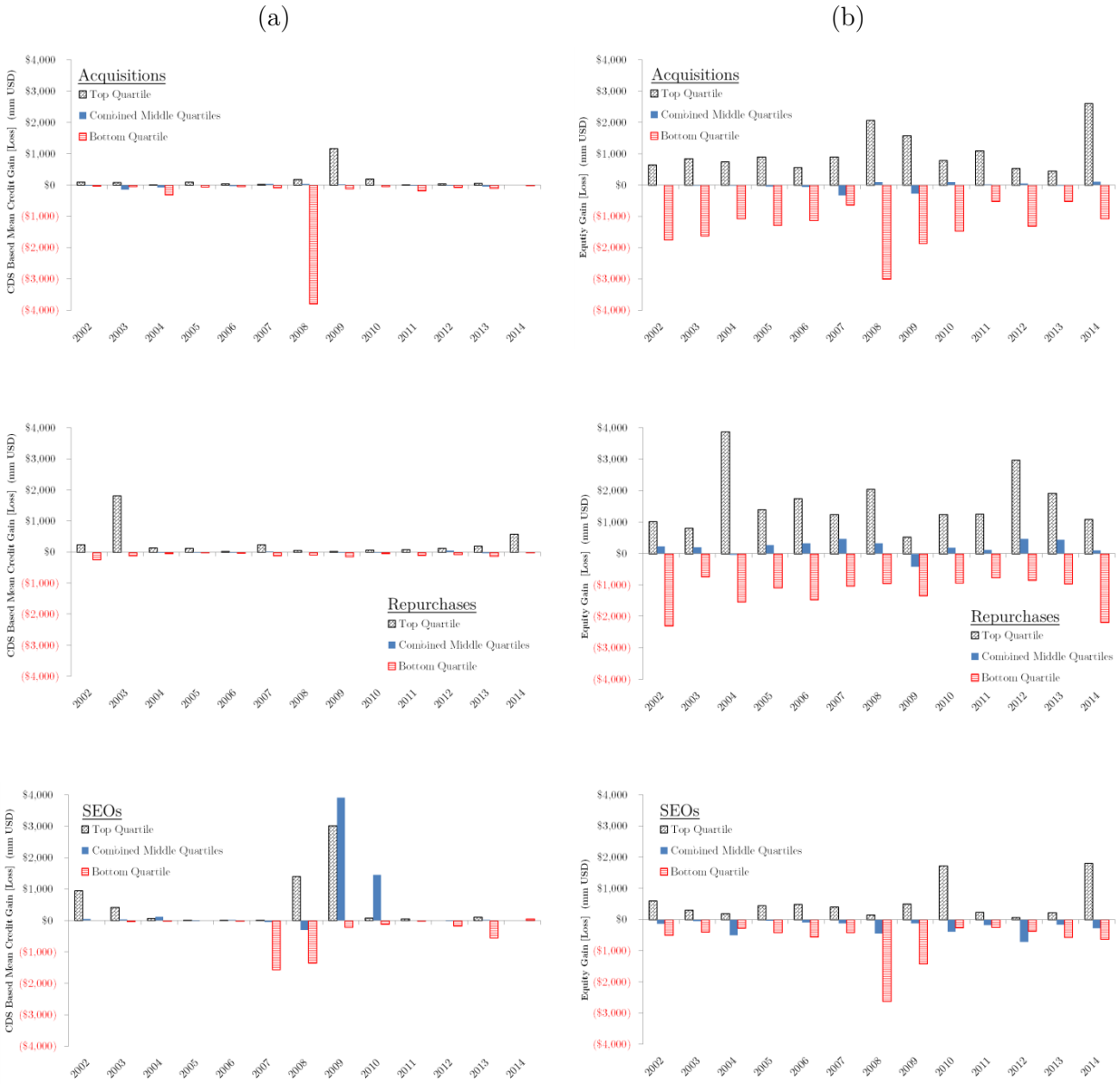
(b) Liquidity: CDS-Bond Basis



Column (a) presents event credit wealth effect using cash bond z-spreads (Value Gain/Loss) for each corporate event type. Cash bond based spread change is calculated for each firm as the issue price weighted excess z-spread change (winsorized at the 1% level) obtained from Bloomberg scaled by total firm debt (book value) and firm price weighted bond duration to produce the credit gain (loss) values. The CDS-bond basis (interpolated CDS spread minus z-spread) change is scaled by total firm debt and firm price weighted bond duration to produce CDS-bond basis change wealth effects in column (b). Only transactions (acquirers only for acquisitions) for firms with Bloomberg CDS tickers (primary sample) during the 2006-2014 time period are shown. All spread changes are constructed on a [-5,+1] event window. All results are displayed in 2014 USD.

FIGURE 5

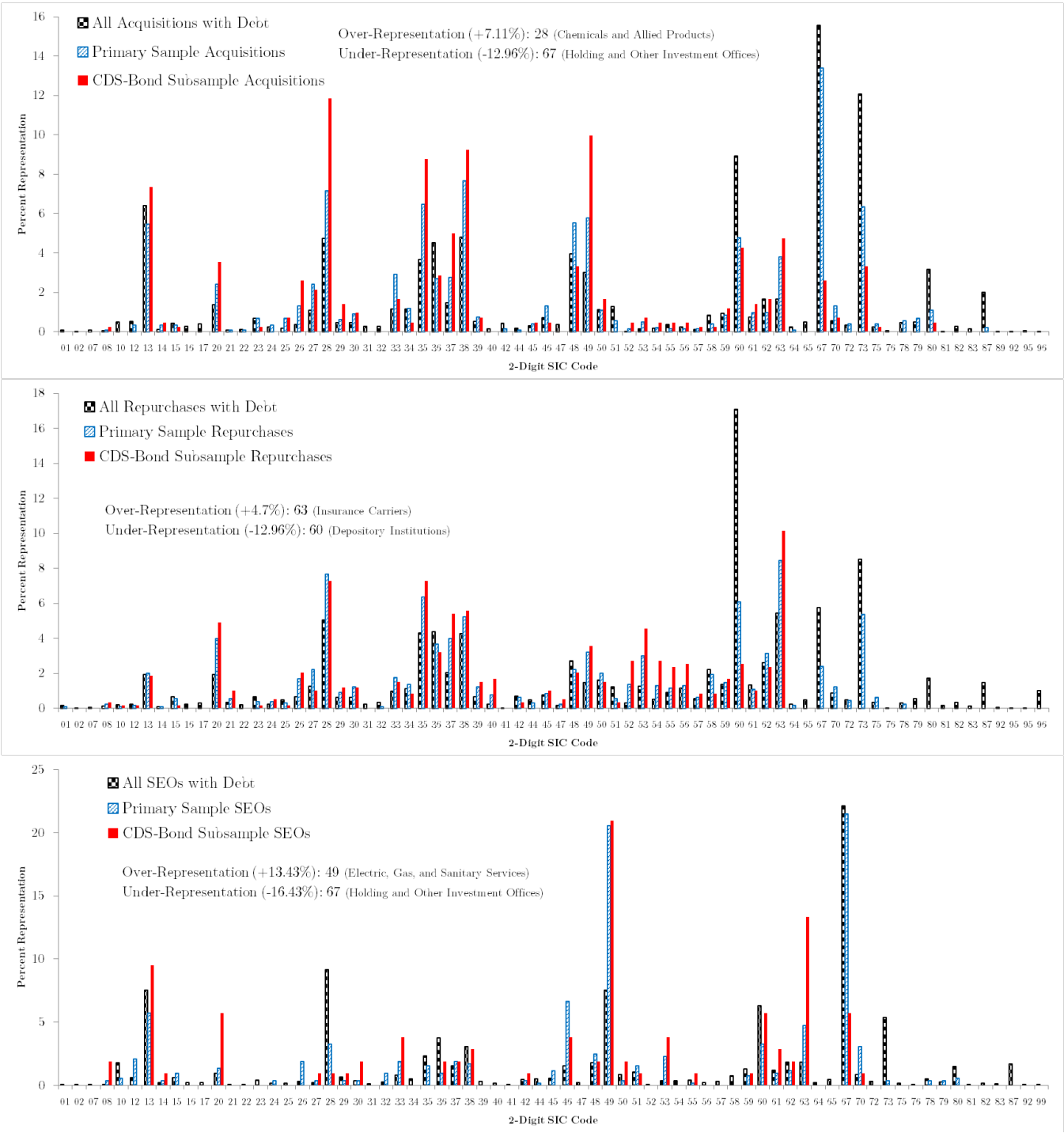
CDS-based Credit and Equity Wealth Effects by Year



Column (a) presents event credit wealth effect using credit default swaps (CDS) (value gain/loss) calculated for each firm as the credit index adjusted CDS spread change (winsorized at the 1% level) obtained from Bloomberg over the return window [-5,+1]. The spread change is scaled by total firm debt (book value) and firm price weighted bond duration to produce the credit gain (loss) values in column (a). Equity wealth effect in column (b) is calculated as the four-factor Fama-French adjusted excess return (winsorized at the 1% level) on the event window [-5,+1] times the firm's market capitalization at the beginning of the event window. Only transactions (acquirers only for acquisitions) for firms with Bloomberg CDS tickers (primary sample) during the 2002-2014 time period are shown. All results are displayed in 2014 USD.

Figure 6

Corporate Event Representation by Industry



Acquirer, common equity repurchasing firm, and SEO firm percent representation by 2-digit SIC (Standard Industrial Classification) code for all transactions with debt according to Capital IQ (black checkered bars), transactions with Bloomberg CDS tickers (primary sample, light blue bars with horizontal filling lines), and transactions with CDS spread and bond data available in the event window (CDS-Bond subsample, solid red bars) are shown above. The most over and under-represented industries for the CDS-bond subsample are displayed for each event type.

Table 1
Basis Credit Ratio (BCR)

$\text{BCR} = \frac{\Delta\text{CDS-Bond Basis}}{\Delta\text{Bond Spread}}$	$\Delta\text{Basis} < 0$ (Negative Liquidity Shock)	$\Delta\text{Basis} = 0$ (No Liquidity Shock)	$\Delta\text{Basis} > 0$ (Positive Liquidity Shock)
$\Delta\text{Bond Spread} < 0$ Decreased Default Risk?	$0 < \text{BCR} < \infty$ More Likely as Ratio Increases: Decreasing bond spreads *and* decreasing basis are due to CDS spreads decreasing in greater magnitude relative to bond spreads, indicating that default risk is *actually decreasing*	$\text{BCR} = 0$ Yes: Bond spreads correctly show *decreased* default risk	$-\infty < \text{BCR} < 0$ Less Likely as Ratio Decreases: As ratio *decreases*, reduced liquidity risk dominates reduced default risk and bond spreads become less reliable. Default risk may *actually increase* if BCR is significantly less than -1 (CDS spreads increase more than bond spreads decrease)
$\Delta\text{Bond Spread} = 0$ No Change in Default Risk?	BCR Undefined No: Basis has declined due to lower CDS spread. Default risk has *decreased*	BCR Undefined Yes: Bond spreads correctly show *no change* in default risk	BCR Undefined No: Basis has increased due to higher CDS spread. Default risk has *increased*
$\Delta\text{Bond Spread} > 0$ Increased Default Risk?	$-\infty < \text{BCR} < 0$ Less Likely As Ratio Decreases: As ratio decreases, increased liquidity risk dominates increased default risk and bond spreads become less reliable. Default risk may *actually decrease* if BCR is significantly less than -1 (CDS spreads decrease more than bond spreads increase) Note: BCR in Figure 1c $<$ BCR in Figure 1b < 0	$\text{BCR} = 0$ Yes: Bond spreads correctly show *increased* default risk Note: See Figure 1a	$0 < \text{BCR} < \infty$ More Likely as Ratio Increases: Increasing bond spreads *and* increasing basis are due to CDS spreads increasing in greater magnitude relative to bond spreads, indicating default risk is *actually increasing*

Table 2

Prior Literature and Results Regarding Equity and Credit Effects of Corporate Events

	(1) Equity Effect	(2) Equity Supporting Literature	(3) Credit Effect	(4) Credit Supporting Literature
Acquisitions	**Zero** *(Economically Negative but Statistically Insignificant)*	Recent studies such as Moeller, Schlingemann, and Stulz (2004, 2005) document large acquirer stockholder wealth destruction particularly in deals involving large acquirers. For acquiring firms with CDS markets, this trend continues from 2002 through 2014 as equity returns are statistically insignificant (-0.376%), but result in large economic losses to shareholders. Deals involving large, overleveraged acquirers (Uysal (2011)) of public targets (Chang (1988)) are also associated with lower equity returns.	**Negative** *Wealth Destruction* (Weak Support)	Billett, King, and Mauer (2004) find negative bond returns in the 1980s but not in the 1990s; a change attributed by the authors to the prevalence of event restriction covenants (ERCs). I find little evidence that merger restriction covenants influence bond returns or changes in CDS spreads. Bond returns in my study are negative and highly significant. While median excess CDS spread increases for acquirers are statistically significant (0.75 bps, 5% level), but economically small relative to changes in the CDS-bond basis (0.6 bps).
			Positive *Wealth Transfer* (Not Supported)	Default risk reduction due to acquisitions resulting in greater asset diversification (Amihud and Lev (1981)) and other factors can contribute to positive credit returns. The relationship between bond/CDS and equity CARs is generally positive, thus I find no evidence of a wealth transfer effect from acquiring shareholders to bondholders.
Common Equity Repurchases	**Positive**	Dann (1981) and Vermaelen (1981) both find common stock repurchases increase a firm's equity value around repurchase announcements, a result attributed primarily to positive information signaling. A large repurchase is, effectively, an intentional leverage increase. In the Jensen (1986) context, reduced agency costs of free cash flow delivers value to shareholders. Consistent with prior theory and empirical evidence, from 2002-2014, repurchasing firms with CDS markets experience a highly significant excess equity return of 0.945%.	Negative *Leveraging Effect* (Counterbalancing)	All else equal, greater leverage and less available cash will increase default risk. This is expressed in wealth redistribution from bondholders to stockholders noted by Maxwell and Stephens (2003). While bonds show significantly negative returns (-0.385%) around repurchases, CDSs exhibit no change and therefore do not support a leveraging effect. I also find that bond market liquidity (credit rating age and bid-ask spreads) significantly influences repurchasing firm bond returns.
			Positive *Signaling Effect* (Counterbalancing)	Positive information signaling can be expressed in both common stock and debt returns, though Dann (1981) finds common equity holders are the primary beneficiaries of repurchases. While multivariate analysis of bond returns and CDS spread changes show coefficients on equity CARs have signs consistent with a signaling effect, the results are generally insignificant.
Seasoned Equity Offerings (SEOs)	**Negative**	Early empirical work finds large negative equity returns associated with seasoned equity offerings (Masulis and Korwar (1986)), confirming predictions of the information asymmetry driven pecking-order model presented by Myers and Majluf (1984). Not surprisingly, I find SEO issuing firms with CDS markets experience a mean return of -2.313%. The presence of limited debt negative bond covenants, restricting financing options for SEO issuers, has little impact on SEO event window equity returns.	Negative *Signaling Effect* (Weak Support)	Kalay and Shimrat (1987) find that negative SEO equity returns are driven by the release of negative information. Supporting Elliot, Prevost, and Rao (2009), high yield issuer creditors in my study benefit more from SEOs. Bond returns for SEO issuing firms with CDS markets over my sample period are not different from zero. Higher SEO equity CARs are significantly associated with higher bond returns and lower CDS spreads, though these results are limited by small sample sizes.
			Positive *Deleveraging Effect* (Strong Support)	DeAngelo, DeAngelo, and Stulz (2010) find that near-term cash need is a primary motive for SEOs and the resulting cash infusion can lower default risk. In contrast to Elliot, Prevost, and Rao (2009), bond returns with CDS tickers are not significantly different from zero, CDS spreads, however, decline (-16.6 bps), consistent with the deleveraging effect found in prior bond SEO event studies.

Table 3

Descriptive Statistics of Corporate Events: Acquisitions

All acquisitions (Panels A), repurchases (Panel B), and SEOs (Panel C) include transactions announced during the period 2002 to 2014 that are listed on the SDC Platinum. Primary sample events include firms (acquiring firms in the case of acquisitions) with CDS tickers available from Bloomberg at some point during the sample period. CDS-bond subsample transactions have both CDS and bond pricing data available during the event window. Firm aggregated bond variables are price-weighted by issue. All events are $1M USD or more in value and represent at least 0.5% of firm market capitalization. Total assets and market capitalization are displayed in 2014 USD. Variable definitions are provided in the appendix.

Panel A: Acquistions

	(1) CDS-Bond Subsample				(2) Primary Sample				(3) All Deals (2002-2014)				(4) Public Targets of All Deals (2002-2014)			
	N	Mean	Median	Stdev	N	Mean	Median	Stdev	N	Mean	Median	Stdev	N	Mean	Median	Stdev
Total Assets	411	101,834.97	24,415.52	279,826.51	1,342	46,465.51	8,349.07	169,695.36	10,729	10,214.10	995.15	77,725.28	1,692	3,759.98	467.81	27,658.50
Market Cap	424	39,348.82	18,338.26	52,029.21	1,423	21,354.77	7,915.94	42,110.40	10,406	5,519.84	926.75	20,587.85	1,581	1,849.03	311.72	5,781.25
Leverage	397	0.281	0.22	0.20	1,155	0.267	0.21	0.20	8,793	0.220	0.17	0.21	1,443	0.258	0.18	0.26
Leverage (Excess)	392	0.022	0.01	0.10	1,141	0.011	0.00	0.10	8,173	0.011	0.00	0.12	1,442	-0.017	-0.03	0.14
Implied Volatility	422	0.094	0.08	0.09	1,317	0.112	0.09	0.10	6,592	0.201	0.17	0.16	741	0.276	0.24	0.19
Tangibility	395	0.386	0.33	0.23	1,164	0.390	0.35	0.24	9,532	0.394	0.35	0.27	1,643	0.390	0.36	0.28
Dividend Yield	407	0.006	0.00	0.01	1,318	0.005	0.00	0.01	10,020	0.003	0.00	0.01	1,375	0.002	0.00	0.01
Operating Cash Flow Yield	407	0.074	0.05	0.20	1,316	0.071	0.05	0.14	9,866	0.046	0.04	0.19	1,303	0.007	0.00	0.21
S&P Rating	406	27.530	27.00	2.76	1,269	26.586	26.00	2.91	3,654	24.591	25.00	3.22	355	23.144	23.00	3.28
InvGrade Rating	406	0.902	1.00	0.30	1,269	0.810	1.00	0.39	3,654	0.521	1.00	0.50	355	0.341	0.00	0.47
S&P Rating Age	406	14.532	15.00	8.62	1,269	16.367	14.00	68.44	3,654	27.885	14.00	183.67	355	21.163	15.00	76.89
E-Index	392	2.459	2.00	1.41	1,266	2.492	2.00	1.35	4,984	2.464	2.00	1.30	349	2.413	2.00	1.22
Market/Book Ratio	409	3.029	2.23	3.18	1,332	2.908	2.20	3.08	10,048	2.649	1.95	2.90	1,528	2.341	1.81	2.64
CEO Options Compensation	397	0.263	0.21	0.25	1,206	0.296	0.22	0.28	5,061	0.264	0.17	0.29	476	0.294	0.19	0.30
CEO Overconfidence	325	0.015	0.00	0.12	972	0.012	0.00	0.11	3,835	0.019	0.00	0.13	345	0.032	0.00	0.18
Product Market Fluidity	395	8.112	7.31	4.47	1,276	7.595	7.09	3.88	9,531	7.760	7.18	3.69	684	8.602	7.82	4.42
Deal Withdrawn	428	0.028	0.00	0.17	1,481	0.034	0.00	0.18	13,855	0.038	0.00	0.19	2,126	0.123	0.00	0.33
Relative Deal Size	425	0.132	0.03	0.30	1,461	0.150	0.04	0.36	12,333	0.303	0.08	0.75	1,962	0.416	0.19	0.65
Cash Payment Percent	428	0.552	0.74	0.46	1,481	0.534	0.66	0.46	13,855	0.474	0.44	0.45	2,126	0.487	0.45	0.43
Private Target	428	0.629	1.00	0.48	1,481	0.727	1.00	0.45	13,855	0.845	1.00	0.36	2,126	0.000	0.00	0.00
Equity CAR [-1,+1]	425	-0.001	0.00	0.04	1,456	0.002	0.00	0.05	11,002	0.010	0.00	0.10	1,534	0.245	0.20	0.28

TABLE 3 (Continued)

Descriptive Statistics of Corporate Events: Acquisitions

Panel A: Acquistions (Continued)

	(1) CDS-Bond Subsample				(2) Primary Sample				(3) All Deals (2002-2014)				(4) Public Targets of All Deals (2002-2014)			
	N	Mean	Median	Stdev	N	Mean	Median	Stdev	N	Mean	Median	Stdev	N	Mean	Median	Stdev
CDS Spread (bps)	425	105.880	62.39	125.22	668	151.655	70.64	538.50	668	151.655	70.64	538.50	56	193.235	103.15	222.32
CDS Bid-Ask Spread (bps)	424	7.581	5.49	5.85	659	10.883	6.33	35.71	659	10.883	6.33	35.71	55	12.790	7.50	18.08
CDS-Bond Basis (bps)	300	-25.744	-13.10	68.50	389	-25.192	-11.83	66.28	420	-27.070	-12.71	69.57	41	-43.830	-23.32	95.03
Number of Bond Issues	428	12.044	8.00	15.24	1,278	7.563	4.00	11.65	4,050	4.432	2.00	8.98	396	3.528	2.00	6.91
Z-Spread (bps)	253	71.698	25.23	132.76	388	84.139	29.91	142.49	551	153.478	47.92	230.83	62	274.309	136.66	729.34
Yield to Maturity (%)	428	4.723	4.76	1.70	875	5.028	5.08	1.91	1,282	5.633	5.34	3.89	117	7.401	6.29	6.14
Coupon (%)	428	6.090	6.08	1.27	879	6.174	6.10	1.45	1,292	6.454	6.42	1.59	118	6.908	6.78	1.67
Premium/Discount	428	0.074	0.07	0.07	875	0.058	0.05	0.08	1,282	0.048	0.04	0.08	118	0.025	0.04	0.11
Bond Age (Years)	423	4.164	3.74	2.62	845	3.749	3.29	2.81	1,186	3.357	2.78	2.75	103	3.426	2.87	2.54
Bond Maturity	428	8.606	7.68	4.87	879	8.037	7.06	4.85	1,292	7.650	6.98	4.43	119	8.268	6.46	5.97
Bond Duration	427	5.535	5.42	3.32	877	5.230	4.90	3.46	1,283	5.227	4.66	11.23	118	4.205	4.13	10.58
Bond Relative Bid-Ask Spread	428	0.002	0.00	0.00	878	0.003	0.00	0.00	1,284	0.003	0.00	0.00	118	0.004	0.00	0.00
Bond Trade Volume	300	1,453.61	495.67	2,543.37	497	1,450.69	481.71	2,570.43	651	1,463.48	486.18	2,651.84	54	1,093.86	527.17	1,616.83
Callable Bonds Ratio	428	0.344	0.24	0.35	879	0.438	0.35	0.42	1,292	0.539	0.53	0.44	119	0.555	0.58	0.43
Putable Bonds Ratio	428	0.007	0.00	0.03	879	0.013	0.00	0.08	1,292	0.009	0.00	0.06	119	0.009	0.00	0.09
Secured Bonds Ratio	424	0.010	0.00	0.09	859	0.014	0.00	0.11	1,258	0.026	0.00	0.15	111	0.032	0.00	0.17
Senior Bonds Ratio	428	0.930	1.00	0.19	879	0.892	1.00	0.27	1,292	0.907	1.00	0.25	119	0.899	1.00	0.26
Cov Ratio: Limited Debt	421	0.137	0.00	0.31	813	0.257	0.00	0.40	1,176	0.378	0.00	0.46	103	0.329	0.00	0.46
Cov Ratio: Merger Restrictive	421	0.859	1.00	0.27	813	0.850	1.00	0.29	1,177	0.876	1.00	0.26	103	0.915	1.00	0.22
Cov Ratio: Payout Policy	421	0.072	0.00	0.24	813	0.139	0.00	0.32	1,176	0.283	0.00	0.43	103	0.292	0.00	0.43
Bank Debt	422	0.057	0.00	0.24	1,449	0.098	0.00	0.27	10,352	0.347	0.00	2.62	1,404	0.487	0.00	6.02

TABLE 3 (Continued)

Descriptive Statistics of Corporate Events: Common Equity Repurchases

Panel B: Common Stock Repurchases

	(1) CDS-Bond Subsample				(2) Primary Sample				(3) All Deals (2002-2014)			
	N	Mean	Median	Stdev	N	Mean	Median	Stdev	N	Mean	Median	Stdev
Total Assets	576	102,448.93	23,781.34	271,760.50	1,273	64,650.62	12,572.29	199,687.07	7,108	18,178.34	1,383.41	107,303.11
Market Cap	593	41,912.88	17,544.96	63,742.98	1,321	29,570.89	11,736.92	54,226.03	7,143	9,011.16	1,224.85	29,789.22
Leverage	554	0.265	0.21	0.20	1,205	0.247	0.19	0.19	6,443	0.216	0.15	0.22
Leverage (Excess)	549	0.012	0.00	0.09	1,195	0.008	0.00	0.09	6,072	0.010	0.00	0.11
Implied Volatility	591	0.089	0.08	0.08	1,301	0.102	0.09	0.09	4,852	0.175	0.15	0.14
Tangibility	553	0.365	0.31	0.22	1,207	0.357	0.33	0.21	6,871	0.351	0.32	0.25
Dividend Yield	573	0.008	0.00	0.01	1,260	0.006	0.00	0.01	6,688	0.003	0.00	0.01
Operating Cash Flow Yield	573	0.075	0.07	0.17	1,259	0.074	0.06	0.15	6,643	0.062	0.05	0.26
S&P Rating	572	27.357	27.00	2.44	1,234	26.950	27.00	2.72	2,705	25.717	26.00	3.02
InvGrade Rating	572	0.895	1.00	0.31	1,234	0.835	1.00	0.37	2,705	0.660	1.00	0.47
S&P Rating Age	572	15.490	16.00	8.67	1,234	15.154	16.00	8.78	2,705	18.773	15.00	76.12
E-Index	571	2.161	2.00	1.46	1,243	2.292	2.00	1.46	4,101	2.413	2.00	1.36
Market/Book Ratio	576	3.226	2.32	3.37	1,272	3.207	2.38	3.15	6,869	2.677	1.89	2.86
CEO Options Compensation	580	0.248	0.20	0.22	1,261	0.284	0.22	0.26	4,292	0.259	0.19	0.27
CEO Overconfidence	481	0.004	0.00	0.06	1,042	0.007	0.00	0.08	3,348	0.018	0.00	0.13
Product Market Fluidity	554	6.664	5.60	4.01	1,226	6.759	5.87	3.86	6,621	7.380	6.57	3.95
Open Market Repurchase	595	0.960	1.00	0.20	1,342	0.943	1.00	0.23	8,066	0.941	1.00	0.24
Repurchase Withdrawn	595	0.017	0.00	0.13	1,342	0.019	0.00	0.14	8,066	0.018	0.00	0.13
Additional Borrowing	595	0.015	0.00	0.12	1,342	0.017	0.00	0.13	8,066	0.013	0.00	0.11
Repurchase Size	595	0.088	0.07	0.08	1,342	0.087	0.07	0.08	8,066	0.091	0.06	0.10
Equity CAR [-1,+1]	593	0.011	0.01	0.04	1,334	0.011	0.01	0.05	7,415	0.015	0.01	0.08
CDS Spread (bps)	592	85.249	55.58	153.65	811	162.791	60.16	706.32	811	162.791	60.16	706.32
CDS Bid-Ask Spread (bps)	592	6.749	5.15	6.45	807	11.306	5.42	43.35	807	11.306	5.42	43.35
CDS-Bond Basis (bps)	410	-21.689	-9.93	62.72	502	-20.519	-9.93	59.32	527	-22.567	-10.05	62.40
Number of Bond Issues	595	11.136	8.00	12.32	1,190	8.050	5.00	10.62	2,813	5.285	3.00	9.41
Z-Spread (bps)	348	49.262	16.99	127.58	500	65.252	20.85	139.49	606	101.597	29.71	189.89
Yield to Maturity (%)	595	4.586	4.66	1.84	957	4.743	4.77	1.94	1,204	5.045	4.93	2.70
Coupon (%)	595	6.025	6.05	1.20	958	5.984	6.04	1.26	1,208	6.059	6.13	1.42
Premium/Discount	595	0.071	0.07	0.08	957	0.062	0.06	0.07	1,205	0.054	0.05	0.08
Bond Age (Years)	579	4.331	3.95	2.80	905	4.074	3.63	2.79	1,131	3.800	3.27	2.81
Bond Maturity	595	9.793	8.50	6.20	958	9.235	7.83	5.83	1,209	8.927	7.45	5.82
Bond Duration	595	6.301	5.99	3.21	958	6.097	5.71	4.41	1,208	5.830	5.53	4.17
Bond Relative Bid-Ask Spread	593	0.002	0.00	0.00	955	0.002	0.00	0.00	1,203	0.002	0.00	0.00
Bond Trade Volume	428	1,537.78	552.62	3,412.86	649	1,458.54	512.79	3,186.85	780	1,423.79	488.61	3,080.45
Callable Bonds Ratio	595	0.327	0.24	0.34	958	0.370	0.27	0.38	1,209	0.415	0.32	0.41
Putable Bonds Ratio	595	0.008	0.00	0.03	958	0.011	0.00	0.08	1,209	0.009	0.00	0.07
Secured Bonds Ratio	588	0.007	0.00	0.07	944	0.010	0.00	0.09	1,192	0.012	0.00	0.10
Senior Bonds Ratio	595	0.915	1.00	0.20	958	0.893	1.00	0.24	1,209	0.899	1.00	0.24
Cov Ratio: Limited Debt	573	0.104	0.00	0.24	909	0.128	0.00	0.28	1,146	0.189	0.00	0.35
Cov Ratio: Merger Restrictive	573	0.858	1.00	0.25	910	0.870	1.00	0.25	1,147	0.890	1.00	0.24
Cov Ratio: Payout Policy	572	0.055	0.00	0.20	908	0.089	0.00	0.26	1,145	0.157	0.00	0.34
Bank Debt	591	0.048	0.00	0.17	1,302	0.084	0.00	0.20	6,261	0.493	0.00	12.57

TABLE 3 (Continued)

Descriptive Statistics of Corporate Events: Seasoned Equity Offerings

Panel C: Seasoned Equity Offerings

	(1) CDS-Bond Subsample				(2) Primary Sample				(3) All Deals (2002-2014)			
	N	Mean	Median	Stdev	N	Mean	Median	Stdev	N	Mean	Median	Stdev
Total Assets	100	178,472.84	22,173.62	436,155.41	490	47,299.77	7,467.13	208,901.71	5,757	7,952.96	859.35	75,982.89
Market Cap	105	22,688.81	10,915.54	46,353.35	512	9,683.37	3,792.47	23,135.11	5,516	2,472.47	787.32	8,652.28
Leverage	98	0.469	0.44	0.22	400	0.437	0.41	0.20	4,547	0.289	0.26	0.26
Leverage (Excess)	98	0.010	0.01	0.10	398	0.004	0.00	0.10	4,057	-0.031	-0.04	0.13
Implied Volatility	104	0.205	0.14	0.24	443	0.186	0.12	0.22	3,361	0.268	0.21	0.25
Tangibility	88	0.467	0.46	0.26	380	0.526	0.58	0.25	5,002	0.480	0.48	0.32
Dividend Yield	100	0.004	0.00	0.01	489	0.005	0.00	0.02	5,492	0.002	0.00	0.01
Operating Cash Flow Yield	100	0.032	0.06	0.29	489	0.061	0.05	0.17	5,284	0.016	0.03	0.30
S&P Rating	100	25.670	26.00	3.52	468	25.124	26.00	3.00	1,828	23.437	23.00	2.90
InvGrade Rating	100	0.790	1.00	0.41	468	0.705	1.00	0.46	1,828	0.411	0.00	0.49
S&P Rating Age	100	13.650	13.50	8.58	468	13.395	12.00	8.67	1,828	24.728	12.00	135.57
E-Index	78	2.628	3.00	1.39	335	2.606	3.00	1.29	1,368	2.510	3.00	1.27
Market/Book Ratio	100	2.531	1.63	4.97	490	2.239	1.79	3.94	5,310	3.399	1.95	7.81
CEO Options Compensation	83	0.216	0.13	0.26	343	0.215	0.13	0.25	1,547	0.192	0.06	0.26
CEO Overconfidence	53	0.038	0.00	0.19	225	0.022	0.00	0.15	986	0.024	0.00	0.15
Product Market Fluidity	96	10.173	9.10	5.67	475	8.673	7.98	4.81	4,774	9.267	8.23	4.72
SEO Size	105	0.094	0.07	0.10	525	0.095	0.07	0.09	6,551	0.201	0.13	0.26
Equity CAR [-1,+1]	105	-0.029	-0.02	0.07	521	-0.022	-0.02	0.06	5,286	-0.031	-0.03	0.10
CDS Spread (bps)	105	299.654	160.89	385.61	199	294.007	147.58	414.63	199	294.007	147.58	414.63
CDS Bid-Ask Spread	105	16.531	10.00	23.91	194	17.379	10.00	22.3	194	17.379	10.00	22.3
CDS-Bond Basis (bps)	70	-40.050	-18.92	121.80	107	-41.446	-23.59	104.18	116	-44.540	-23.56	109.13
Number of Bond Issues	105	16.362	10.00	24.93	411	8.005	4.00	14.65	1,750	4.019	2.00	8.81
Z-Spread (bps)	54	208.793	91.35	326.18	103	255.073	124.72	376.18	185	365.390	215.32	483.27
Yield to Maturity (%)	104	6.616	5.64	3.29	257	6.664	5.92	3.48	440	7.732	6.40	6.66
Coupon (%)	105	6.428	6.38	1.35	264	6.604	6.48	1.43	449	7.044	6.88	1.69
Premium/Discount	104	0.004	0.02	0.14	257	0.003	0.03	0.13	440	0.005	0.02	0.13
Bond Age (Years)	105	3.914	2.98	3.35	257	3.084	2.57	2.68	412	2.773	2.38	2.42
Bond Maturity	105	10.415	8.12	7.47	264	8.544	7.29	5.74	449	7.793	7.00	4.77
Bond Duration	105	6.427	5.48	9.13	264	5.540	4.82	6.25	448	5.129	4.50	6.69
Bond Relative Bid-Ask Spread	103	0.002	0.00	0.00	258	0.011	0.00	0.12	441	0.008	0.00	0.10
Bond Trade Volume	75	1,571.59	695.78	2,167.11	129	1,449.58	614.65	1,999.51	196	1,468.02	612.33	2,133.17
Callable Bonds Ratio	105	0.394	0.34	0.37	264	0.526	0.53	0.43	449	0.641	1.00	0.42
Putable Bonds Ratio	105	0.017	0.00	0.06	264	0.008	0.00	0.04	449	0.005	0.00	0.03
Secured Bonds Ratio	105	0.026	0.00	0.13	254	0.040	0.00	0.17	435	0.050	0.00	0.20
Senior Bonds Ratio	105	0.890	1.00	0.24	264	0.903	1.00	0.25	449	0.921	1.00	0.24
Cov Ratio: Limited Debt	100	0.149	0.00	0.30	240	0.322	0.00	0.44	403	0.514	0.63	0.47
Cov Ratio: Merger Restrictive	100	0.867	1.00	0.24	240	0.871	1.00	0.26	403	0.905	1.00	0.22
Cov Ratio: Payout Policy	100	0.105	0.00	0.26	240	0.207	0.00	0.38	403	0.394	0.00	0.47
Bank Debt	105	0.080	0.00	0.16	525	0.113	0.00	0.22	5,417	0.478	0.00	3.42

Table 4

Descriptive Statistics of Security Returns around Corporate Events: Acquisitions

Excess returns are formed on the window [-5,+1] and are displayed in percent. Equity returns are in excess of their expected four factor (including momentum) Fama-French value-weighted market index model returns. Bond excess returns are firm-aggregated price-weighted excess returns. Individual bonds are maturity benchmarked against short, intermediate, and long Barclays corporate investment grade and high yield indices. A firm is designated investment grade if the firm's S&P Rating is BBB- and higher and high yield if below BB- or unrated. Unless specified, cross-sections are constructed using all relevant transactions (and only acquirer characteristics in Panel A). Financials (Utilities) include firms with 6000 (4900) SIC codes. The significance level of the median is determined using a Wilcoxon signed-rank test. The signficance level of the difference in medians is determined using a Wilcoxon rank-sum (Mann-Whitney) test. The symbols ****, ***,**, and * denote statistical significance at the 0.01, 1, 5, and 10 percent levels, respectively. †††,††, and † denote significant differences in cross-sectional non-parametric tests at the 1, 5, and 10 percent levels respectively.

Panel A: Acquisitions

	(1) Acquirer Bonds Excess Return			(2) Target Bonds Excess Return			(3) Acquirer Equity Excess Return			(4) Target Equity Excess Return		
	Mean	Median	N	Mean	Median	N	Mean	Median	N	Mean	Median	N
All Deals	-0.127 **	-0.304 ****	1,225	1.909 ***	0.911 ****	120	0.946 ****	0.245 ****	11,002	25.573 ****	21.249 ****	1,552
Primary Sample	-0.171 **	-0.313 ****	845	3.179 **	0.940 ****	58 †	0.072	-0.092	1,456 †††	25.942 ****	22.133 ****	365
CDS-Bond Sample	-0.300 ***	-0.394 ****	428 ††	4.372 **	1.459 ****	32 ††	-0.376	-0.370	425 ††	29.901 ****	25.931 ****	148 ††
2002-2006	0.043	-0.197 **	544 †††	0.913 **	0.633 **	49	0.654 ****	0.328 ***	5,189 †††	21.809 ****	17.367 ****	750 ††††
2007-2009	-0.156	-0.331 ***	277	5.115 *	0.990 **	29	0.885 ****	0.183 **	2,167	28.278 ****	23.976 ****	371 ††
2010-2014	-0.336 ****	-0.386 ****	404 ††	0.858 **	0.930 **	42	1.397 ****	0.403 ****	3,646 †††	29.793 ****	25.835 ****	431 ††††
Investment Grade	-0.094	-0.306 ****	706	3.450 ***	1.204 ****	61 †††	-0.022	-0.113	1,869	26.306 ****	22.436 ****	456
High Yield	-0.171 *	-0.295 ***	519	0.316	0.136	59	1.144 ****	0.345 ****	9,133 ††††	25.268 ****	20.632 ****	1,096
S&P Rating Less Than Two Weeks Old	0.135	-0.068	537	3.325 **	1.200 ****	48 ††	0.202	0.000	1,840	25.927 ****	22.432 ****	326
S&P Rating More Than Two Weeks Old	-0.307 ****	-0.426 ****	653 ††††	0.971 *	0.533 *	69	1.110 ****	0.292 ****	9,018 ††	25.492 ****	20.783 ****	1,196
Below Median Bond Relative Spread	-0.038	-0.267 ***	582	4.301 **	1.897 ***	28 †††	0.089	-0.420	631	29.643 ****	24.440 ****	165 ††
Above Median Bond Relative Spread	-0.213 ***	-0.314 ****	636	1.993 ***	0.997 ***	28	0.662 **	0.427 ***	621 ††	23.907 ****	21.595 ****	132
Below Median Bond Trade Volume	-0.065	-0.251	302	2.658 ***	1.640 ***	21	0.082	-0.252	318	26.206 ****	22.097 ****	90
Above Median Bond Trade Volume	-0.390 ****	-0.399 ****	286 †	6.213	2.619 ***	17	0.436	0.031	322	33.534 ****	29.257 ****	33 †
Industrial Firms	-0.173 **	-0.301 ****	874	1.423 ***	0.990 ****	77	1.232 ****	0.461 ****	7,584 ††††	27.828 ****	23.441 ****	1,009 ††††
Financials and Utilities	-0.013	-0.307 **	351	2.779	0.443	43	0.310 ***	-0.079	3,418	21.382 ****	17.303 ****	543
Cash Payment Only	-0.089	-0.276 ***	513	0.783 *	0.831 *	23	0.721 ****	0.209 ****	3,955	33.395 ****	28.559 ****	575 ††††
Stock Payment Only	-0.067	-0.204 *	459 †	3.462 *	1.121 ***	36	1.127 ****	0.262 ****	3,917	18.118 ****	14.132 ****	455 ††††
Private Targets	-0.084	-0.290 ****	913	0.111	-0.181	6	1.281 ****	0.425 ****	9,093 ††††	N/A	N/A	N/A
Public Targets	-0.253 **	-0.325 ***	312	2.004 ***	0.927 ****	114	-0.650 ***	-0.718 ****	1,909	25.573	21.249	1,552

TABLE 4 (Continued)

Descriptive Statistics of Security Returns around Corporate Events: Repurchases/SEOs

Panel B: Repurchases

	(1) Bonds Excess Return			(2) Equity Excess Return		
	Mean	Median	N	Mean	Median	N
All Repurchases	-0.208 ***	-0.357 ****	1,131	0.856 ****	0.852 ****	7,415
Primary Sample	-0.256 ****	-0.385 ****	904 †	0.896 ****	0.882 ****	1,334
CDS-Bond Subsample	-0.281 ****	-0.403 ****	595	0.945 ****	0.924 ****	593
2002-2006	-0.126	-0.280 ****	361	0.654 ***	0.734 ****	2,445 †
2007-2009	-0.151	-0.275 ***	287	1.360 ****	1.179 ****	2,157 †††
2010-2014	-0.303 ****	-0.433 ****	483	0.644 ****	0.793 ****	2,813
Investment Grade	-0.218 ***	-0.384 ****	821	0.661 ****	0.839 ****	1,775
High Yield	-0.181	-0.244 ***	310	0.917 ****	0.857 ****	5,640
S&P Rating Less Than Two Weeks Old	0.153	0.004	464	0.516 ***	0.831 ****	1,268
S&P Rating More Than Two Weeks Old	-0.442 ****	-0.549 ****	628 ††††	0.918 ****	0.874 ****	6,064
Below Median Bond Relative Spread	-0.287 ***	-0.465 ****	531 †††	0.805 ***	0.783 ****	593
Above Median Bond Relative Spread	-0.140 *	-0.263 ****	595	0.980 ***	0.945 ****	597
Below Median Bond Trade Volume	-0.204 *	-0.467 ****	356	0.760 ***	0.749 ***	387
Above Median Bond Trade Volume	-0.369 ****	-0.432 ****	356	0.859 ***	0.924 ****	384
Industrial Firms	-0.262 ***	-0.364 ****	866	0.934 ****	0.955 ****	5,468 †
Financials and Utilities	-0.031	-0.294 ***	265	0.636 ****	0.651 ****	1,947

Panel C: SEOs

	(1) Bonds Excess Return			(2) Equity Excess Return		
	Mean	Median	N	Mean	Median	N
All SEOs	0.594 ***	0.090 *	436	-2.189 ****	-2.519 ****	5,286
Primary Sample	0.238	-0.049	257	-1.837 ****	-1.838 ****	521 †††
CDS-Bond Subsample	0.257	-0.093	105	-2.313 **	-2.091 ***	105
2002-2006	0.451 **	0.113	182	-2.407 ****	-2.251 ****	1,771 ††
2007-2009	0.979 *	0.189	118	-3.354 ****	-3.320 ****	1,022 †††
2010-2014	0.452	-0.092	136	-1.557 ****	-2.558 ****	2,493
Investment Grade	0.348	0.051	197	-2.085 ****	-2.049 ****	747
High Yield	0.796 ***	0.185 *	239	-2.206 ****	-2.649 ****	4,539 †††
S&P Rating Less Than Two Weeks Old	0.810 ***	0.348 ***	211 †††	-2.498 ****	-2.470 ****	1,005
S&P Rating More Than Two Weeks Old	0.419	-0.095	213	-2.111 ****	-2.551 ****	4,239
Below Median Bond Relative Spread	0.577 **	-0.064	210	-1.474 **	-1.621 ***	217
Above Median Bond Relative Spread	0.556 **	0.193 *	218	-2.094 ***	-1.816 ****	220
Below Median Bond Trade Volume	0.296	0.207	95	-1.425	-1.292 ***	98
Above Median Bond Trade Volume	0.272	-0.194	90	-2.279 ***	-2.059 ***	96
Industrial Firms	0.304 *	0.007	268	-1.932 ****	-2.811 ****	3,291 ††
Financials and Utilities	1.056 ***	0.199 *	168	-2.614 ****	-2.239 ****	1,995

Table 5

Regressions Explaining Acquirer and Target Firm Aggregated Bond Returns

The dependent variables in OLS regression specifications in Panel A are cash bond excess returns calculated as firm-aggregated price-weighted excess returns on the window [-5,+1] around the deal announcement date. Individual bonds are matched by short, intermediate, and long maturity sub-indices of the Barclays investment grade and high yield indices respectively. Deals include all mergers and acquisitions announced during the period 2002 to 2014 that are listed on the SDC Platinum M&A database and have acquirer and target bond data from Bloomberg available during the event window. Targets must be $1M or larger and represent 0.5% of acquirer market value. Additional controls include Tangibility, Bank Debt, Operating Cash Flow Yield, E-Index, CEO Options Compensation, CEO Overconfidence, and Product Market Fluidity. Standard errors clustered on deal year are reported in parentheses. The symbols ***, **, and * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

Panel A: Public Targets

	Acquirer Bonds					*Target Bonds*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Acquirer > Target Rating	-0.447	-0.301	-0.571*	-0.308	-0.314	1.842	3.211***	4.505***	3.874***
	(0.524)	(0.249)	(0.283)	(0.369)	(0.304)	(2.087)	(0.979)	(1.204)	(1.144)
Equity Implied Volatility	0.427	0.006	0.142	0.042	-0.022	4.138	2.729	2.735	3.390
Combined > Acquirer (or Target)	(0.404)	(0.428)	(0.571)	(0.518)	(0.488)	(3.574)	(2.126)	(2.461)	(2.469)
Market Leverage	-0.219					2.173			
Combined > Acquirer (or Target)	(0.258)					(2.759)			
Acquirer Excess Leverage		1.589	2.842*	1.817	2.213		-1.478	3.962	4.952
		(1.050)	(1.349)	(1.377)	(1.373)		(4.372)	(6.389)	(7.338)
Target Excess Leverage		-1.944	-1.947	-1.528	-1.349		20.420*	18.030	20.540
		(1.178)	(1.541)	(1.279)	(1.294)		(11.080)	(16.800)	(15.370)
Acquirer > Target Maturity	0.348					-4.773			
	(0.368)					(3.162)			
Acquirer (or Target) Maturity		-0.038	-0.025	-0.025	-0.031		0.048	0.141	0.066
		(0.034)	(0.050)	(0.040)	(0.043)		(0.104)	(0.148)	(0.091)
Relative Size of Target/Acquirer	-0.599	-1.007*	-0.992*	-1.024	-1.080	-4.448	-2.350	-3.962	-4.324*
	(0.453)	(0.533)	(0.524)	(0.667)	(0.614)	(3.870)	(1.743)	(2.356)	(2.322)
Cash Percentage of Payment	-1.182**	-0.807	-0.780	-0.890	-0.919	-6.555	-0.630	-2.234	-1.991
	(0.525)	(0.464)	(0.641)	(0.649)	(0.575)	(4.945)	(1.595)	(2.209)	(2.179)
Financial Crisis (2007-2009)	-0.476	-0.362	-0.383	-0.448	-0.354	7.459	3.380	3.674*	2.579
	(0.577)	(0.471)	(0.467)	(0.567)	(0.525)	(4.913)	(2.002)	(1.869)	(1.808)
Same Industry Dummy (3 Digit SIC)	0.128	-0.055	-0.131	-0.177	-0.082	-0.924	-0.230	-1.190	-0.629
	(0.422)	(0.398)	(0.410)	(0.470)	(0.457)	(3.031)	(1.604)	(1.891)	(1.925)
Withdrawn Deal	-0.491	-0.352	-0.359	-0.372	0.010	1.457	-0.941	-0.920	-1.039
	(0.321)	(0.364)	(0.399)	(0.367)	(0.518)	(2.393)	(1.857)	(2.718)	(2.701)
Cov Ratio: Merger Restrictive			-0.445	-0.211	-0.086			-5.434	-3.619
			(0.330)	(0.376)	(0.398)			(3.759)	(3.517)
Log(S&P Credit Rating Age)			-0.781***					-0.775	
			(0.196)					(0.851)	
Bonds Relative Bid-Ask Spread				14.94					-181.50
				(100.50)					(296.10)
Target Equity CAR					-0.002				
					(0.006)				
Intercept	0.271	0.755	3.049**	0.875	0.883	6.346	1.009	7.801	5.915
	(0.746)	(0.647)	(1.291)	(0.861)	(0.941)	(5.657)	(1.107)	(5.151)	(4.188)
Number of Observations	38	81	71	73	72	38	63	51	53
Adjusted R^2	-0.050	0.059	0.180	0.010	0.004	0.119	0.089	0.052	0.059

Table 5 (Continued)

Regressions Explaining Acquirer Firm Aggregated Bond Returns

Panel B: All Targets								
	Acquirer Bonds							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
S&P Credit Rating	0.099*	0.091	0.103	0.085	0.104	0.126	0.126	0.120
	(0.050)	(0.051)	(0.077)	(0.083)	(0.077)	(0.083)	(0.085)	(0.082)
Log(S&P Credit Rating Age)	-0.372***	-0.364***	-0.401***	-0.392***	-0.401***	-0.335***	-0.337***	-0.333***
	(0.102)	(0.104)	(0.101)	(0.110)	(0.101)	(0.071)	(0.073)	(0.071)
Log(Market Cap)	-0.180	-0.159	-0.198	-0.153	-0.198	-0.263	-0.263	-0.255
	(0.128)	(0.129)	(0.151)	(0.187)	(0.151)	(0.151)	(0.152)	(0.148)
Excess Leverage	0.426	0.205	-0.056	1.247	-0.055	-0.229	-0.224	-0.103
	(0.661)	(0.872)	(0.723)	(0.985)	(0.724)	(0.780)	(0.776)	(0.822)
Market/Book Ratio	0.013	0.012	0.001	0.050	0.001	-0.024	-0.024	-0.023
	(0.042)	(0.043)	(0.047)	(0.043)	(0.047)	(0.040)	(0.041)	(0.041)
Implied Volatility	0.716	0.831	1.014	3.793*	1.016	0.860	0.836	0.629
	(0.991)	(0.973)	(1.000)	(1.770)	(0.994)	(1.103)	(1.119)	(1.111)
Bond Maturity	0.005	0.005	-0.007	0.001	-0.006	0.006	0.006	0.006
	(0.024)	(0.026)	(0.022)	(0.024)	(0.023)	(0.027)	(0.029)	(0.030)
Relative Size (Target/Acquirer)	-0.354	-0.321	-0.244	0.132	-0.252	-0.223	-0.225	-0.231
	(0.253)	(0.249)	(0.267)	(0.283)	(0.258)	(0.219)	(0.220)	(0.208)
Cash Percentage of Payment	-0.008	0.051	0.038	0.062	0.009	-0.006	-0.008	-0.059
	(0.159)	(0.168)	(0.144)	(0.209)	(0.171)	(0.217)	(0.222)	(0.240)
Same Industry Dummy (3 Digit SIC)	-0.227*	-0.220	-0.214	-0.287	-0.214	-0.298	-0.295	-0.291
	(0.122)	(0.124)	(0.151)	(0.191)	(0.151)	(0.172)	(0.175)	(0.180)
Withdrawn Deal	-0.317	-0.431	-0.391	-0.845	-0.388	-0.473	-0.457	-0.407
	(0.282)	(0.343)	(0.366)	(0.600)	(0.368)	(0.410)	(0.403)	(0.431)
Private Target	0.007	0.042	0.091	0.296	0.030	-0.110	-0.111	-0.197
	(0.176)	(0.172)	(0.149)	(0.186)	(0.290)	(0.326)	(0.324)	(0.342)
Private Target × Cash Percentage					0.185	0.679	0.675	0.875
					(0.868)	(0.944)	(0.950)	(1.004)
Cov Ratio: Merger Restrictive						-0.179	-0.202	-0.225
						(0.319)	(0.326)	(0.323)
Bonds Relative Bid-Ask Spread							1.853	-0.182
							(28.910)	(28.670)
Acquirer Equity CAR								0.018*
								(0.009)
Intercept	-0.309	-0.865	6.531***	-1.043	6.567***	-0.904	-0.883	-0.498
	(0.701)	(0.659)	(1.327)	(1.856)	(1.310)	(1.142)	(1.184)	(1.042)
Year Fixed Effects	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry (2 Digit SIC) Fixed Effects	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Additional Controls	No	No	No	Yes	No	No	No	No
Number of Observations	817	817	817	538	817	759	755	753
Adjusted R^2	0.032	0.041	0.096	0.105	0.095	0.110	0.107	0.108

Table 6

Regressions Explaining Individual Bond Returns around Acquisitions

The dependent variables in OLS regression specifications are individual cash bond excess returns calculated as firm-aggregated price-weighted excess returns on the window [-5,+1] around the deal announcement date. Individual bonds are matched by short, intermediate, and long maturity sub-indices of the Barclays investment grade and high yield indices respectively. Coefficients for Cash Percentage of Payment and Private Target are not shown. Additional time variant firm controls include Market Capitalization, Excess Leverage, M/B Ratio, Implied Volatility, Tangibility, Bank Debt, Operating Cash Flow Yield, E-Index, CEO Options Compensation, CEO Overconfidence, and Product Market Fluidity. Standard errors clustered on deal year are reported in parentheses. The symbols ****, ***, **, and * denote statistical significance at the 0.01, 1, 5, and 10 percent levels, respectively.

	Acquirer Bonds					*Target Bonds*		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
S&P Credit Rating	0.024	0.046	0.199**	-0.006	0.160	0.450	-0.363	-0.141
	(0.031)	(0.037)	(0.083)	(0.076)	(0.133)	(0.364)	(0.744)	(0.534)
Log(S&P Credit Rating Age)	-0.345***	-0.379****	-0.522****	-0.419****	-0.571****	-1.136**	-1.179***	-0.686
	(0.075)	(0.060)	(0.060)	(0.061)	(0.078)	(0.425)	(0.291)	(0.678)
Acquirer > Target Bond Rating						2.568*	1.838	-1.033
						(1.376)	(2.278)	(4.014)
Bond Maturity	-0.012	-0.012	-0.012	-0.008	-0.013	-0.032	0.042	0.074
	(0.008)	(0.009)	(0.009)	(0.010)	(0.011)	(0.123)	(0.166)	(0.194)
Cov: Merger Restrictive	0.144	0.214	0.114	0.190	0.222	0.383	1.556**	2.126***
	(0.150)	(0.190)	(0.247)	(0.191)	(0.273)	(2.588)	(0.584)	(0.646)
Cov: Limited Debt	0.166	0.214	0.070	0.365**	0.329	2.476**	1.187	-0.435
	(0.196)	(0.146)	(0.187)	(0.166)	(0.220)	(0.946)	(1.734)	(2.595)
Bond Relative Bid-Ask Spread	25.57**	29.72***	36.90**	37.09***	36.61*	-128.00	-329.20*	-291.60**
	(10.37)	(7.67)	(15.67)	(11.52)	(18.38)	(105.90)	(158.90)	(129.90)
Log(Bond Issue Amount)	-0.004	-0.090	-0.008	0.105	0.023	0.997	0.986	1.345*
	(0.081)	(0.125)	(0.141)	(0.133)	(0.167)	(0.610)	(0.617)	(0.658)
Bond Coupon	-0.017	-0.025	-0.063**	-0.035	-0.076**	0.950*	1.074**	1.025**
	(0.020)	(0.025)	(0.028)	(0.024)	(0.031)	(0.447)	(0.459)	(0.409)
Bond Callable	-0.178	-0.161	-0.164	-0.121	-0.209	-0.055	1.164	1.304
	(0.119)	(0.145)	(0.181)	(0.128)	(0.193)	(1.721)	(1.463)	(1.570)
Bond Putable	0.166	0.098	0.208	0.219	0.319	-4.474	-6.203***	-8.861*
	(0.325)	(0.345)	(0.439)	(0.357)	(0.386)	(3.398)	(1.105)	(4.439)
Bond Secured	-0.150	0.026	0.032	-0.431	-0.530	-1.440	-5.982	-6.261
	(0.412)	(0.368)	(0.834)	(0.563)	(0.453)	(1.584)	(3.999)	(3.742)
Bond Senior	-0.100	-0.145	-0.052	0.423*	0.469**	-11.550	-5.623*	-6.378**
	(0.148)	(0.325)	(0.468)	(0.223)	(0.156)	(7.295)	(2.831)	(2.812)
Relative Size (Target/Acquirer)	-0.871**	-0.728*	-0.755*	-0.698*	-1.034*			0.485
	(0.338)	(0.379)	(0.371)	(0.391)	(0.479)			(3.152)
Same Industry Dummy (3 Digit SIC)	-0.107*	-0.177***	-0.371**	-0.224	-0.543**			-6.723
	(0.058)	(0.052)	(0.125)	(0.135)	(0.210)			(6.011)
Withdrawn Deal	-0.759***	-0.639**	-0.595	-0.463	-0.261			-0.664
	(0.248)	(0.226)	(0.535)	(0.448)	(0.588)			(2.248)
Intercept	0.227	3.449	1.733	-0.942	5.003	-23.110	-15.040	-18.440
	(1.689)	(2.030)	(3.828)	(2.681)	(7.069)	(12.870)	(21.780)	(16.590)
Firm Fixed Effects	No	No	No	Yes	Yes	No	No	No
Industry (2 Digit SIC) Fixed Effects	No	Yes	Yes	No	No	No	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Additional Firm Controls	No	No	Yes	No	Yes	No	No	No
Number of Observations	3,229	3,229	2,008	3,229	2,008	196	196	196
Adjusted R^2	0.059	0.087	0.136	0.156	0.222	0.100	0.248	0.250

Table 7

Regressions Explaining Bond Returns around Common Equity Repurchases

The dependent variables in Panel A are cash bond excess returns calculated as firm-aggregated price-weighted excess returns on the window [-5,+1] around the repurchase announcement date. Individual bonds are matched by short, intermediate, and long maturity sub-indices of the Barclays investment grade and high yield indices respectively. Unless displayed, additional controls include Market Capitalization, Implied Volatility, Excess Leverage, M/B Ratio, Lagged Equity Return, Additional Borrowing, Tangibility, Dividend Yield, Operating Cash Flow Yield, E-Index, Bank Debt, CEO Options Compensation, CEO Overconfidence, and Product Market Fluidity. Repurchases include all announced during the period 2002 to 2014 that are listed on the SDC Platinum database. Repurchases must be $1M or larger in value and represent 0.5% of firm market equity value. Standard errors clustered on repurchase year are reported in parentheses. The symbols ****, ***, **, and * denote statistical significance at the 0.01, 1, 5, and 10 percent levels, respectively.

	Panel A: Firm Aggregated Bond Returns					
	(1)	(2)	(3)	(4)	(5)	(6)
S&P Credit Rating	0.054	0.071	0.022	0.048	0.069	0.018
	(0.046)	(0.065)	(0.082)	(0.059)	(0.082)	(0.099)
Log(S&P Credit Rating Age)	-0.570***	-0.574***	-0.585***	-0.517****	-0.516****	-0.544***
	(0.112)	(0.101)	(0.114)	(0.087)	(0.077)	(0.113)
Log(Market Cap)	-0.154**	-0.252**	-0.202	-0.162**	-0.254**	-0.191
	(0.058)	(0.090)	(0.156)	(0.061)	(0.105)	(0.170)
Excess Leverage	-0.093	-0.210	-0.261	-0.060	0.155	-0.338
	(0.761)	(0.834)	(1.082)	(0.709)	(0.799)	(1.115)
Market/Book Ratio	-0.003	-0.016	-0.016	-0.007	-0.020	-0.022
	(0.012)	(0.014)	(0.017)	(0.013)	(0.016)	(0.017)
Lagged Equity Return	0.111	0.102	0.159	0.108	0.084	0.133
	(0.119)	(0.155)	(0.181)	(0.119)	(0.141)	(0.161)
Implied Volatility	-2.093**	-2.534**	-3.271*	-2.205***	-2.619**	-3.563**
	(0.759)	(1.071)	(1.507)	(0.716)	(0.920)	(1.453)
Bond Maturity	0.028**	0.031***	0.023*	0.029***	0.034***	0.018
	(0.010)	(0.009)	(0.013)	(0.009)	(0.007)	(0.012)
Repurchase Size	0.076	0.240	-0.128	0.117	0.258	-0.168
	(0.095)	(0.171)	(0.284)	(0.081)	(0.168)	(0.277)
Withdrawn Repurchase	-0.293	-0.303	-0.247	-0.194	-0.179	-0.180
	(0.202)	(0.249)	(0.352)	(0.275)	(0.267)	(0.390)
Open Market Repurchase	0.369	0.311	0.414	0.408	0.332	0.414
	(0.219)	(0.270)	(0.391)	(0.231)	(0.285)	(0.416)
Bonds Relative Bid-Ask Spread				-12.69	-13.09	-51.39
				(32.56)	(31.39)	(45.51)
Cov Ratio: Payout Policy				-0.134	-0.155	0.283
				(0.187)	(0.274)	(0.423)
Equity CAR				0.038*	0.036	0.021
				(0.020)	(0.022)	(0.030)
Intercept	1.130	0.189	2.479	1.152	2.045	2.678
	(1.186)	(1.517)	(2.112)	(1.564)	(2.168)	(2.673)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry (2 Digit SIC) Fixed Effects	No	Yes	Yes	No	Yes	Yes
Additional Controls	No	No	Yes	No	No	Yes
Number of Observations	913	913	667	860	860	635
Adjusted R^2	0.064	0.081	0.070	0.065	0.080	0.071

TABLE 7 (Continued)

Regressions Explaining Bond Returns around Common Equity Repurchases

	Panel B: Individual Bond Returns					
	(1)	(2)	(3)	(4)	(5)	(6)
S&P Credit Rating	0.023	0.026	0.052	0.022	0.022	-0.009
	(0.028)	(0.037)	(0.050)	(0.051)	(0.051)	(0.054)
Log(S&P Credit Rating Age)	-0.487****	-0.483****	-0.460****	-0.495****	-0.495****	-0.476***
	(0.042)	(0.040)	(0.049)	(0.061)	(0.061)	(0.091)
Bond Maturity	0.009*	0.009*	0.006	0.003	0.003	0.004
	(0.005)	(0.005)	(0.005)	(0.003)	(0.003)	(0.004)
Cov: Payout Policy	-0.249	-0.259	-0.104	0.170	0.171	-0.195
	(0.170)	(0.162)	(0.362)	(0.356)	(0.358)	(0.256)
Cov: Limited Debt	0.329**	0.282**	0.222	0.066	0.066	-0.082
	(0.116)	(0.123)	(0.204)	(0.095)	(0.095)	(0.138)
Bond Relative Bid-Ask Spread	-17.28	-19.07	-16.67	-47.52**	-47.51**	-44.24**
	(13.75)	(13.63)	(13.40)	(19.39)	(19.41)	(17.01)
Log(Bond Issue Amount)	-0.046	-0.038	-0.052	-0.166	-0.166	-0.176
	(0.058)	(0.080)	(0.105)	(0.095)	(0.095)	(0.125)
Bond Coupon	-0.008	-0.007	0.008	0.007	0.007	0.031*
	(0.022)	(0.022)	(0.014)	(0.024)	(0.024)	(0.015)
Bond Callable	0.087	0.078	0.100	0.087	0.087	0.080
	(0.061)	(0.058)	(0.095)	(0.105)	(0.105)	(0.145)
Bond Putable	0.185	0.190	0.050	0.026	0.026	-0.071
	(0.387)	(0.396)	(0.395)	(0.505)	(0.504)	(0.490)
Bond Secured	0.317	0.567	1.564**	0.780	0.778	3.643****
	(0.377)	(0.353)	(0.656)	(0.975)	(0.978)	(0.295)
Bond Senior	-0.200	-0.216	-0.191	-0.389	-0.389	-0.121
	(0.250)	(0.241)	(0.173)	(0.281)	(0.281)	(0.198)
Repurchase Size	0.178	0.191*	0.153**	0.200*	0.201*	0.212**
	(0.122)	(0.106)	(0.064)	(0.098)	(0.094)	(0.089)
Withdrawn Repurchase	-0.510**	-0.367*	-0.288	-0.149	-0.147	-0.315
	(0.223)	(0.203)	(0.212)	(0.380)	(0.379)	(0.440)
Open Market Repurchase	-0.064	-0.018	-0.071	-0.044	-0.043	-0.012
	(0.162)	(0.193)	(0.313)	(0.190)	(0.192)	(0.240)
Equity CAR		0.028*	0.028*		0.001	0.013
		(0.013)	(0.014)		(0.009)	(0.014)
Intercept	-2.955	-2.941	3.050	0.630	0.628	16.710***
	(2.727)	(3.023)	(2.134)	(1.937)	(1.930)	(3.413)
Firm Fixed Effects	No	No	Yes	No	No	Yes
Industry (2 Digit SIC) Fixed Effects	Yes	Yes	No	Yes	Yes	No
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Additional Firm Controls	No	No	No	Yes	Yes	Yes
Number of Observations	4,212	4,179	4,211	2,898	2,898	2,898
Adjusted R^2	0.077	0.080	0.155	0.088	0.088	0.200

Table 8

Regressions Explaining Bond Returns around Seasoned Equity Offerings

The dependent variables in Panel A are cash bond excess returns calculated as firm-aggregated price-weighted excess returns on the window [-5,+1] around the seasoned equity offering (SEO) announcement date. Individual bonds are matched by short, intermediate, and long maturity sub-indices pf the Barclays investment grade and high yield indices respectively. Additional controls include Market Capitalization, Excess Leverage, M/B Ratio, Lagged Equity Return, Implied Volatility, Tangibility, Dividend Yield, Operating Cash Flow Yield, E-Index, and CEO Options Compensation. SEOs include all announced during the period 2002 to 2014 that are listed on the SDC Platinum database. SEOs must be $1M or larger in value and represent 0.5% of firm market equity value. Standard errors clustered on SEO year are reported in parentheses. The symbols ****, ***, **, and * denote statistical significance at the 0.01, 1, 5, and 10 percent levels, respectively.

	Panel A: Firm Aggregated Bond Returns					
	(1)	(2)	(3)	(4)	(5)	(6)
S&P Credit Rating	-0.147	-0.330*	-0.531	-0.124	-0.327**	-0.597
	(0.145)	(0.164)	(0.389)	(0.154)	(0.126)	(0.359)
Log(S&P Credit Rating Age)	-0.690***	-0.727****	-1.039**	-0.640***	-0.769***	-1.183***
	(0.158)	(0.114)	(0.404)	(0.127)	(0.136)	(0.383)
Log(Market Cap)	0.717*	0.873**	1.199*	0.726*	0.911**	1.413**
	(0.353)	(0.356)	(0.640)	(0.389)	(0.352)	(0.625)
Excess Leverage	-2.463	-3.613	-8.774	-1.371	-3.203	-12.680*
	(2.269)	(2.313)	(5.737)	(2.126)	(1.896)	(5.941)
Market/Book Ratio	-0.040	-0.058	0.075	-0.066*	-0.087	0.068
	(0.041)	(0.052)	(0.081)	(0.037)	(0.067)	(0.052)
Lagged Equity Return	-0.003	-0.260	-0.339	0.026	-0.338	-0.416
	(0.149)	(0.314)	(0.499)	(0.190)	(0.416)	(0.537)
Implied Volatility	2.497	2.708	2.190	2.457	2.511	1.968
	(1.497)	(2.583)	(3.050)	(1.445)	(2.670)	(1.773)
Bond Maturity	-0.102*	-0.055	-0.065	-0.081**	-0.008	-0.006
	(0.050)	(0.074)	(0.078)	(0.036)	(0.056)	(0.079)
SEO Size	16.12***	18.35***	19.31*	17.49***	20.27****	23.91**
	(5.10)	(4.85)	(10.01)	(3.81)	(3.52)	(8.80)
Bonds Relative Bid-Ask Spread				46.57	124.80	212.90
				(54.40)	(94.92)	(193.80)
Cov Ratio: Limited Debt				0.013	-0.658	0.366
				(0.523)	(0.614)	(1.595)
Equity CAR				0.052	0.054	0.160**
				(0.063)	(0.051)	(0.071)
Intercept	-1.982	-0.872	3.714	-4.092**	-1.451	-1.670
	(1.293)	(2.157)	(4.747)	(1.597)	(3.122)	(5.381)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry (2 Digit SIC) Fixed Effects	No	Yes	Yes	No	Yes	Yes
Additional Controls	No	No	Yes	No	No	Yes
Number of Observations	286	286	171	260	260	153
Adjusted R^2	0.167	0.197	0.151	0.194	0.238	0.293

TABLE 8 (Continued)

Regressions Explaining Bond Returns around Seasoned Equity Offerings

	Panel B: Individual Bond Returns					
	(1)	(2)	(3)	(4)	(5)	(6)
S&P Credit Rating	-0.107*	-0.111*	-0.058	-0.344	-0.419*	0.166
	(0.052)	(0.057)	(0.213)	(0.208)	(0.202)	(0.255)
Log(S&P Credit Rating Age)	-0.799****	-0.789****	-0.960***	-1.390***	-1.458***	-2.077****
	(0.123)	(0.135)	(0.233)	(0.324)	(0.273)	(0.284)
Bond Maturity	0.013	0.017	0.007	0.010	0.013	0.008
	(0.028)	(0.028)	(0.026)	(0.039)	(0.040)	(0.048)
Cov: Limited Debt	-0.418	-0.252	-0.575	0.756	0.821	-0.294
	(0.279)	(0.402)	(0.465)	(0.687)	(0.882)	(0.586)
Bond Relative Bid-Ask Spread	3.895	12.820	19.100	50.870	72.600*	4.998
	(24.990)	(26.910)	(28.330)	(33.260)	(37.940)	(44.260)
Log(Bond Issue Amount)	-0.002	0.002	-0.198	0.198	0.194	0.321
	(0.198)	(0.184)	(0.260)	(0.216)	(0.223)	(0.259)
Bond Coupon	0.010	0.019	0.020	-0.011	0.023	-0.126
	(0.064)	(0.068)	(0.082)	(0.059)	(0.058)	(0.103)
Bond Callable	-0.034	0.082	-0.167	0.132	0.298	-0.313
	(0.350)	(0.389)	(0.225)	(0.421)	(0.541)	(0.245)
Bond Putable	-0.881	-0.813	-1.182	-1.683	-1.660	-2.382**
	(0.692)	(0.687)	(0.681)	(1.254)	(1.398)	(0.865)
Bond Secured	-1.221	-0.941	-2.450	-2.581	-0.445	0.712
	(1.063)	(1.185)	(1.692)	(1.962)	(1.214)	(0.817)
Bond Senior	0.022	-0.029	-0.091	-0.331	-0.260	-0.736
	(0.441)	(0.463)	(0.646)	(0.721)	(0.655)	(0.851)
SEO Size	18.040***	17.900***	33.350**	28.930**	29.450***	21.970****
	(4.086)	(4.048)	(13.320)	(11.080)	(9.016)	(2.652)
Equity CAR		0.038	0.101*		0.169***	0.219***
		(0.035)	(0.051)		(0.049)	(0.061)
Intercept	2.975	3.266	10.400	-3.937	-2.502	-39.000
	(4.884)	(4.930)	(7.088)	(6.555)	(7.020)	(24.980)
Firm Fixed Effects	No	No	Yes	No	No	Yes
Industry (2 Digit SIC) Fixed Effects	Yes	Yes	No	Yes	Yes	No
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Additional Firm Controls	No	No	No	Yes	Yes	Yes
Number of Observations	1,173	1,173	1,173	573	573	573
Adjusted R^2	0.178	0.181	0.310	0.310	0.344	0.545

Table 9

Descriptive Statistics of CDS Spread and CDS-Bond Basis Changes: Acquisitions

All results are presented in basis points on the [-5,+1] event window. Prior to October 2003 (2007), investment grade (high yield) 5-year CDS spread excess changes are computed as the spread change in basis points over the event window minus the change in the investment grade (high yield) BofA Merrill Lynch US Corporate Spread obtained from the St. Louis Fed. After October 2003 (2007), raw investment grade (high yield) CDS spread changes are adjusted by the spread change of the Markit CDX North American Investment Grade index (Markit CDX North American High Yield index). The CDS-bond basis is firm-aggregate price-weighted and calculated as the difference between the interpolated (to individual bond maturity) CDS spread and the z-spread. Z-spreads used in the basis credit ratio (BCR) are also price-weighted firm aggregates. Unless specified, cross-sections are constructed using all relevant transactions. A firm is designated investment grade if the firm's S&P Rating is BBB- and higher and high yield if below BB- or unrated. Financials (Utilities) include firms with 6000 (4900) SIC codes. The significance level of the median is determined using a Wilcoxon signed-rank test. The significance level of the difference in medians is determined using a Wilcoxon rank-sum (Mann-Whitney) test. The symbols ****, ***, **, and * denote statistical significance at the 0.01, 1, 5, and 10 percent levels, respectively. †††, ††, and † denote significant differences in cross-sectional non-parametric tests at the 1, 5, and 10 percent levels respectively.

Panel A1: Acquisitions, Acquirer Firms

	(1) CDS Spread Change (bps)			(2) CDS-Bond Basis Change (bps)			(3) Basis Credit Ratio		
	Mean	Median	N	Mean	Median	N	Mean	Median	N
All Acquisitions	0.902	0.757 **	516	0.191	0.609 *	427	0.868	-0.511 ***	334
Primary Sample	0.902	0.757 **	516	0.116	0.590 *	396	0.868	-0.511 ***	334
CDS-Bond Subsample	1.092	0.720 *	428	-0.879	0.544	304	1.007	-0.483	242
2002-2006	1.245	0.742 **	161	1.214	0.449	80	-2.898	-0.569 **	78
2007-2009	-0.285	-1.074	123 †††	0.456	0.953	141	-1.483	-0.556 **	123
2010-2014	1.293	1.518 ***	232 ††	-0.388	0.365	206	5.250	-0.349	133
Investment Grade	1.717 ***	1.000 ***	435	0.692	0.538 *	331	2.161	-0.570 *	256
High Yield	-3.473	-0.437	81	-1.538	1.518	96	-3.378	-0.270 **	78
S&P Rating Less Than Two Weeks Old	0.523	0.333	247	0.991	0.248	191	-3.639	-0.556 *	145
S&P Rating Greater than Two Weeks Old	1.660	1.250 **	251	-0.620	1.129 **	228	4.587	-0.483 *	180
Predominantly Discount Bonds	1.220	0.062	57	0.835	1.490	92	-4.706 *	-0.440 *	78
Predominantly Premium Bonds	0.862	1.000 **	459	0.014	0.482	335	2.566	-0.561 **	256
Below Median CDS Spread	0.637	1.000 *	264	-2.687	0.029	174	5.205	-0.443	144
Above Median CDS Spread	0.897	0.495	248	2.120	1.775 **	165	-0.796	-0.569 **	115
Below Median Bond Bid-Ask Spread	0.824	0.488	158	1.920	1.474 *	140	2.125	-0.325	195
Above Median Bond Bid-Ask Spread	1.250	0.868 *	270	-0.647	0.381	286	-0.910	-0.622 ****	138
Below Median Bond Trade Volume	1.754	0.470	148	-0.026	0.205	169	3.062	-0.570	122
Above Median Bond Trade Volume	2.290 **	1.155 *	152	-2.053	0.605	182	0.839	-0.307	136
Below Median CDS Bid-Ask Spread	1.120	0.474	253	1.736	1.158 **	186 ††	1.128	-0.542 *	132
Above Median CDS Bid-Ask Spread	1.235	1.000 *	255	-2.954	0.028	151	4.038	-0.519	126
No Bank Debt	2.401 **	0.710 *	329	2.196 *	0.687	263	-3.542 *	-0.675 ***	201 ††
Has Bank Debt	-1.174	1.155	180	-3.319	0.544	160	7.786 *	-0.032	129
Industrial Firms	0.954	0.750 *	382	-1.466	0.461	309	4.572 *	-0.386	240
Financials and Utilities	0.753	0.809	134	4.529 *	1.594 **	118 ††	-8.589 **	-0.769 ***	94 ††
Cash Payment Only	1.215	1.140 **	227 ††	0.448	0.588	205	0.632	-0.349	167 †
Stock Payment Only	-0.655	-0.188	178	1.822	1.537 *	137	2.647	-0.593	106
Private Targets	-0.542	0.500	337	-0.226	0.841	279	2.975	-0.450 *	203
Public Targets	3.621 *	1.336 **	179 †	0.977	0.332	148	-2.398	-0.616 **	131

Panel A2: Acquisitions, Target Firms

	(1) CDS Spread Change (bps)			(2) CDS-Bond Basis Change (bps)			(3) Basis Credit Ratio		
	Mean	Median	N	Mean	Median	N	Mean	Median	N
All Acquisitions	-25.786 *	-6.473 **	45	-9.996	-2.633	43	-3.829	-0.468	34
Primary Sample	-65.695 **	-40.714 ***	18 †††	-3.744	-0.376	21	-6.303	-0.528	18
CDS-Bond Subsample	-59.445 **	-40.696 **	15 ††	-15.764	-7.256	16	-7.648	0.058	13
2002-2006	-6.230	-2.698	12	11.706	3.754	6 †	-1.531	-0.904 **	6
2007-2009	-50.600	-16.233 *	17	-7.675	-4.555	17	0.675	-0.031	17
2010-2014	-14.087	-6.937	16	-18.480 **	-13.157 **	20	-12.042	-0.659	11
Investment Grade	-21.277	-6.299 **	28	-19.472 **	-14.239 **	24 ††	-7.860	-0.954	18
High Yield	-33.211	-6.473	17	1.973	2.536	19	0.707	-0.164	16
S&P Rating Less Than Two Weeks Old	-36.205 *	-5.456 **	18	-16.205	-2.465	20	1.031	0.052	17
S&P Rating Greater than Two Weeks Old	-18.839	-6.473	27	-3.981	-1.752	22	-8.735	-0.468 **	16

Table 9 (Continued)

Descriptive Statistics of CDS Spread and CDS-Bond Basis Changes: Common Equity Repurchases

Panel B: Repurchases

	(1) CDS Spread Change (bps)			(2) CDS-Bond Basis Change (bps)			(3) Basis Credit Ratio		
	Mean	Median	N	Mean	Median	N	Mean	Median	N
All Repurchases	-0.902	0.261	673	-2.334 ***	-0.204 **	536	1.133	-0.696 ****	423
Primary Sample	-0.902	0.261	673	-2.497 ***	-0.203 **	511	1.133	-0.696 ****	423
CDS-Bond Subsample	-0.714	0.292	595	-2.601 **	-0.167 **	416	1.682	-0.730 ***	332
2002-2006	1.299 **	0.438 **	201	-1.059	0.013	85	8.600	-0.832 ***	82
2007-2009	-5.503	-0.483	174 †	-3.433	0.216	168	-10.647	-0.702 ****	160
2010-2014	0.301	0.191	298	-2.065 **	-0.621 **	283	8.165	-0.467	181
Investment Grade	-0.449	0.199	566	-1.882 **	-0.007	440	8.361	-0.827 ****	354 †
High Yield	-3.294	0.979	107	-4.409 *	-1.202 *	96	-35.946	-0.442	69
S&P Rating Less Than Two Weeks Old	-2.562	-0.015	294	-3.344 *	-0.329 *	224	-11.454	-0.923 ***	165
S&P Rating Greater than Two Weeks Old	0.229	0.428	359	-1.862 *	-0.205 *	297	9.567	-0.602 **	245
Predominantly Discount Bonds	-8.229	-0.351	84	-3.368	0.911	101	-28.118	-0.927 ***	92
Predominantly Premium Bonds	0.143	0.423	589	-2.094 ***	-0.352 ***	435	9.264	-0.610 ***	331
Below Median CDS Spread	0.510	0.313	353	-0.702	0.230	224	8.153	-1.000 ****	196 †††
Above Median CDS Spread	-2.349	0.025	316	-4.536 **	-1.235 ***	243 ††	-7.037	-0.463	163
Below Median Bond Bid-Ask Spread	0.227	0.124	321	-1.865 **	-0.130 *	307	10.602	-0.884 ***	197
Above Median Bond Bid-Ask Spread	-1.970	0.438	272	-2.963	-0.307	229	-7.120	-0.637 **	226
Below Median Bond Trade Volume	-0.898	-0.023	200	-1.383	-0.071	208	4.334	-0.622 **	164
Above Median Bond Trade Volume	1.932 *	0.830 **	228 ††	-1.565 *	0.017	252	-0.905	-0.696 *	183
Below Median CDS Bid-Ask Spread	-2.243	0.121	329	-4.472 ***	-1.094 ***	258 †	8.852	-0.456	187
Above Median CDS Bid-Ask Spread	0.517	0.383	340	-0.413	0.216	208	-7.002	-1.003 ****	172 †††
No Bank Debt	-1.551	0.270	390	-1.798	-0.068	304	2.573	-0.736 ***	256
Has Bank Debt	0.013	0.283	277	-3.083 ***	-0.533 **	230	-1.047	-0.647 *	165
Industrial Firms	0.067	0.210	529	-1.791 **	-0.068 *	425	-0.493	-0.640 ***	329
Financials and Utilities	-4.459	0.410	144	-4.412	-0.610 **	111	6.826	-0.832 ***	94

Table 9 (Continued)

Descriptive Statistics of CDS Spread and CDS-Bond Basis Changes: Seasoned Equity Offerings

Panel C: SEOs

	(1) CDS Spread Change (bps)			(2) CDS-Bond Basis Change (bps)			(3) Basis Credit Ratio		
	Mean	Median	N	Mean	Median	N	Mean	Median	N
All SEOs	-16.602 **	-2.906 ***	153	-0.396	-1.623	124	2.341	-0.509	83
Primary Sample	-16.602 **	-2.906 ***	153	-1.584	-1.852	115	2.341	-0.509	83
CDS-Bond Subsample	-20.103 **	-2.026 **	105	-17.250 **	-1.852 **	71 †	0.266	-0.268	48
2002-2006	-2.604	-2.334 *	36	-2.178	-1.399	19	10.816	-0.710	18
2007-2009	-15.936	-5.046 **	58	10.073	-1.129	49	-0.267	-0.430 *	43
2010-2014	-25.798 *	-3.089 ***	59	-8.952	-1.850	56	0.506	-0.358	22
Investment Grade	-8.663 **	-1.654 **	116	-3.411	-1.852	79	-0.303	-0.931 **	53 †
High Yield	-41.493	-28.833 **	37	4.896	-1.234	45	7.014	-0.173	30
S&P Rating Less Than Two Weeks Old	-15.119	-2.097 **	86	6.846	-1.623	64	-2.508	-0.716	41
S&P Rating Greater than Two Weeks Old	-19.226 **	-4.500 **	45	-9.433	-1.949	57	7.433	-0.428	40
Predominantly Discount Bonds	-36.259	-17.262 *	41	1.850	-0.825	57	-0.773	-0.357	46
Predominantly Premium Bonds	-9.406	-2.584 ***	112	-2.307	-1.852	67	6.213	-0.619	37
Below Median CDS Spread	0.991	-1.456	74	-3.006	-1.847	37	2.520	-0.754	24
Above Median CDS Spread	-33.082 **	-17.857 ***	79 †††	-18.707 *	-3.538	53	-1.691	-0.215	34
Below Median Bond Bid-Ask Spread	-16.199	-2.667 *	63	-6.133	-1.399	73	5.317	-0.455	38
Above Median Bond Bid-Ask Spread	-27.638 **	-1.732	40	8.020	-1.543	50	-0.171	-0.619	45
Below Median Bond Trade Volume	-30.689	-1.524	34	-14.990	-1.949	47	-0.520	-0.099	26
Above Median Bond Trade Volume	-16.221	-2.883 **	41	-4.230	-1.129	53	6.594	-0.268	34
Below Median CDS Bid-Ask Spread	-33.157 ***	-11.057 ***	85 †††	-15.664	-1.092	55	1.977	0.099	36
Above Median CDS Bid-Ask Spread	4.091	-0.944	68	-6.283	-2.431	34	-3.196 *	-1.156 **	21 †
No Bank Debt	-24.698 *	-4.584 ***	81	-12.808	-1.901	60	3.433	-0.524	38
Has Bank Debt	-7.494	-1.654	72	11.240	-1.264	64	1.420	-0.509	45
Industrial Firms	-7.943	-1.609	70	5.551	-1.541	60	5.470	-0.147	37
Financials and Utilities	-23.904 **	-3.931 ***	83	-5.971	-1.626	64	-0.175	-0.816 **	46

Table 10

Regressions Explaining Changes in Credit Spreads around Acquisitions

The dependent variables in acquirer excess CDS and firm-aggregated z-spread changes respectively on the window [-5,+1] around the acquisition announcement date. Prior to October 2003 (2007), investment grade (high yield) 5-year CDS spread excess changes are computed as the spread change in basis points over the event window minus the change in the investment grade (high yield) BofA Merrill Lynch US Corporate Spread obtained from the St. Louis Fed. After October 2003 (2007), raw investment grade (high yield) CDS spread changes are adjusted by the spread change of the Markit CDX North American Investment Grade index (Markit CDX North American High Yield index). Z-spreads are price-weighted firm aggregates adjusted by the BofA ML US IG/HY spreads throughout the 2002-2014 sample. Standard errors clustered on acquisition year are reported in parentheses. The symbols ***, **, and * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

	Acquirer 5-Year CDS Spread Excess Change				*Acquirer Aggregated Bond Z-Spread Excess Change*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log(CDS Spread)	0.000	0.481	-0.294	0.795				
	(1.611)	(2.834)	(3.433)	(1.965)				
S&P Credit Rating					-2.227	-1.792	-1.412	-2.286
					(1.851)	(2.299)	(2.231)	(2.053)
Log(S&P Credit Rating Age)					-2.106	-2.822	-2.655	-2.110
					(3.074)	(2.527)	(2.470)	(2.752)
Log(Market Cap)	0.415	-0.024	-0.217	0.404	7.523	5.964	5.513	8.639
	(1.348)	(1.359)	(1.508)	(1.943)	(7.756)	(7.853)	(7.432)	(8.202)
Excess Leverage	-0.158	-3.048	0.119	9.300	-4.054	-6.793	21.090	-0.886
	(8.746)	(8.378)	(11.230)	(10.100)	(10.670)	(10.020)	(15.810)	(9.829)
Market/Book Ratio	-0.220	-0.214	-0.212	-0.151	-0.138	-0.465	-0.651	0.291
	(0.247)	(0.245)	(0.263)	(0.272)	(0.577)	(0.376)	(0.410)	(0.679)
Implied Volatility	1.36	8.90	13.67	-20.60	-38.33	-29.83	-32.16	-40.01***
	(11.75)	(12.91)	(13.71)	(18.83)	(27.49)	(28.56)	(29.07)	(11.16)
Bond Maturity	0.051	0.028	0.007	0.025	-0.073	0.008	0.055	0.363
	(0.154)	(0.118)	(0.120)	(0.107)	(0.502)	(0.239)	(0.329)	(0.688)
Bond Premium/Discount					28.28	16.15	38.62	-32.02
					(53.96)	(71.81)	(53.53)	(76.53)
Relative Size (Target/Acquirer)	8.899	2.927	3.012	1.293	18.040*	15.540*	13.570	12.770
	(10.930)	(9.561)	(9.875)	(8.284)	(9.241)	(8.235)	(8.663)	(8.160)
Cash Percentage of Payment	0.844	-0.157	-0.732	1.507	5.615	2.503	1.092	2.805
	(2.997)	(3.951)	(4.318)	(3.789)	(4.865)	(4.396)	(4.310)	(5.478)
Same Industry Dummy (3 Digit SIC)	2.717	3.965	3.433	3.752	10.33*	9.578	8.538	0.749
	(2.787)	(2.519)	(2.748)	(2.164)	(5.521)	(5.532)	(4.876)	(2.798)
Withdrawn Deal	9.218*	8.331	7.971	10.45*	-27.05	-17.79	-7.64	-23.87
	(5.041)	(6.332)	(6.344)	(5.326)	(23.20)	(16.88)	(14.99)	(27.63)
Private Target	-2.009	-4.592	-5.208	-0.944	3.319	-0.860	-2.908	2.558
	(2.208)	(4.425)	(4.492)	(4.050)	(5.925)	(4.772)	(6.153)	(4.413)
Private Target × Cash Percentage		6.665	8.194	1.758		21.97	29.37	7.62
		(9.091)	(9.184)	(9.430)		(20.48)	(24.96)	(17.54)
Cov Ratio: Merger Restrictive		2.109	-0.012	0.518		13.520	20.260	22.620
		(3.578)	(3.034)	(3.937)		(17.800)	(18.920)	(26.180)
CDS or Bonds Relative Bid-Ask Spread		-5.607	1.641	-10.48		-1,986.5	-1,810.3	-1,315.3
		(14.470)	(13.820)	(14.49)		(1520.5)	(1347.3)	(1188.3)
Acquirer Equity CAR		-0.793*	-0.807*	-0.103		-0.460	-0.349	-0.352
		(0.426)	(0.440)	(0.227)		(0.373)	(0.345)	(0.284)
Intercept	-8.937	-0.812	0.832	161.20***	-17.14	-13.87	-22.88	-56.41
	(16.360)	(18.620)	(24.410)	(31.88)	(45.47)	(35.16)	(41.15)	(55.92)
Year Fixed Effects	No	No	Yes	Yes	No	No	Yes	Yes
Industry (2 Digit SIC) Fixed Effects	No	No	No	Yes	No	No	No	Yes
Number of Observations	387	380	380	380	406	400	400	400
Adjusted R^2	0.026	0.085	0.070	0.211	0.031	0.051	0.077	0.164

Table 11

Regressions Explaining Changes in Credit Spreads around Common Equity Repurchases

The dependent variables in excess CDS and firm-aggregated z-spread changes respectively on the window [-5,+1] around the repurchase announcement date. Prior to October 2003 (2007), investment grade (high yield) 5-year CDS spread excess changes are computed as the spread change in basis points over the event window minus the change in the investment grade (high yield) BofA Merrill Lynch US Corporate Spread obtained from the St. Louis Fed. After October 2003 (2007), raw investment grade (high yield) CDS spread changes are adjusted by the spread change of the Markit CDX North American Investment Grade index (Markit CDX North American High Yield index). Z-spreads are price-weighted firm aggregates adjusted by the BofA ML US IG/HY spreads throughout the 2002-2014 sample. Standard errors clustered on repurchase year are reported in parentheses. The symbols ***, **, and * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

	5-Year CDS Spread Excess Change			*Aggregated Bonds Z-Spread Excess Change*		
	(1)	(2)	(3)	(4)	(5)	(6)
Log(CDS Spread)	-2.507	-0.203	-3.694			
	(3.454)	(3.364)	(3.656)			
S&P Credit Rating				1.359	1.435	1.739
				(0.986)	(0.944)	(0.959)
Log(S&P Credit Rating Age)				5.783**	6.158**	5.166**
				(2.017)	(2.115)	(1.883)
Log(Market Cap)	-3.163*	-2.956	-5.121	-0.946	-0.762	-1.540
	(1.748)	(1.663)	(2.982)	(2.095)	(2.040)	(1.248)
Excess Leverage	-14.240	-7.569	-8.164	3.383	2.166	1.361
	(13.870)	(17.940)	(15.710)	(13.210)	(10.540)	(19.480)
Market/Book Ratio	-0.185	-0.079	0.415	0.153	0.162	0.619
	(0.255)	(0.233)	(0.313)	(0.152)	(0.157)	(0.349)
Lagged Equity Return	3.993	3.554	2.867	-0.094	0.116	0.552
	(3.871)	(4.000)	(3.642)	(0.519)	(0.657)	(0.600)
Implied Volatility	-180.1	-190.7	-238.9*	14.20	15.23	20.58
	(105.2)	(115.4)	(121.4)	(20.07)	(21.08)	(20.13)
Bond Maturity	-0.467	-0.443	-0.540*	0.001	-0.034	-0.228
	(0.295)	(0.261)	(0.290)	(0.132)	(0.151)	(0.215)
Bond Premium/Discount				14.22	4.14	24.92
				(24.21)	(37.60)	(20.18)
Repurchase Size	1.051	1.982	-0.380	-0.771	-0.545	-8.114
	(1.823)	(2.450)	(2.216)	(1.783)	(1.922)	(5.608)
Withdrawn Repurchase	18.39*	16.22	25.25*	-10.35	-10.35	-8.45
	(9.66)	(9.54)	(12.20)	(14.42)	(14.23)	(11.63)
Open Market Repurchase	13.350	15.420*	15.470*	7.656*	6.275	6.949***
	(7.753)	(8.466)	(8.098)	(3.579)	(3.400)	(1.966)
CDS or Bonds Relative Bid-Ask Spread	-11.94	-10.10	-10.65	2,338.4	2,303.1	1,442.2
	(20.02)	(20.61)	(23.49)	(1992.9)	(2048.2)	(1355.6)
Cov Ratio: Payout Policy	8.845	7.011	15.070	11.330	10.860	10.730
	(9.879)	(8.914)	(9.310)	(7.224)	(8.071)	(9.368)
Equity CAR	-0.010	0.049	-0.030	-1.213	-1.199	-1.393
	(0.406)	(0.399)	(0.417)	(0.661)	(0.658)	(0.856)
Intercept	49.29	33.89	71.67	-57.69*	-53.47	-127.40*
	(39.94)	(34.43)	(52.42)	(30.82)	(33.29)	(61.89)
Year Fixed Effects	No	Yes	Yes	No	Yes	Yes
Industry (2 Digit SIC) Fixed Effects	No	No	Yes	No	No	Yes
Number of Observations	526	526	526	480	480	480
Adjusted R^2	0.266	0.263	0.309	0.088	0.081	0.137

Table 12

Regressions Explaining Changes in Credit Spreads around Seasoned Equity Offerings

The dependent variables in excess CDS and firm-aggregated Z-spread changes respectively on the window [-5,+1] around the SEO announcement date. Prior to October 2003 (2007), investment grade (high yield) 5-year CDS spread excess changes are computed as the spread change in basis points over the event window minus the change in the investment grade (high yield) BofA Merrill Lynch US Corporate Spread obtained from the St. Louis Fed. After October 2003 (2007), raw investment grade (high yield) CDS spread changes are adjusted by the spread change of the Markit CDX North American Investment Grade index (Markit CDX North American High Yield index). Z-spreads are price-weighted firm aggregates adjusted by the BofA ML US IG/HY spreads throughout the 2002-2014 sample. Standard errors clustered on SEO year are reported in parentheses. The symbols ***, **, and * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

	5-Year CDS Spread Excess Change			*Aggregated Bonds Z-Spread Excess Change*		
	(1)	(2)	(3)	(4)	(5)	(6)
Log(CDS Spread)	-14.120	-20.240	-2.247			
	(14.310)	(15.840)	(6.330)			
S&P Credit Rating				5.541	4.706	2.865
				(3.977)	(3.779)	(1.781)
Log(S&P Credit Rating Age)				6.734*	6.918*	19.830**
				(3.440)	(3.517)	(7.585)
Log(Market Cap)	-6.708	-7.418	-13.580	-15.62	-15.94	-14.60**
	(7.803)	(9.338)	(8.245)	(11.77)	(12.30)	(5.63)
Excess Leverage	52.61	69.94	-21.14	96.66	106.50	126.60*
	(46.03)	(48.27)	(107.10)	(59.56)	(62.11)	(65.84)
Market/Book Ratio	-0.806	-0.564	-2.515***	1.263	1.898	1.469
	(1.165)	(1.067)	(0.801)	(1.633)	(2.068)	(2.924)
Lagged Equity Return	-9.277	8.331	8.588	-1.418	-1.399	3.904
	(14.360)	(18.970)	(27.280)	(1.771)	(3.437)	(3.883)
Implied Volatility	-103.1***	-108.4***	-125.1**	-26.53	-29.89	-48.92
	(30.6)	(23.6)	(53.3)	(22.94)	(24.70)	(51.21)
Bond Maturity	0.935	0.629	1.506	-0.578	-0.611	-4.750*
	(0.733)	(0.748)	(0.977)	(1.032)	(1.412)	(2.154)
Bond Premium/Discount				132.7**	181.0**	151.8
				(47.6)	(72.3)	(95.6)
SEO Size	-207.2	-220.8	-392.1***	-212.6*	-244.3**	-198.8*
	(138.0)	(128.6)	(79.0)	(99.1)	(101.5)	(92.0)
CDS or Bond Relative Bid-Ask Spread	82.65	82.08	9.66	-3770.7**	-3306.5**	-9271.4***
	(171.80)	(199.90)	(87.69)	(1173.3)	(1327.5)	(2734.0)
Cov Ratio: Limited Debt	-0.802	-4.301	-29.630	-0.265	-3.713	2.585
	(23.040)	(29.580)	(24.630)	(13.640)	(15.140)	(20.000)
Equity CAR	-4.966****	-5.047****	-4.991****	1.552*	1.529*	0.953
	(0.415)	(0.578)	(0.729)	(0.722)	(0.718)	(0.708)
Intercept	131.80	149.80	82.51	31.16	29.03	82.31
	(135.60)	(148.60)	(98.44)	(49.21)	(39.65)	(119.10)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry (2 Digit SIC) Fixed Effects	No	Yes	Yes	No	Yes	Yes
Additional Controls	No	No	Yes	No	No	Yes
Number of Observations	94	94	94	128	128	128
Adjusted R^2	0.728	0.709	0.837	0.260	0.224	0.231

Table 13

Regressions Explaining Changes in the CDS-Bond Basis around Corporate Events

The dependent variables in OLS regression specifications are changes in CDS-bond basis on the window [-5,+1] around the transaction announcement date. The CDS-bond basis is obtained from Bloomberg and calculated as the difference between the interpolated (to individual bond maturity) CDS spread and the z-spread. Pooled sample specifications include acquirer observations with indicator variables for repurchases and SEOs respectively. Standard errors clustered on transaction year are reported in parentheses. The symbols ***, **, and * denote statistical significance at the 1, 5, and 10 percent levels, respectively.

	Panel A: Firm Aggegated CDS-Bond Basis Changes							
	Pooled Sample		*Acquirers*		*Repurchases*		*SEOs*	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Transaction Size	-4.961	-6.187	-15.780	-16.720	1.400	0.976	-266.4	-399.7****
	(7.494)	(7.880)	(17.830)	(17.010)	(0.895)	(0.732)	(169.6)	(30.1)
Bond Bid-Ask Spread	-1686.4	-1215.1*	-2116.1***	-1367.4**	-2620.3*	-1104.4	-2090.4	-944.5
	(946.6)	(625.5)	(477.5)	(586.1)	(1155.5)	(1236.8)	(4772.4)	(2524.4)
CDS Bid-Ask Spread	1151.4	1142.7	1340.5	747.1	1815.5	347.7	-780.1	-712.4
	(1212.6)	(793.2)	(771.1)	(840.4)	(1204.7)	(1022.0)	(7534.2)	(8478.5)
Bond × CDS Bid-Ask Spread	8.836	8.701	9.870	5.591	13.970	2.683	-6.375	-6.685
	(9.211)	(5.986)	(5.711)	(6.291)	(9.235)	(7.720)	(58.050)	(66.070)
Log(S&P Credit Rating Age)	0.869	0.190	-0.096	-0.540	1.486	0.197	5.900	6.247
	(1.284)	(0.854)	(2.203)	(1.816)	(1.301)	(0.568)	(5.862)	(5.392)
Log(CDS Spread)	-3.592	-3.287	9.311	-1.491	-7.597	-1.238	-0.471	-8.143
	(2.405)	(1.858)	(5.278)	(4.937)	(5.144)	(1.098)	(10.830)	(18.180)
Asset Tangibility		-2.784		10.370		-2.712		-79.60**
		(1.994)		(5.894)		(2.439)		(32.17)
Excess Leverage		26.150		37.930		5.272		-55.49
		(25.000)		(24.120)		(13.500)		(105.80)
Log(Market Capitalization)		-1.181		-4.249		0.128		-12.52
		(1.652)		(3.862)		(0.870)		(10.53)
Financial Firm		-1.627		3.953		0.634		0.943
		(6.020)		(5.273)		(1.052)		(14.560)
Premium/Discount		40.03*		35.96		-2.134		90.33
		(17.63)		(31.35)		(9.300)		(125.10)
Bond Maturity		0.358		-0.226		0.204		3.876**
		(0.280)		(0.235)		(0.129)		(1.674)
Transaction Covenant Ratio		4.181		-3.511		-10.89		45.51**
		(6.259)		(4.618)		(9.81)		(14.49)
Intercept	19.460*	20.90	-29.85	52.64	33.35	9.552	10.54	130.6
	(8.883)	(21.90)	(20.78)	(55.10)	(22.96)	(10.310)	(67.46)	(142.3)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	821	749	298	277	438	400	85	72
Adjusted R^2	0.024	0.031	0.014	-0.013	0.103	0.079	0.135	0.405

Table 13 (Continued)

Regressions Explaining Changes in the CDS-Bond Basis around Corporate Events

	Panel B: Individual Bond CDS-Bond Basis Changes							
	Pooled Sample		*Acquirers*		*Repurchases*		*SEOs*	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Transaction Size	-7.250	-8.654	-30.28	-33.04**	1.543	3.274**	-378.1***	-214.6
	(9.255)	(8.997)	(18.42)	(14.19)	(0.986)	(1.123)	(80.3)	(183.2)
Bond Bid-Ask Spread	269.7	-256.4	271.7	908.6	402.9	-305.3	3133.5	9030.0**
	(578.8)	(726.1)	(522.8)	(536.3)	(394.5)	(526.7)	(2060.1)	(3258.4)
CDS Bid-Ask Spread	329.4	6.9	-165.2	-745.6	-117.40	203.00	-5134.2	-25690.4**
	(633.2)	(397.0)	(590.1)	(511.3)	(249.70)	(174.80)	(2961.3)	(9171.6)
Bond × CDS Bid-Ask Spread	2.607	0.022	-1.134	-5.918	-0.866	1.393	-41.01	-196.90**
	(4.772)	(2.984)	(4.552)	(3.887)	(1.879)	(1.200)	(23.40)	(70.89)
Log(S&P Credit Rating Age)	-0.448	0.461	0.925	0.859	-0.180	1.575**	-6.138	8.270
	(0.738)	(0.745)	(1.677)	(1.084)	(0.665)	(0.547)	(5.403)	(9.951)
Log(CDS Spread)	-7.820***	-6.017	-4.828	-1.727	-3.467*	-2.128**	-37.11*	1.856
	(2.159)	(4.493)	(4.299)	(6.312)	(1.621)	(0.892)	(17.22)	(8.707)
Asset Tangibility	-2.290		12.700*		-2.723		-46.97	
	(3.808)		(5.704)		(3.781)		(37.26)	
Excess Leverage	24.00		48.62**		-1.41		-15.26	
	(13.92)		(19.14)		(11.42)		(101.40)	
Log(Market Capitalization)	-1.377		-5.114**		0.285		2.708	
	(2.006)		(1.909)		(1.003)		(18.290)	
Financial Firm	2.506		3.846		4.386**		18.43	
	(6.893)		(7.479)		(1.415)		(43.19)	
Premium/Discount	28.40	-31.24	-21.29	-67.24*	-2.60	-70.29*	-194.9	-138.0
	(24.57)	(31.94)	(25.42)	(36.05)	(25.73)	(34.47)	(152.5)	(261.2)
Bond Maturity	0.321	0.040	-0.750	-0.308	0.243	-0.147	2.273	-1.452
	(0.278)	(0.233)	(0.625)	(0.512)	(0.282)	(0.229)	(3.013)	(2.861)
Transaction Covenant	3.663	-2.719	1.396	8.290	-10.500	2.433	25.83	-32.690***
	(3.581)	(4.698)	(3.364)	(6.537)	(6.612)	(3.129)	(21.17)	(6.538)
Log(Bond Issue Amount)	-2.942***	0.409	0.921	0.717	-2.229	-0.732	-17.560**	-6.012
	(0.789)	(1.721)	(3.858)	(4.406)	(1.822)	(2.506)	(7.119)	(4.812)
Bond Age	0.051	0.228	0.510	0.499	-0.093	0.139	0.774	-1.715
	(0.396)	(0.224)	(0.325)	(0.343)	(0.538)	(0.358)	(1.786)	(1.045)
Bond Coupon	-1.224	0.839	-2.449	-0.086	0.810	3.443**	12.430	8.736
	(1.776)	(1.481)	(1.653)	(1.835)	(0.589)	(1.187)	(11.160)	(15.870)
Bond Callable	1.448	4.845	-4.296	-0.858	1.005	0.317	15.24	44.46
	(2.387)	(4.581)	(5.674)	(4.225)	(0.818)	(1.413)	(12.40)	(30.07)
Bond Putable	11.00	6.201	17.33	13.77			2.854	11.130
	(11.37)	(6.965)	(11.32)	(10.55)			(14.780)	(7.638)
Bond Secured	-28.09	-91.54*	47.09*	-56.02	8.094	13.850	-59.280	-94.370
	(37.95)	(45.32)	(22.55)	(39.56)	(5.802)	(11.870)	(55.970)	(69.300)
Bond Senior	-0.327	-0.968	-2.926	-3.958	8.679	6.760	9.675	-9.666
	(4.326)	(3.624)	(2.078)	(2.832)	(6.800)	(5.152)	(13.930)	(5.199)
Intercept	111.80***	98.84	51.49	88.88	47.35	-562.8****	346.4	49.74
	(30.83)	(76.17)	(90.96)	(73.61)	(39.58)	(42.59)	(276.9)	(93.31)
Firm Fixed Effects	No	Yes	No	Yes	No	Yes	No	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	2,932	3,249	1,095	1,163	1,510	1,687	327	399
Adjusted R^2	0.034	0.130	0.030	0.149	0.021	0.302	0.174	0.198

Appendix: Table 4A

Descriptive Statistics of Bond Excess Returns around Corporate Events by Credit Rating

Table 4A is an alternative specification of Table 4 using credit rating cross-sections. Firm aggregated excess returns are formed on the window [-5,+1] and are displayed in percent. Bond excess returns are the bond value weighted excess returns above the Barclays (formerly Lehman Brothers) investment grade and high yield indices respectively over the entire sample period. Individual bonds are maturity benchmarked against short, intermediate, and long Barclays corporate investment grade and high yield indices. The signficance level of the difference in medians is determined using a Wilcoxon rank-sum (Mann-Whitney) test. The symbols ****, ***,**, and * denote statistical significance at the 0.01, 1, 5, and 10 percent levels, respectively. †††,††, and † denote significant differences in cross-sectional non-parametric tests at the 1, 5, and 10 percent levels respectively.

	(1) Acquirers			(2) Targets		
S&P Credit Rating	Mean	Median	N	Mean	Median	N
AAA	-0.232	-0.335	18	N/A	N/A	0
AA	0.257	0.125	51 ††	-0.485	-0.485	1
A	-0.223 **	-0.396 ****	280	2.816	0.910	14
BBB	-0.037	-0.231 ***	357	2.614	0.937 *	37
BB	-0.332 **	-0.329 ****	216	2.137 ***	1.141 ***	28
B	-0.454 ***	-0.361 ***	109	1.061 *	0.899 **	25
CCC	-0.119	-0.834	3	N/A	N/A	0
CC	N/A	N/A	0	N/A	N/A	0
D	4.387	4.387	1 †	4.312	4.312	1
NR	0.149	0.078	140 †††	0.198	0.001	14
	(3) Repurchases			(4) SEOs		
S&P Credit Rating	Mean	Median	N	Mean	Median	N
AAA	0.877	0.016	14	0.113	0.113	1
AA	0.117	-0.312	50	-0.608	-0.698	4
A	-0.285 ***	-0.463 ****	354	-0.193	0.079	44
BBB	-0.240 **	-0.347 ****	403	0.537 *	0.023	148
BB	-0.197	-0.371 ***	180	-0.034	-0.044	88
B	-0.311	0.136	30	0.399	-0.011	67
CCC	-0.684	-0.684	1	4.930 **	1.343 **	20 †††
CC	N/A	N/A	0	N/A	N/A	0
D	N/A	N/A	0	N/A	N/A	0
NR	-0.107	-0.200 *	99	1.062 **	0.432 **	64 †

Appendix: Table 9A

Descriptive Statistics of CDS Spread & CDS-Bond Basis Changes by Credit Rating

Table 9A is an alternative specification of Table 9 using credit rating cross-sections. All results are presented in basis points on the [-5,+1] event window. Prior to October 2003 (2007), investment grade (high yield) 5-year CDS spread excess changes are computed as the spread change in basis points over the event window minus the change in the investment grade (high yield) BofA Merrill Lynch US Corporate Spread obtained from the St. Louis Fed. After October 2003 (2007), raw investment grade (high yield) CDS spread changes are adjusted by the spread change of the Markit CDX North American Investment Grade index (Markit CDX North American High Yield index). The CDS-bond basis is firm aggregated and calculated as the difference between the interpolated (to individual bond maturity) CDS spread and the z-spread. Z-spreads used in the basis credit ratio (BCR) are also price-weighted firm aggregates. The significance level of the difference in medians is determined using a Wilcoxon rank-sum (Mann-Whitney) test. The symbols ***, **, and * denote statistical significance at the 1, 5, and 10 percent levels, respectively. †††, ††, and † denote significant differences in cross-sectional non-parametric tests at the 1, 5, and 10 percent levels respectively.

	(1)			(2)			(3)		
	Excess CDS Spread Change (bps)			CDS-Bond Basis Change (bps)			Basis Credit Ratio		
Panel A: Acquisitions									
S&P Rating	Mean	Median	N	Mean	Median	N	Mean	Median	N
AAA	10.831	5.712	6	6.212	2.533	10	-7.376 *	-3.560 **	10 ††
AA	-1.949	0.015	38	-3.208	-0.811	29 ††	-0.094	-0.211	29
A	0.729	1.189 *	178	-2.620	0.283	134	4.638	-0.483	109
BBB	2.939 ***	1.000 **	213	3.867 *	1.984 **	158 ††	1.150	-0.726 *	108
BB	5.603	0.146	43	-1.807	0.605	41	1.696	-0.132	36
B	-18.267	9.577	12	6.295	5.540	10	0.378	0.011	8
CCC	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0
CC	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0
D	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0
NR	-11.656 **	-5.234 ***	26 †††	-3.034	1.055	45	-9.634 *	-0.692 ***	34 †

	(1)			(2)			(3)		
	Excess CDS Spread Change (bps)			CDS-Bond Basis Change (bps)			Basis Credit Ratio		
Panel B: Repurchases									
S&P Rating	Mean	Median	N	Mean	Median	N	Mean	Median	N
AAA	-1.300	-3.042	9	-1.116	0.737	5	-15.527	-3.768	5
AA	-2.000	-0.901	40 †	-2.062	0.172	23	43.484	-1.113	22
A	-1.679	0.426	230	-2.565	-0.122	178	5.605	-0.922 ***	154 †
BBB	0.779	0.187	287	-1.360	-0.046	234	7.038	-0.696	173
BB	-4.351	2.974	72	-3.908	-2.025 *	56 †	-70.342	-0.369	36
B	-6.686	3.500	7	-15.823	-16.959	3	-0.841	-0.633	3
CCC	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0
CC	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0
D	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0
NR	0.270	0.782	28	-4.241	-0.755	37	1.820	-0.496	30

	(1)			(2)			(3)		
	Excess CDS Spread Change (bps)			CDS-Bond Basis Change (bps)			Basis Credit Ratio		
Panel C: SEOs									
S&P Rating	Mean	Median	N	Mean	Median	N	Mean	Median	N
AAA	-1.438	-1.438	1	N/A	N/A	0	N/A	N/A	0
AA	-19.091	-17.857	3	-4.773	0.590	3	0.174	0.145	3
A	-19.181 **	-1.866 *	36	-11.696 *	-4.393 **	18	-3.224	-0.701	16
BBB	-3.363	-1.609	76 ††	-0.769	-1.111	58	1.029	-0.984 *	34
BB	-0.360	-11.995	11	-14.289 *	-15.844	11	0.163	-0.435	8
B	34.404	-17.304	6	79.340	-1.399	11	0.873	-0.499	10
CCC	-124.119 *	-139.157 **	13 †††	-53.654	2.097	8	1.641	1.641	2
CC	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0
D	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0
NR	-17.736	-28.833	7	-4.400	-1.234	15	19.710	-0.005	10

Appendix: Table 14

Security Returns and Spread Changes Using Alternative Event Windows

As in Table 4 and Table 9, excess bond returns, excess CDS spread changes, and CDS-bond basis changes are calculated on a [-1,+1] event window unless otherwise specified. Results on [-15,+15] event windows must contain at least 15 days of bond prices. The symbols ****, ***, **, and * denote statistical significance at the 0.01, 1, 5, and 10 percent levels, respectively. †††, ††, and † denote significant differences in cross-sectional non-parametric tests at the 1, 5, and 10 percent levels respectively.

Panel A: Acquisitions, Acquirer Firms

	(1) Bond Return (%)			(2) CDS Spread Change (bps)			(3) CDS-Bond Basis Change (bps)		
	Mean	Median	N	Mean	Median	N	Mean	Median	N
All Acquisitions (-15,+15)	-0.843 ****	-1.050 ****	863	5.176 ***	2.363 ***	448	1.078	-0.018	351
Primary Sample (-15,+15)	-0.141 ***	-0.147 ****	604	1.398	0.326	415	-0.854	0.024	316
Bond-CDS Subsample (-15,+15)	-1.023 ****	-1.193 ****	351	4.948 **	2.434 ***	351	1.344	0.405	258
All Acquisitions	-0.098 **	-0.138 ****	1,145	1.294	0.336 *	502	0.096	0.115	411
Primary Sample	-0.141 ***	-0.162 ****	805 ††	1.294	0.336 *	502	-0.055	0.097	381
Bond-CDS Subsample	-0.244 ****	-0.214 ****	419	1.230 *	0.368 **	418	-0.676	-0.062	297 †
2002-2006	0.019	-0.094 **	506 ††	0.932	0.312 *	157	0.561	-0.051	74
2007-2009	-0.139	-0.142 **	257	-0.873	-0.570 *	119 †††	-1.225	0.110	134
2010-2014	-0.225 ***	-0.216 ****	582 ††	2.687 **	0.938 ***	226 ††	0.799	0.354	203
Investment Grade	-0.093	-0.141 ****	668	1.296 **	0.322 *	422	0.409	0.058	322
High Yield	-0.105 *	-0.119 ***	477	1.288	0.512	80	-1.036	0.796	89
S&P Rating Less Than Two Weeks Old	-0.037	-0.117 *	506	1.393	0.002	241	-0.328	0.097	183
S&P Rating Greater than Two Weeks Old	-0.136 **	-0.143 ****	606	1.318	0.771 **	243 †	0.655	0.163	216

Panel B: Repurchases

	(1) Bond Return (%)			(2) CDS Spread Change (bps)			(3) CDS-Bond Basis Change (bps)		
	Mean	Median	N	Mean	Median	N	Mean	Median	N
All Repurchases (-15,+15)	-0.638 ****	-0.668 ****	870	-0.738	0.518	579	-2.991 *	-0.360	463
Primary Sample (-15,+15)	-0.568 ****	-0.637 ****	715	-0.738	0.518	579	-3.262 **	-0.607	438
Bond-CDS Subsample (-15,+15)	-0.714 ****	-0.749 ****	497	-1.057	0.227	497	-2.652	-0.226	564 ††
All Repurchases	-0.094 **	-0.159 ****	1,080	1.049 **	0.380 **	655	-2.890	-0.376	558
Primary Sample	-0.152 ***	-0.170 ****	874	1.049 **	0.380 **	655	-0.416	0.111	498
Bond-CDS Subsample	-0.179 ***	-0.203 ****	582 ††	1.031 **	0.417 ***	579	-0.633	-0.002	406
2002-2006	-0.104 *	-0.127 ****	345	0.463	0.277	198	-1.108	-0.212	83
2007-2009	-0.002	-0.116	267	0.838	0.297	165	0.414	0.718	162 †
2010-2014	-0.140 **	-0.207 ****	468	1.567 **	0.697 **	292	-0.715	-0.164	278
Investment Grade	-0.120 **	-0.181 ****	790 †	0.683	0.341 **	554	-0.520	0.090	432
High Yield	-0.025	-0.105	290	3.058	2.250 *	101 ††	0.010	0.447	91
S&P Rating Less Than Two Weeks Old	0.057	-0.136	440	0.281	0.070	285	-1.196	0.089	217
S&P Rating Greater than Two Weeks Old	-0.182 ***	-0.175 ****	602 ††	1.360 **	0.622 *	350	0.094	0.115	291

Panel C: SEOs

	(1) Bond Return (%)			(2) CDS Spread Change (bps)			(3) CDS-Bond Basis Change (bps)		
	Mean	Median	N	Mean	Median	N	Mean	Median	N
All SEOs (-15,+15)	0.441	-0.305	293	-38.8818 ***	-3.375 ***	136	1.025	-0.080	100
Primary Sample (-15,+15)	0.429	-0.084 *	188	-38.882 ***	-3.375 ***	136	1.472	-0.045	94
Bond-CDS Subsample (-15,+15)	0.822	-0.245	89	-40.798 **	-3.000 **	89	1.751	2.361	64
All SEOs	0.388 **	0.020	402	-13.987 ***	-3.054 ****	148	4.457	-0.026	140
Primary Sample	0.069	-0.017	241	-13.987 ***	-3.054 ****	148	0.760	-1.009	109
Bond-CDS Subsample	0.094	-0.068	102	-14.772 ***	-3.076 ***	101	-12.024 **	-1.009 *	67 †
2002-2006	0.205	0.006	162	-1.157	-1.702 *	36	-0.315	-1.236	19
2007-2009	0.756	0.166 *	112	-20.157 ***	-8.421 ***	57 †	-1.825	4.891	45
2010-2014	0.297 *	-0.131	128	-15.991 *	-1.545 **	55	-3.184	0.110	53
Investment Grade	0.111	-0.043	180	-7.794 ***	-2.000 ***	113	-7.258 **	-1.321	74
High Yield	0.612 ***	0.045 **	222	-33.980 **	-17.696 **	35	13.546	-0.337	41
S&P Rating Less Than Two Weeks Old	0.195	-0.013	195	-12.221 **	-1.764 ***	84	10.409	0.265	60
S&P Rating Greater than Two Weeks Old	0.633 **	0.024	197	-16.635 **	-4.010 **	60	-10.861 *	-1.825	55

Appendix: Table 15

Target Capital Structure Regressions

The results of target capital structure time series regressions performed according to Uysal (2011) are reported below. Regressions are calculated independently for firms conducting acquisitions (acquirers and targets), repurchases, and SEOs. The predicted firm target leverage values derived from these coefficients are used to calculate excess leverage throughout my study. Newey-West (1987) adjustment with three lags is used to calculate standard errors that are reported in parentheses. ****, ***, **, and * denote statistical significance at the 0.01%, 1%, 5%, and 10% level, respectively.

	Dependent Variable: Market Leverage$_t$			
	(1a)	(1b)	(2)	(3)
	Acquirers	Targets	Repurchases	SEOs
Sales$_{t-1}$	0.004 ****	0.004 **	0.005 ****	0.005 ****
	(0.000)	(0.002)	(0.001)	(0.001)
Market-to-Book$_{t-1}$	-0.000	-0.002 **	-0.000 *	0.000
	(0.000)	(0.001)	(0.000)	(0.000)
R&D Missing Dummy$_{t-1}$	0.014 ****	0.014 ****	0.007 **	0.001
	(0.003)	(0.011)	(0.003)	(0.005)
R&D/Total Assets$_{t-1}$	-0.022 ***	-0.031	-0.072 ***	-0.011 *
	(0.008)	(0.024)	(0.027)	(0.006)
SG&A/Total Assets$_{t-1}$	-0.000	-0.002 *	0.001 ***	0.000
	(0.000)	(0.001)	(0.000)	(0.000)
EBITDA/Total Assets$_{t-1}$	-0.000	-0.030 **	-0.000	-0.004
	(0.000)	(0.012)	(0.000)	(0.004)
Tangible Assets/Total Assets$_{t-1}$	-0.006	0.007	-0.005	-0.006
	(0.007)	(0.025)	(0.009)	(0.010)
Stock Return$_{t-1}$	0.000 ***	-0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Market Leverage$_{t-1}$	0.638 ****	0.600 ****	0.667 ****	0.638 ****
	(0.005)	(0.017)	(0.007)	(0.008)
3-Digit SIC Industry Fixed Effects	Yes	Yes	Yes	Yes

Appendix: Variable Definitions

Variable	Definition
CDS Spread (bps)	Lagged five year Credit Default Swap spread before [-5,+1] event window, in basis points, obtained from Bloomberg
CDS Bid-Ask Spread (bps)	Pre-event window bid-ask spread of quoted CDS spreads as a measure of firm CDS market liquidity
CDS-Bond Basis (bps)	Pre-event window basis point difference between the interpolated (to individual bond Z-spread maturity) CDS spread and cash bond z-spread: $\text{CDS Bond Basis}_t = \text{CDS Spread}_t - \text{Bond Spread}_t$
Number of Bond Issues	Number of distinct bond issues (regardless of issue size) for the firm at event date as provided by Bloomberg
Z-Spread (bps)	Pre-event window price-weighted firm aggregate zero volatility (z-spread) in basis points as provided by Bloomberg. For a bond with coupon frequency (f) and maturity (m), the z-spread (z) is the parallel shift to the risk-free swap curve (r_{t_i}) which sets the bond invoice price to the present value of bond cash flows: $$\text{Bond Invoice Price} = \left[\sum_{i=1}^{N=m\times f} \frac{\text{Coupon}_{t_i}}{\left(1+\frac{r_{t_i}+z}{f}\right)^{f\times t_i}}\right] + \frac{1}{\left(1+\frac{(r_{t_n}+z)}{f}\right)^{f\times t_N}}$$
Bond Coupon (%), Yield to Maturity (%), Premium / Discount, Age, Maturity, Duration	Price-weighted firm aggregated average of bond coupon (in %), yield to maturity (%), pre-event window premium (+) or discount (-), age since announcement (years), maturity (years), and duration (years) variables across firm bond issues obtained from Bloomberg. Duration is winsorized at the 1% to calculate wealth changes presented in Figure 4 and Figure 5. For each bond (q), all firm (p) price-weighted aggregate bond characteristics and spreads (CS) are calculated as: $$\text{CS}_{p,(t-i,t+j)} = \sum_{q=1}^{n} \frac{\text{Bond CS}_{p,q} \times \text{Bond Value}_{p,q}}{\sum_{r=1}^{n} \text{BondValue}_{p,r}}$$
Bond Relative Bid-Ask Spread	Pre-event window ratio of average bid-ask spread over the average CDS spread midpoint as a measure of firm CDS market liquidity
Bond Trade Volume	Traded bond volume as reported from dealers to Bloomberg over the event window as a firm's bond liquidity measure
Callable, Putable, Secured, Senior Bonds Ratio	Price-weighted average (formula (A2) above) of bond characteristic indicator variables across transacting firm bond issues obtained from Bloomberg and taking values on [0,1]
Cov Ratio: Limited Debt, Merger Restrictive. Payout Policy	Price-weighted average (formula (A2) above) of bond covenant indicator variables across transacting firm bond issues obtained from Bloomberg and taking values on [0,1]
Bank Debt	Sum of term loans and revolvers over total debt obtained from Capital IQ
Total Assets	Book value of firm assets, from the most recent accounting statement before the event window, obtained from Compustat and adjusted by the annual CPI deflator to 2014 dollars
Market Cap	Equity market value of firm (in 2014 dollars) calculated as product of shares outstanding and share price, both obtained from CRSP, thirty days prior to the event date
Leverage	Thirty day lagged ratio of the book value of debt over the sum of the book value of debt and the firm's market capitalization. Excess leverage is the difference between leverage and estimated target leverage calculated according to Uysal (2011) using Newey-West (1987) adjustment with three lags and 3-digit SIC code industry fixed effects. Regression coefficients are provided in Table 15 of the appendix
Implied Volatility	Thirty day lagged average implied volatility from the at-the-money put and call options contracts from OptionMetrics in excess of the Standard & Poor's 500 index

Appendix: Variable Definitions (Continued)

Variable	Definition
Tangibility	Ratio of the sum of net property, plant and equipment and cash and short term investments over the firm's total assets
Dividend, Operating Cash Flow Yield	Dividend and operating cash flows, obtained from Compustat, standardized by firm market capitalization
S&P Credit Rating	Numerical translation, according to Odders-White and Ready (2006), of Standard and Poor's credit ratings obtained from Compustat. AAA+ ratings receive a score of 36 while D ratings receive a score of 12
InvGrade Rating	Indicator variable set to 1 if the firm's S&P Rating is BBB- (25) and 0 if BB- (24) or below
S&P Credit Rating Age	Number of days since the rating was last updated or confirmed by Standard & Poor's
E-Index	Corporate governance index calculated according to Bebchuk, Cohen, and Ferrell (2009) using RiskMetrics data
Market/Book Ratio	Market-to-book ratio of CRSP derived market capitalization and Compustat book value of equity. This variable is winsorized at the 1% level and lagged thirty days
CEO Options Compensation	The proportion of options based compensation in dollars relative to total compensation received by the firm's CEO according to Execucomp
CEO Overconfidence	Indicator variable of high CEO optimism constructed from Execucomp data as per Campbell, Gallmeyer, Johnson, Rutherford, and Stanley (2011)
Product Market Fluidity	Measure of product market competition from Hoberg, Phillips, and Prabhala (2014) obtained from the Hoberg and Phillips Data Library at the University of Maryland's Robert H. Smith School of Business. At the time of this writing, observations for 2012-2014 are unavailable and are forward filled with 2011 entries
Relative Deal Size, Repurchase Size, SEO Size	Ratio of transaction value from SDC Platinum over the thirty day lagged market capitalization of the transacting firm obtained from CRSP
Cash Payment Percent	Percentage of deal value paid in cash by acquirer from SDC Platinum
Private	Target indicator variable set to 1 if the target firm is privately held according to SDC Platinum
Open Market Repurchase	Indicator variables for acquisition and common equity repurchase characteristics respectively according to SDC Platinum
Deal, Repurchase Withdrawn	Indicator variable set to 1 if an acquisition or repurchase is eventually withdrawn according to SDC Platinum
Additional Borrowing	Indicator variable set to 1 if repurchase financing requires additional borrowing according to SDC Platinum
Equity/ Target CAR	Value-weighted, four factor Fama-French (1996) adjusted equity return for transacting and target firms respectively