

December 2019

# Manufactured Defaults and the Use of Credit Default Swaps

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## Introduction

Regulatory agencies worldwide have recently issued a stern warning about what they refer to as “manufactured credit events” and the use or possible misuse of credit default swaps (CDS). On 24 June 2019, Securities and Exchange Commission Chairman Jay Clayton, Commodity Futures Trading Commission Chairman J. Christopher Giancarlo, and the UK Financial Conduct Authority Chief Executive Andrew Bailey issued a joint statement about opportunistic trading strategies in the credit derivatives markets, including those involving “manufactured credit events.” In the joint statement, the regulators expressed concerns that these events are “opportunistic strategies [that] raise various issues under securities, derivatives, conduct and antifraud laws, as well as public policy concerns.”<sup>2</sup>

According to regulators, opportunistic strategies, such as manufactured defaults, are instances where CDS market participants enter into an agreement that is presumably tailored to trigger or delay the downgrade, default, or bankruptcy of the firm that is the subject of the contract.<sup>3</sup> These arrangements are “designed to result in CDS payments that do not reflect the creditworthiness of the underlying corporate borrower.”<sup>4</sup> Regulators have expressed concerns about the use of credit default swaps to force or delay the default for the benefit of specific investors whenever companies are tied to a large amount of outstanding CDS.

## Summary of Findings

In this article, we use public information about RadioShack as an example to demonstrate how economic analysis of credit default swaps can be used to assess allegations related to CDS and the creditworthiness of a company. The article demonstrates the use of prices of CDS contracts of different maturities on RadioShack to estimate the implied probability of default, as well as the use of regression analysis to identify the news that altered the credit risk of the company in a significant way. The statistical model using the example of RadioShack shows that the surge in the company's credit risk was associated with news about its operations. We note that we do not have access to detailed information about the holders of CDS on RadioShack. Assuming the major lender in dispute with RadioShack held no CDS position, as stated in the public records, the empirical analysis shows no evidence that CDS investors with purportedly "pervert incentives" led to the bankruptcy of the company.<sup>5</sup>

RadioShack has had a long history of CDS contracts written against its credit risk. Prior to entering into bankruptcy, the gross notional amount of the CDS contracts on RadioShack was 28 times its debt, "more than any other US company" at the time.<sup>6</sup> In this article, we use economic modeling on CDS prices of RadioShack to demonstrate that the company's path to bankruptcy was not necessarily facilitated by CDS investors, as claimed by certain unsecured creditors in the bankruptcy proceedings. Instead, the CDS data, together with publicly available documents about the company, suggest that the CDS on RadioShack notably surged following a dispute with a key secured lender regarding the company's proposal to close 1,100 stores. The public documents indicate that the secured lender was said to have no CDS positions in the company. Assuming this information is accurate, the deterioration in RadioShack's financial conditions at the time did not necessarily reflect an attempt by this lender to force the company into default. Instead, it could have reflected the business dispute between the company and one of its debt holders. Our article demonstrates an economic approach to assess changes in the perceived risk of a company, regardless of whether it may be tied to allegations of opportunistic trading, such as manufactured defaults, and we use the data on RadioShack for demonstrative purposes only.

The empirical analysis of CDS prices below demonstrates that a dispute with a key secured lender with no stated CDS holdings had a significant impact on the company's implied probability of default in the short term. Our statistical analysis shows no other unique, company-specific events at the time had a similar impact on RadioShack's CDS prices and the resulting risk of default. The analysis does not seem to support an allegation of an opportunistic strategy using credit derivatives or an attempted manufactured default in this specific example.

In what follows, we briefly introduce CDS contracts and the relationship between CDS prices and the maturity of the contracts. Then we present a discussion of the RadioShack litigation, followed by a presentation of the economic analysis of the allegations of an opportunistic strategy, such as a manufactured default.

## CDS Terminology

### What Is a CDS Contract?

A CDS can be described as a bilateral agreement in which one party pays insurance-like premiums to another party to insure against the default or other agreed upon credit event of a given company, known as the “reference entity.” A credit event is defined in the CDS contract and can include events such as failure to pay debt as it comes due, bankruptcy, or restructuring.<sup>7</sup> The seller of the insurance (or CDS) would receive the premiums over the course of the contract and have to compensate the buyer if a reference entity credit event occurs. This is a very simplified version of a CDS, but it captures the key attributes of the highly controversial credit derivative instrument.<sup>8</sup> The price of a CDS contract is called the “spread” and is typically quoted in basis points of the notional amount, where 100 basis points equals 1%. For example, if two parties enter into a one-year credit default swap with a notional amount of \$100 million and the agreed-upon CDS spread is 500 basis points, the CDS buyer will pay the CDS seller \$5 million over the course of the year, as long as a credit event does not occur.<sup>9</sup>

### Why Do Investors Use CDS?

CDS could be used by investors that own debt of the reference entity to hedge against the risk of default or restructuring by purchasing credit protection (or insurance) to protect against losses.<sup>10</sup> Alternatively, an investor can use CDS to take a position without necessarily owning debt of the underlying entity as a way to speculate on the prospects of a company.<sup>11</sup> For example, an investor can purchase a credit default swap against the default of Ford without owning any of Ford’s debt or equity. Whether the CDS buyer has a position in the company or not, holding credit default swaps could have an economic rationale and the prices can inform market participants about the viability of the underlying entity and its implied (or market-based) probability of default, if there is enough liquidity.<sup>12</sup>

### Are There Different Types of CDS Contracts?

Credit default swaps come in different contract lengths, referred to as tenors, which allow the CDS buyer to pay for protection over varying lengths of time, such as one, two, three, or five years.<sup>13</sup> The annual price the CDS buyer pays to the seller is known as the CDS spread and can be paid quarterly, semiannually, or annually. The CDS spread is determined in part by the probability of default as well as the expected recovery rate upon default.<sup>14</sup> As a result, we can calculate the implied default probability of a reference entity from a given CDS spread and assumed recovery rate using standard economic models.<sup>15</sup>

### What Is the Relation Between the CDS Spreads (Prices) and the Lengths of the Contracts?

Intuitively, one would expect the cost of buying an insurance contract to increase with the length of the contract. The same is true for CDS contracts. CDS contracts come in different lengths and the relation between the spread (price) of the CDS and the length of the contract is known as the CDS curve. A “normal” CDS curve is one where credit default swaps with longer maturities have higher prices (spreads) than credit default swaps with shorter maturities.<sup>16</sup> The CDS market referencing most firms exhibits a normal CDS curve where the spreads for insuring against a company’s default increases with the length of the CDS contract—the longer the contract for insuring against default, the higher the annual price of the insurance (CDS) contract.

As JPMorgan's *Credit Derivatives Handbook* indicates, this means "not only that companies are more likely to default with every year that goes by, but also that the likelihood in each year is ever increasing. Credit risk is therefore getting increasingly worse for every year into the future."<sup>17</sup>

However, in certain circumstances, the prices (spreads) of the shorter-term CDS can exceed the spreads of the longer-term CDS, creating a negative relationship between the CDS spread and tenor; that is, shorter CDS contracts would cost more than longer ones on an annual basis. This relationship is known as an "inversion" of the CDS curve.<sup>18</sup> When this inversion happens, it means that the market expects the company in question to default in the short term, but if the company survives the immediate risks, it will be less likely to default over the following periods.<sup>19</sup> "Inversion" of the CDS curve is a signal of immediate financial distress because it indicates that the reference entity's short-term default risk is higher than the default risk in subsequent periods.<sup>20</sup>

## Brief History of the RadioShack Litigation

RadioShack was founded in 1921 and was known for selling radios, televisions, and other consumer electronics. Like many retailers, it was affected by the rise of online competition in recent years. RadioShack reported its first operating loss in 10 years in the fiscal year ending 31 December 2012.<sup>21</sup>

By 10 December 2013, RadioShack had completed financing for \$835 million, which included a \$585 million credit facility and a \$250 million secured term loan, which was due to mature in five years.<sup>22</sup> The lenders of the \$250 million secured term loan were led by Salus Capital Partners ("Salus Capital").

On 4 March 2014, RadioShack announced a proposal to close 1,100 underperforming stores in an effort to "preserve liquidity by avoiding operating losses and generating cash by liquidating inventory in those stores."<sup>23</sup> However, by April 2014, RadioShack was still "mired in negotiations with its lenders over plans to close up to 1,100 stores" since RadioShack's credit agreements only allowed RadioShack to close 200 stores without approval from Salus Capital.<sup>24</sup> Later, on 8 May 2014, RadioShack officially announced they had not reached an agreement with Salus Capital on the decision to close 1,100 stores.<sup>25</sup>

RadioShack ultimately filed for Chapter 11 bankruptcy on 5 February 2015.<sup>26</sup> On 17 February 2015, as part of RadioShack's Chapter 11 bankruptcy proceedings, a committee of unsecured creditors filed a motion seeking to direct the examination of RadioShack's lenders and suggested that RadioShack's investors, armed with confidential information and the ability to influence the timing of RadioShack's bankruptcy, wielded their power in order to profit from their CDS positions instead of choosing value-maximizing transactions for the company.<sup>27</sup> Specifically, the unsecured creditors alleged that Salus Capital's refusal to consent to RadioShack's planned store closures may have been motivated by "CDS positions."<sup>28</sup>

According to the motion of the unsecured creditors:

The Committee represents more than half-a-billion dollars of unpaid trade creditors, landlords, employees, and bondholders and understands that RadioShack's largest shareholder and recent secured lender (same hedge fund) has now assumed the role of buyer of the Debtors' best assets. The cost to the estates for that transaction is a blanket judicial pardon for whatever it and swap-betting hedge funds may have done when they acquired the secured debt, then caused RadioShack to immediately commence liquidating their collateral, and then caused RadioShack's crash landing into bankruptcy to finish the job.<sup>29</sup>

Salus Capital responded that "[they] did not, at any time, purchase or hold CDS positions with respect to *any* of the Debtors' debt obligations."<sup>30</sup> To the best of our knowledge, Salus Capital did not settle with the unsecured creditor committee regarding this examination motion.

## How CDS Prices Can Identify Significant Credit Risks Against a Company

In this section, we use the publicly available data on RadioShack's CDS prices to demonstrate how economic analysis can be used to assess the perceived risk of a company and, if applicable, the allegation of opportunistic trading and a manufactured default. The prices of CDS and bonds in the market, with enough transactions, may provide evidence of the perceived probability of a company's default. The first step of our analysis is to examine the CDS spreads of RadioShack and its bond prices. Both sets of prices demonstrate changes in the market's perception of the company's credit risk in response to news about the company and its business operations.

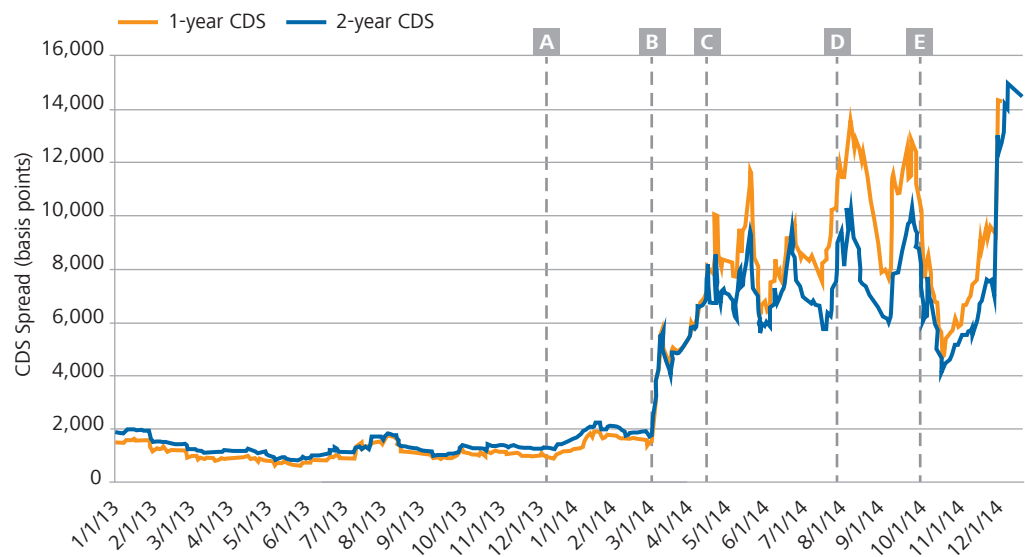
Next, we examined the spreads of RadioShack's credit default swaps for one- and two-year contracts during the two-year period prior to its bankruptcy filing on 5 February 2015. Typically, longer-term credit default swaps command higher spreads to reflect greater uncertainty and default risk in the future.<sup>31</sup> Intuitively, a 10-year insurance contract would be more expensive and require a higher premium than a one-year insurance contract to reflect the added risks and uncertainty over a 10-year time period.

Figure 1 charts the one-year and two-year CDS spreads for RadioShack, as well as indicators for key events based on public sources. The CDS spreads remained relatively stable, at or below approximately 2,000 basis points, until the announcement of the company's proposed plans to close stores in March 2014, at the time of its earnings release.<sup>32</sup> After the March 2014 announcement, the one-year CDS spreads for RadioShack increased by 66%, from 1,473 basis points on 3 March 2014, the day prior to the announcement, to 2,447 basis points on 5 March 2014, the day after the announcement. It rose further to 5,366 basis points on 10 March 2014, a 264% increase from the pre-announcement spread. If we assume a recovery rate of 23% based on Moody's estimated recovery rates for RadioShack bonds, this means that the one-year implied probability of default for RadioShack increased from 17% on 3 March 2014 to 27% on 5 March 2014, and to 50% on 10 March 2014.<sup>33</sup>

The CDS spreads increased again following the reports that negotiations between Salus Capital and RadioShack to approve the proposed store closures had slowed on 16 April 2014 and after reports emerged on 29 July 2014 that RadioShack would run through its available liquidity by October 2015. Then the CDS spreads decreased following the announcement that RadioShack had restructured its debt to provide immediate funding after reaching an agreement led by Standard General on 3 October 2014. Despite this decrease, spreads never returned to pre-store-closure announcement levels.

Similarly, transaction prices for RadioShack’s corporate bond maturing 15 May 2019 decreased from \$66 on 3 March 2014 to \$54 on 5 March 2014, and to \$46.50 on 10 March 2014.<sup>34</sup>

Figure 1. **RadioShack 1-Year and 2-Year CDS Spreads, 2013–2014**



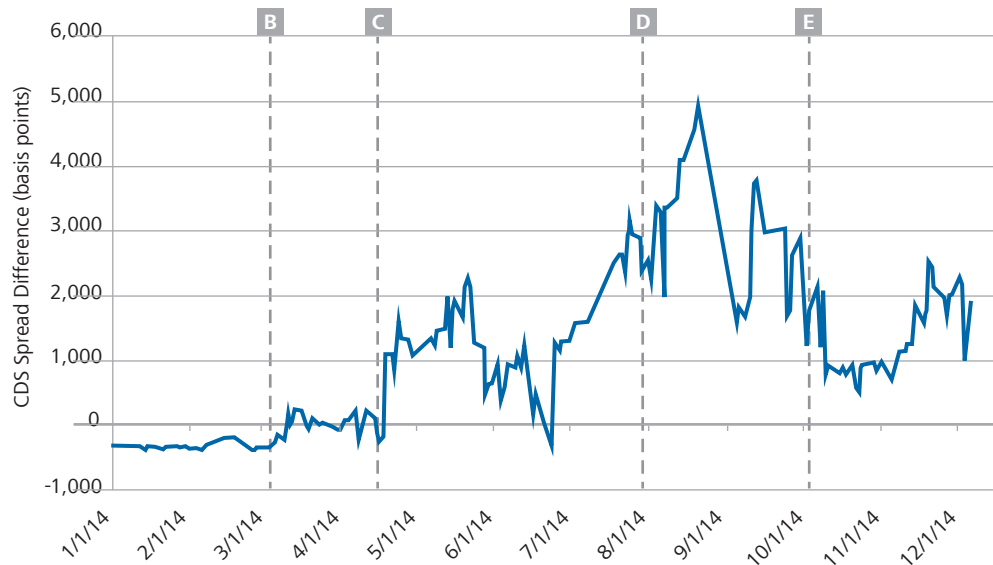
**Notes and Sources:** CDS prices are downloaded from Bloomberg using the CBIT source.  
A: 10 December 2013 – RadioShack enters agreement with GE Capital and Salus Capital for funding.  
B: 4 March 2014 – RadioShack announces 2013 Q4 results and plans to close 1,100 stores.  
C: 16 April 2014 – News reports that negotiations about the store closures with Salus is still ongoing.  
D: 29 July 2014 – News reports that RadioShack could run through its liquidity by October 2015.  
E: 3 October 2014 – RadioShack enters agreement to restructure financing, providing near-term liquidity.

## Regression Models to Assess the Impact of News on Changes in Credit Risk of the Company

Next, we examine the CDS prices for evidence of financial distress. During normal market conditions, the difference in the spreads of the one-year and two-year CDS contracts is negative, which indicates that the spread of the one-year CDS is less than the spread of the two-year CDS. When the difference is positive, the CDS spread curve is said to be “inverted,” meaning the one-year CDS spread is greater than the two-year spread. An inverted CDS curve means it costs more to insure against a company’s default within a year than within two years, which is counterintuitive. It is evidence that the market perceives the company to be in significant financial distress and that there is a high risk of immediate default.

Figure 2 presents the difference in the spreads of the one-year and two-year RadioShack CDS in 2014. The analysis documents six dates at which the CDS curve inverted in 2014, dates when the difference between the one- and two-year CDS spreads switched from negative to positive. The market reacted as if there is a risk of an immediate default on the following dates: 11 March, 21 March, 2 April, 11 April, 18 April, and 24 June. For RadioShack, some of the inversions were short-lived, as the CDS spread curve quickly reverted back to a “normal” curve.

Figure 2. **RadioShack Difference in 1-Year and 2-Year CDS Spreads, 2014**



**Notes and Sources:** CDS prices are downloaded from Bloomberg using the CBIT source.  
A (not shown on graph): 10 December 2013 – RadioShack enters agreement with GE Capital and Salus Capital for funding.  
B: 4 March 2014 – RadioShack announces 2013 Q4 results and plans to close 1,100 stores.  
C: 16 April 2014 – News reports that negotiations about the store closures with Salus is still ongoing.  
D: 29 July 2014 – News reports that RadioShack could run through its liquidity by October 2015.  
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As such, the question is: which of the six dates had the most persistent impact on RadioShack's default risk profile? There are statistical tools to answer the question by finding out whether there is a structural break in the relation between the CDS prices and the length of the contracts. We use a regression analysis of structural breaks, a standard economic technique that has been used in a variety of situations by academics, industry analysts, and the Federal Reserve.<sup>35</sup>

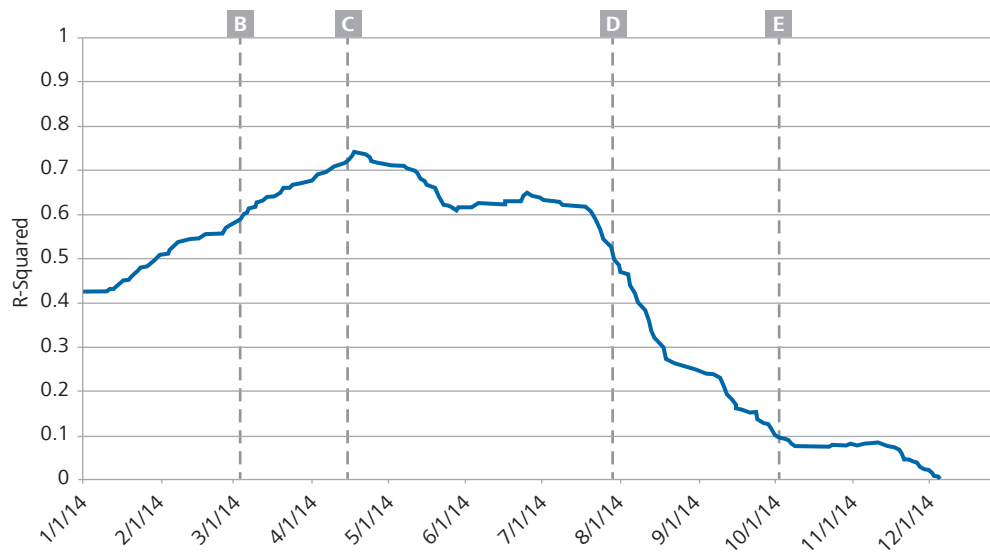
Our regression analysis of the relationship between the one- and two-year CDS prices during 2013 and 2014 shows that a structural break in the pricing relationship of the one- and two-year CDS contracts occurred on 18 April 2014. This is a date soon after the report about Salus Capital's refusal to allow RadioShack to close 1,100 stores.<sup>36</sup> The structural break analysis, therefore, indicates that the refusal to allow the company to close over 1,000 stores was a notable event that heightened the perceived credit risk of the company, more so than any other news about the company in 2013 and 2014.

The analysis of structural changes involves estimating linear regression models for each possible break date in the sample.<sup>37</sup> The dependent variable in each of the regressions is the difference between the one-year and two-year CDS spreads. The independent variable in each regression is an indicator variable that equals 0 on all days prior to the "break date" candidate and equals 1 on the days on and after the "break date" candidate.<sup>38</sup> Each regression produces an R-squared value (which would be in the 0 to 1 range), which estimates the variation of the CDS spread data series that can be explained by the different dates in question.<sup>39</sup> This is the process by which we identify the date with the most notable change in the perceived credit risk of the company, which is the regression model with the highest R-squared.

Figure 3 presents the R-squared results from the structural break regression analysis on the difference between the one-year and two-year CDS.<sup>40</sup> The analysis identifies 18 April 2014 as the most informative break date, and it coincides with the reports about a major lender's rejection of RadioShack's proposal to close its underperforming stores.



Figure 3. R-Squared Results from Structural Break, 2014



**Notes and Sources:** CDS prices are downloaded from Bloomberg using the CBIT source.  
A (not shown on graph): 10 December 2013 – RadioShack enters agreement with GE Capital and Salus Capital for funding.  
B: 4 March 2014 – RadioShack announces 2013 Q4 results and plans to close 1,100 stores.  
C: 16 April 2014 – News reports that negotiations about the store closures with Salus is still ongoing.  
D: 29 July 2014 – News reports that RadioShack could run through its liquidity by October 2015.  
E: 3 October 2014 – RadioShack enters agreement to restructure financing, providing near-term liquidity.

RadioShack argued that the closure of the 1,100 stores, which was rejected by Salus Capital, would have increased RadioShack’s “overall EBITDA by about \$83 million and created an additional \$87 million of liquidity from reduced and focused inventory levels.”<sup>41</sup> Salus Capital said they had not bought any CDS.<sup>42</sup> Unfortunately, public databases do not identify the counterparties trading in credit default swaps and we rely only on public sources for this analysis. Assuming Salus Capital did not own any CDS positions referencing the company, as stated in public documents, the statistical analysis identified a notable surge in the company’s credit risk that was not necessarily associated with an opportunistic trading strategy.

Given RadioShack’s turnaround plan and financial results at the time, it is not surprising that the decision of one of its major lenders affected market expectations of default in both timing and likelihood.

## Conclusions

Regulators have recently expressed concerns about the use of credit default swaps to force or delay the default of a company irrespective of the credit risk of the reference entity. We used RadioShack as an example to demonstrate that even for a company tied to a large number of outstanding CDS contracts, the CDS spreads could increase to reflect the company's financial condition and not necessarily as an attempt to manipulate a default. We emphasize that we do not have access to data on specific holders of CDS positions. However, our empirical analysis using public data on credit default swaps can inform the investigation of a CDS dispute as it can help identify instances of significant surges in a company's credit risk. Our analysis in this example demonstrates that CDS spreads can reflect the increased credit risk associated with business reasons rather than a surge driven by an opportunistic trading strategy. The statistical analysis, together with business and financial information about the company, can identify the possible reasons for changes in CDS prices.

However, there are limitations to the data on CDS contracts, especially given the limited data on the identities of counterparties, which complicates the type of analysis we outlined. In addition, CDS contracts could result in highly tailored agreements with different processes for payments and settlement, as well as specific definitions of credit events.

## Notes

- <sup>1</sup> The authors would like to thank Drew Claxton, Fabien Carruzzo, Sungi Lee, Adam Warren, Wendy Kim, and Hugh Klein for their insightful comments and research. All errors and omissions are ours.
- <sup>2</sup> US Securities and Exchange Commission, "Joint Statement on Opportunistic Strategies in the Credit Derivatives Market," Press Release 2019-106, 24 June 2019, available at <https://www.sec.gov/news/press-release/2019-106>. The chairmen of the Securities and Exchange Commission, Commodity Futures Trading Commission, and Financial Conduct Authority released an update to the June 2019 statement in September 2019, welcoming the efforts of the International Swaps and Derivatives Association, which recently released proposed amendments to the 2014 ISDA Credit Derivatives Definitions.
- <sup>3</sup> The arrangement between Hovnanian, a non-distressed home builder, and Blackstone Group, an investment firm, was the first default to be widely covered by the press as an example of what they termed a "manufactured default." Blackstone offered Hovnanian an opportunity to refinance its debt with a low-cost loan. In exchange, Hovnanian would miss an interest payment and trigger millions of dollars in CDS payments to Blackstone, given its position as CDS buyer. Because Hovnanian was a non-distressed company with enough resources to pay its debts, controversy arose around the arrangement. See Gabriel T. Rubin and Andrew Scurria, "How Regulators Averted a Debacle in Credit-Default Swaps," *Wall Street Journal*, 8 July 2018.
- <sup>4</sup> International Swaps and Derivatives Association, "ISDA Board Statement on Narrowly Tailored Credit Events," Press Release, 11 April 2018.
- <sup>5</sup> In the bankruptcy proceedings, certain unsecured creditors claimed that the company's path to bankruptcy was facilitated by CDS investors with "pervert incentives." "Motion of Official Committee of Unsecured Creditors for an Order, Pursuant to Section 105(a) of the Bankruptcy Code, Bankruptcy Rule 2004, and Local Bankruptcy Rule 2004-1, Authorizing and Directing the Examination of the Debtors and Certain Third Parties," 17 February 2015, Case 15-10197-BLS, Docket Number 304. All information about the case of RadioShack is obtained from public sources and the case is used for illustrative purposes only.
- <sup>6</sup> Jodi Xu Klein, "RadioShack Kept Alive by \$25 Billion of Swaps Side Bets," *Bloomberg Business*, 17 December 2014.
- <sup>7</sup> John C. Hull, *Options, Futures, and Other Derivatives*, 9th Ed, Pearson Education, 2015, p. 573.
- <sup>8</sup> For example, in some cases, the credit default swap seller will post collateral to "reduce the effective counterparty risk." Frank J. Fabozzi, *The Handbook of Fixed Income Securities*, 7th Ed, The McGraw-Hill Companies, 2005, p. 1348.
- <sup>9</sup> Hull, *Ibid*, p. 572.
- <sup>10</sup> Fabozzi, *Ibid*, p. 1339.
- <sup>11</sup> Recently, Sirius Computer has made moves to limit the influence of CDS holders on their decisions following two highly publicized cases in which investors allegedly pushed specific agendas in order to benefit their CDS positions. See, Kristen Haunss, "Sirius Computer moves to block derivatives holders from speculation," 22 May 2019.
- <sup>12</sup> Kent Cherny and Ben R. Craig, "Credit Default Swaps and Their Market Function," Federal Reserve Bank of Cleveland, 9 July 2009.
- <sup>13</sup> Hull, *Ibid*, p. 573. The most liquid contracts are usually the 1-year and 5-year contracts.
- <sup>14</sup> Hull, pp. 574–579.
- <sup>15</sup> Given a credit default swap spread, the recovery rate, and the risk-free interest rate, we can calculate the implied default probability by setting the expected net payment between the CDS seller and buyer to zero. Hull, *Ibid*, pp. 575–579.
- <sup>16</sup> JPMorgan, *Credit Derivatives Handbook*, December 2006, p. 18.
- <sup>17</sup> *Ibid*, p. 19.
- <sup>18</sup> Raymond Brummelhuis and Zhongmin Luo, "Arbitrage Opportunities in CDS Term Structure: Theory and Implications for OTC Derivatives," 18 December 2018.
- <sup>19</sup> JPMorgan, *Ibid*, p. 19. Academic literature has also noted that CDS spreads can invert during times of financial or political crises for sovereign CDS or equity volatility. See, for example, Jun Pan and Kenneth J. Singleton, "Default and Recovery Implicit in the Term Structure of Sovereign CDS Spreads," *The Journal of Finance*, Vol. LXIII, No. 5, October 2008, and Zhang et al., "Explaining Credit Default Swap Spreads with the Equity Volatility and Jump Risks of Individual Firms," Divisions of Research & Statistics and Monetary Affairs, Federal Reserve Board, 2005.
- <sup>20</sup> Barclays Capital, *CDS Curve Trading Handbook 2008*, November 2007, p. 15.
- <sup>21</sup> RadioShack, Form 10-K for the fiscal year ended 31 December 2012, 26 February 2013.
- <sup>22</sup> RadioShack, Form 8-K, 13 December 2013.
- <sup>23</sup> RadioShack, Form 10-K for the fiscal year ended 31 December 2013, 4 March 2014.

## Notes

- <sup>24</sup> Emily Glazer, "RadioShack Hasn't Obtained Lender Approval to Close 1,100 Stores," *Dow Jones Institutional News*, 16 April 2014.
- <sup>25</sup> RadioShack, Form 8-K, 8 May 2014.
- <sup>26</sup> RadioShack, Form 8-K, 11 February 2015.
- <sup>27</sup> "Motion of Official Committee of Unsecured Creditors for an Order, Pursuant to Section 105(a) of the Bankruptcy Code, Bankruptcy Rule 2004, and Local Bankruptcy Rule 2004-1, Authorizing and Directing the Examination of the Debtors and Certain Third Parties," 17 February 2015, Case 15-10197-BLS, Docket Number 304.
- <sup>28</sup> *Ibid.*
- <sup>29</sup> *Ibid.*
- <sup>30</sup> "Response of Salus Capital Partners, LLC, to Motion of Unsecured Creditors' Committee for an Order Authorizing the Examination of the Debtor and Certain Third Parties Pursuant to Bankruptcy Rule 2004," 19 February 2015, Case 15-10197-BLS, Docket Number 381.
- <sup>31</sup> JPMorgan, *Ibid.*, p. 19.
- <sup>32</sup> A 2,000-basis point spread means that in order to buy the protection against the company's default, the protection buyer must pay 20% of the notional amount per year for the duration of the CDS. For comparison purposes, Best Buy one-year CDS spreads were at 79 basis points (or .79%) and its two-year CDS spreads were about 136 basis points (or 1.36%) during the same time period in 2014. Best Buy one-year tenor and two-year tenor CDS spreads were obtained from Bloomberg with the CBIT price source.
- <sup>33</sup> Moody's released a report, "Rating Action: Moody's downgrades RadioShack's CFR to Caa2; outlook remains negative," on 5 March 2014 that updates RadioShack's recovery rate to 19%. When we use the 19% recovery rate, we find that the one-year implied default probability for 5 March 2014 is 26% and for 10 March 2014 is 49%.
- <sup>34</sup> RadioShack corporate bond prices obtained for CUSIP 750438AE from Bloomberg with TRACE price source.
- <sup>35</sup> See Bruce E. Hansen, "The New Econometrics of Structural Change: Dating Breaks in U.S. Labor Productivity," *Journal of Economic Perspectives*, Volume 15, Number 4, Fall 2001. Also, see Rafael Di Tella and Ernesto Schargrodsky, "Do Police Reduce Crime? Estimates Using the Allocation of Police Forces After a Terrorist Attack," *The American Economic Review*, Volume 94, Number 1. Also, see Margaret M. McConnell and Gabriel Perez Quiros, "Output Fluctuations in the United States: What Has Changed Since the Early 1980s?" Federal Reserve Bank of New York, 10 February 2000.
- <sup>36</sup> Glazer, *Ibid.*
- <sup>37</sup> A linear regression is used to model the relationship between a dependent variable and one or more independent variables. William H. Greene, *Econometric Analysis*, 6th Ed., Pearson Education, 2008, p. 8.
- <sup>38</sup> Estimating the structural break day by testing all possible break dates is documented in Hansen, *Ibid.*
- <sup>39</sup> Greene, *Ibid.*, p. 34.
- <sup>40</sup> We analyzed all dates in 2013 and 2014 with CDS spreads (prices). Figure 3 graphs the R-Squared results for 2014 only.
- <sup>41</sup> RadioShack, Form 8-K Exhibit 99.1, 2 December 2014.
- <sup>42</sup> "Response of Salus Capital Partners, LLC to Motion of Unsecured Creditors' Committee for an Order Authorizing the Examination of the Debtor and Certain Third Parties Pursuant to Bankruptcy Rule 2004," 19 February 2015, Case 15-10197-BLS, Docket Number 381.

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