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**Rick Green** 



# Advice to the (e-)reader

FAME is available in pdf form, html form, and epub form. Each format has advantages and disadvantages:

- Pdf is the best format for printing. The pdf layout is fixed. FAME can control both fonts and the placement of material. Pdf is not bad online, either, with very high-quality font rasterization on all platforms. However, it cannot re-flow the text according to the reader's font-size preference and viewing device. If you want to view a pdf page that is twice as wide, you need a canvas that is twice as wide.
- Html is the best format for on-line viewing on a high-speed-internet-connected *computer*. It is usually easy to change the browser font-size (using ctrl-minus or ctrl-plus) with a concomitant re-flow of the document. Unfortunately, the most common *tablet* web browsers (like Safari on iOS, Chrome on Android, and Internet Explorer on Windows-8) make font-size changes difficult. Pinching html text in tablets usually zooms into the document (just as it does in a pdf file), instead of re-flowing the text.
- Epub is the best format for tablets. Like pdf and unlike html, it works well for viewing on non-Internet connected devices, too. (Epub is basically pre-packaged html without javascript.) Unfortunately, many e-book readers are still "immature" (buggy). FAME has been tested to work well on Apple iBooks, Firefox's epubreader, and Adobe's Digital Editions. calibre and the Android Uiversal Book Reader mostly work, but have several bugs. (Amazon makes it intentionally difficult to transfer content that was not obtained through the Amazon store onto the Kindle reader.) Note that external links cannot be made to work reliably inside an ebook reader—epub is a self-contained package format. Some e-book readers will open a web browser; others will not.
- Source contains the LATEX-dialect source from which all of the above have been created. This is of interest only to connoisseurs of typesetting systems.

In both browser html and ereader epub format, it is the client program and not the FAME team that handles font-size, line-breaking, and page-breaking. This is often but not always good. For example, tables and figures may be broken at *very* inopportune spots. Fortunately, when the reader resizes the content on a strange-looking page, the page often suddenly looks great. (linux users: please install msttcorefonts or ttf-mscorefonts-installer.)

Academic articles often include tables that require a wide page for comprehension. For this reason, FAME articles are not well-suited to reading on small-screen devices. A 10-inch diagonal high-resolution tablet screen is recommended, although a 7-8-inch high-resolution diagonal screen size may be acceptable. (Also, note that wide-screen is great if your e-reader does not decide to abuse it for two-column reformatting, in which case it becomes narrow-screen.) Please, do not think about reading FAME on a 3.3-inch diagonal iphone. It would be an exercise in frustration.

Small text font-sizes often work better with wide tables, but large font-sizes often look better on the main text in the absence of tables and figures. If you can easily switch font-size on the fly, you can get the best of both worlds.

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Bhagwan Chowdhry, Executive Editor



The Rick Green Issue (please cite only the original publication, not FAME)

Issues 3 and 4 of FAMe are AFA Presidents issues. You will see pictures of past AFA presidents, both when they were young (with permission) and when they were adults. Click on the pictures to find out more about them.

The production of FAMe is a love of labor for us. We are looking for support, funding and sponsorship to be able to delegate some tasks to paid hired staff editors. Right now, we have to do everything ourselves. With more support, we could increase the frequency of publication for FAMe. Of course, this also depends on the desire of scholars to continue to write and submit memos.

We are dedicating Issue 3 of FAMe to the memory of Rick Green.

Bhagwan Chowdhry

**Executive Editor** 

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in pdf, html, and ebook format!

Sanjiv Das, Madhu Kalimipalli, and Subhankar Nayak

# Did CDS Trading Improve the Market for Corporate Bonds?

Journal of Financial Economics | Volume 111, Issue 2 (February 2014), 495–525 (please cite only the original publication, not FAME)

Financial innovation is a double-edged sword. The creation of new markets and new securities may complete markets, provide new investment opportunities and risk hedging alternatives, and favorably impact information generation and dissemination; yet such innovations may also have negative externalities if the gains accrue to only a few market participants and cause adverse impact on rest of the market.

A salient innovation in the fixed-income and credit markets since the turn of the century is the introduction of the credit default swap (CDS), a credit insurance contract that provides payoffs contingent on the default or change (particularly, deterioration) in credit characteristics of an underlying reference bond or issuer. In our JFE paper, we examine whether the advent of CDS trading was beneficial to the underlying secondary market for corporate bonds. We explore this objective by tracking the efficiency, market quality, and liquidity of an issuer's bonds after CDS trading was instituted on the bonds of the issuer, and also by comparing the bonds of firms with traded CDS contracts to the bonds of firms without any CDS contracts. We find that the advent of CDS was largely detrimental to corporate bond markets, particularly to its efficiency and market quality.

#### Data

We focus on US-domestic, dollar-denominated, non-convertible corporate bonds of publicly traded firms that witnessed CDS introduction between 2002 and 2008. Our sample consists of 1,545 bonds issued by 350 firms and comprises 1,365,381 bond transactions. In addition, we also collect various issue-, issuer-, and transaction-specific attributes, issuer's equity returns, CDS spreads, systematic VIX values and benchmark interest rate swap rates. We classify the bond transactions into pre- and post-CDS sub-samples based on whether the bond trades occurred before or after the introduction of CDS. We study the consequences of CDS introduction by comparing the efficiency, market quality, and liquidity of bonds in the pre- and post-CDS periods.

#### CDS introduction adversely affected bond efficiency, ...

We test for bond efficiency by ascertaining whether delays exist in relevant information being incorporated into bond prices. To this end, we determine the extent to which bond prices depend on a lagged information set (relative to contemporaneous information set). Greater dependence on lagged information denotes higher pricing inefficiency, because information already incorporated into other firm-related securities only enters bond prices with a time lag.

We regress contemporaneous bond returns on contemporaneous and lagged values of stock returns, benchmark swap returns, changes in VIX, CDS returns, and lagged bond returns. The regressions include interaction terms that enable comparison between pre- and post-CDS periods (in joint panel regressions) and also between CDS firms and a (matched or pooled) control sample of non-CDS firms (in difference-in-difference regressions). In each regression, we compute the joint significance of incremental lagged variables in order to determine the extent to which current bond returns depend on the lagged variables in the post-CDS period relative to (i.e., over and above) that in the pre-CDS period.

In all regressions, we find that bond returns rely on lagged information to a greater extent after CDS are introduced than before, and this increased dependence persists even when benchmarked against control samples. Similar results obtain in various sub-samples and alternate variations of regression specifications. Incorporation of relevant information into bond prices gets delayed in the post-CDS period. **Conclusion:** The advent of CDS market had a deleterious effect on the efficiency of corporate bond market.

#### ... and bond market quality, ...

How did the inception of CDS trading impact the accuracy of bond prices (which we refer to as the bond market quality)? We develop a measure of market quality called the q measure based on an extension of Hasbrouck's (RFS 1993) model. Market quality q is defined as one minus normalized pricing error. The value of q ranges between zero and one, and higher q denotes better market quality, i.e., lower risk of deviation of prices from their efficient levels. Table 1 reports the values of bond market quality measure q in the pre- and post-CDS periods.

Table 1: Market quality measure q before and after the introduction of CDS		
	Pre-CDS mean q	Post-CDS mean q
For pooled sample of all observations		
CDS sample	0.91	0.87
Control sample	0.90	0.91
For 82 pairs of matched CDS and non-CDS bonds		
CDS bonds	0.90	0.88
Non-CDS bonds	0.85	0.92

Pre-CDS q measure is computed using bond transactions over the two years prior to CDS introduction; post-CDS q measure uses two years of observations after the CDS inception date. Control sample (non-CDS bonds) refer to bond issues of firms with no CDS introduction. Sample period is 2002–2008.

For the pooled panel data of all bond transactions, the quality of bonds of CDS issuers decreases by 0.04 and that of control sample bonds slightly increases by 0.01. When the sample of 82 pairs of matched CDS and non-CDS bonds are considered, the quality of bonds of CDS issuers declines by 0.02 but the quality of bonds of CDS non-issuers increases substantially by 0.07. The difference-in-difference value of post-CDS decline in quality relative to control sample equals [(0.92 - 0.85) - (0.88 - 0.90)] or 0.09. In addition, when we track the values of q for individual bonds, we find that a greater fraction of bonds of CDS issuers experience a post-CDS <u>decline</u> in the value of q, whereas a larger fraction of matched control sample bonds demonstrate an <u>increase</u> in the value of q.

In conclusion, on a comparative basis, CDS introduction appears to have a detrimental impact on the market quality of the underlying bonds.

#### ... with no improvement in bond liquidity

A likely consequence of CDS trading is that fixed-income traders no longer need to use bond markets to speculate on or hedge credit risk. Did liquidity in the bond market also suffer following CDS introduction? Figure 1 plots the mean size of trades and Figure 2 the mean turnover for bonds of CDS issuers and bonds of CDS non-issuers over a four-year (500 trading days) window around the CDS introduction date. We observe that trade size as well as turnover of bonds of issuers with CDS contracts fall in the two years following CDS introduction, whereas there are no appreciable changes for control sample bonds.



There is post-CDS decline in secondary bond market trading activity. The comparable control sample shows no pattern.



For formal assessment of post-CDS impact on bond liquidity, we compute ten different measures that are either proxies for liquidity or may be highly correlated to liquidity, and compare their values in the pre- and post-CDS sub-periods. Although results are largely mixed, when all ten liquidity measures are considered, more liquidity attributes deteriorated than improved after the inception of CDS markets. Hence, there is no evidence that CDS introduction improved the liquidity of the bonds underlying the CDS entity; if at all, liquidity likely deteriorated.

## A likely explanation for adverse CDS impact: migration of institutional traders

One possible explanation for the decline in efficiency and quality of bond markets subsequent to CDS introduction is the likely migration of institutional traders from trading bonds to trading CDS in order to implement their credit views. Underlying corporate debt often do not traded actively, and institutions likely use CDS markets to incur synthetic exposures to the debt market.

To explore this issue, we track the large institutional bond trades in the TRACE database and the bond transactions by insurance companies in the NAIC database. We find that, from the pre-CDS period to the post-CDS period, the number, volume, and turnover of institutional trades decreased and the LOT illiquidity measure increased relative to the control sample of non-CDS bonds. We also implement the liquidity tests adopted by Bessembinder-Maxwell-Venkataraman (JFE 2006). For trades by insurance companies, we decompose the price changes (i.e., the effective bid-ask spreads obtained from signed order flows) into two components: an informational component that indicates the effect of private information, and a non-informational component that reflects one-way trade execution costs. We find that there is no change in the role of private information on bond price evolution after CDS introduction. However, the post-CDS trade execution costs increase; this reconciles with the decrease in trading activity by insurance companies. Hence, the introduction of CDS increased bond illiquidity for institutional transactions.

In short, a demographic shift in bond trading appears the likely driver of the empirical results we obtain, namely, that the introduction of CDS trading was detrimental to bond market efficiency, quality, and liquidity.

