Single-Name and Index CDS Dynamics during the Market Stress of 2020

by

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Single-Name and Index CDS Dynamics during the Market Stress of 2020*

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U.S. Commodity Futures Trading Commission

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Abstract

Using CFTC's regulatory data that includes identities of all market participants, we study the dynamics of single-name and index credit default swaps (CDS) leading up to, during, and in the aftermath of the COVID-related financial markets turmoil of 2020. The paper reports volume and directionality of trades and positions of major market participants detailed by product and firm type. Among the findings of the paper are five key stylized facts. First, gross notional in the standard CDS indices nearly doubled by mid-March 2020, while non-standard indices and single-name CDS remained largely at the pre-COVID levels. Second, hedge funds and asset managers were the most active client sectors in absolute terms; insurance companies and pension funds showed significant relative movements. Third, CDS volume traded during the COVID period increased more in relative terms than the volume of either interest rate swaps or currency swaps. Fourth, US and European investment-grade indices were the most heavily traded indices during the market stress of 2020, while high-yield indices accounted for a much smaller share of market activity. Fifth, swap dealers more than doubled their standard index positions in March 2020, and this movement accounted for more than 85% of the total increase in positions across all market participants.

Keywords: Index CDS, single-name CDS, COVID market stress, swap dealers, hedge funds, asset managers, insurance companies, pension funds.

JEL classifications: G10, G12, G20.

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Table of Contents

1 Introduction 3

2 Data 4

3 Long-term trends in CDS positions 5

3.1 Major CDS product trends 5

3.2 Swap dealer, central counterparty, and client position trends 7

4 CDS market dynamics during the COVID period 10

4.1 Overview 10

4.2 Changes in positions 11

4.3 Changes in trading volumes 13

4.4 Sector details 20

4.4.1 Swap dealers 20

4.4.2 Asset managers 22

4.4.3 Hedge funds 24

4.4.4 Insurance companies 27

4.4.5 Pension funds 28

5 Conclusions 29

References 30

1 Introduction

The global CDS market has markedly transformed since the implementation of the Dodd-Frank Act. The market turmoil of 2020 was an extraordinary test of the resilience of the CDS universe at large as well as each of its components, including market participants, clearing houses, and CDS instruments. This paper studies the dynamics of single-name and index credit default swaps (CDS) leading up to, during, and in the aftermath of the pandemic-related market stress of March 2020. The paper's main objective is to study the behavior—as reflected in trading volumes, positions, timing, and directionality—of various market participants, including swap dealers, asset managers, hedge funds, insurance companies, and pension funds, with respect to different CDS products (e.g., investment-grade and high-yield US and European indices, non-standard indices, and single-name CDS). Our focus, therefore, is on volume and directionality of trades and positions of major market participants detailed by product and firm type.

This paper contributes to the derivatives literature by (i) corroborating the existing reports produced by US and international regulators, such as the Bank for International Settlements (e.g, Aldasoro and Ehlers, 2018), the CFTC (e.g., Coughlan, Haynes, Lau, and Tuckman, 2019), and the Federal Reserve Board (e.g, Bomfim, 2022), and (ii) conducting a detailed analysis of the single-name and index CDS markets during and around the COVID-induced market stress using granular regulatory and non-regulatory data. Similar to Coughlan et al. (2019), we observe an overall decline in total notional outstanding in the CDS market since 2014. This decline was driven primarily by reductions in single-name positions and inter-dealer holdings. A notable recent deviation from this secular decline was a temporary spike in CDS index positions during the height of the market stress in March 2020. Our paper explores this event in detail at a disaggregated level—both by trader type and CDS instrument.

Aldasoro and Ehlers (2018) find significant shifts in the size and structure of the global CDS market. They observe similar trends of reduced outstanding notional positions driven by increased netting and compression of swap portfolios, increased clearing, and a move away from single-name CDS contracts in favor of CDS index products.[1] Bomfim (2022) documents the history of the CDS market, describes how the 2008 financial crisis may have influenced current practices, and analyzes global market trends through the COVID period. Our paper provides a granular look into this period at the heretofore unavailable level of disaggregation and data frequency.

Our paper complements the available analyses by leveraging the CFTC's regulatory data to provide additional details and a more granular view into the US CDS markets with a focus on March 2020 as well as preceding and subsequent months. The CFTC's regulatory data contain

[1] One should exercise caution when interpreting any long-run trends of declining notional amounts, such as the ones reported in our paper and in Coughlan et al. (2019), because increased clearing, netting, and compression constitute an important caveat.

detailed information, most importantly including counterparty information, on all swap trades that occurred within the CFTC's jurisdiction. The counterparty information allows us to accurately categorize activity by firm type and sector, and aggregation of the data at the weekly frequency provides additional insights, relative to the extant literature, into short- and long-term trends.

Our primary findings for the COVID-related market turmoil and the surrounding periods can be summarized as five stylized facts. First, gross notional in the standard index CDS market nearly doubled, while the less frequently traded indices and the single-name market remained largely unchanged. Second, hedge funds and asset managers were the most active client sectors in absolute terms during the March 2020 index CDS spike; at the same time insurance companies and pension funds showed significant movements in relative terms. Third, CDS volume traded during the COVID period increased more in relative terms than the volume of either interest rate swaps (IRS) or currency swaps (FX). Fourth, investment-grade indices in the US and Europe (i.e., CDX NA IG and iTraxx Europe) were the most heavily traded indices during the COVID period, while the corresponding high-yield indices accounted for a much smaller share of traded notional during the period. Fifth, swap dealers more than doubled their index CDS positions, which accounted for over 85% of the total increase in positions across all market participants between January 3 and March 20, 2020. The paper also presents additional details on these and other findings.

The rest of the paper is organized as follows. Section 2 describes the regulatory and nonregulatory data used in this paper. Section 3 reports secular trends in major CDS products, swap central counterparties, and client positions. Section 4 describes the market dynamics of positions and trading volumes and provides important sector details. Section 5 concludes.

2 Data

We use CFTC's regulatory data on CDS transactions and positions. The positions data are made available to the CFTC by the Depository Trust and Clearing Corporation (DTCC) through its Trade Information Warehouse (TIW).[2] This dataset contains all credit derivative positions held by US reporting entities; we use these data to construct time series of snapshots as of every Friday from 2014 to late 2020.[3] We focus on single-name and credit index positions during the COVID-19 pandemic.

[2] The data contain very few, if any, single-name positions where neither counterparty is in our jurisdiction There is little to no voluntary reporting because DTCC filters out voluntary reporting before providing the data to CFTC.
[3] The sample in Coughlan et al. (2019) ended in mid-2019 and thus did not cover the COVID period. Similar data from DTCC, also ending in mid-2019, have been used by ISDA (2019).

We augment the TIW data with detailed, non-public counterparty information and apply the classification methodology used in the CFTC's Entity-Netted Notionals (ENNs) reports.[4] Using the ENNs methodology along with supplemental classification data from S&P's Cross Reference Service, we assign a sector classification to each counterparty, which we then aggregate into the following market participant groups: Dealers, Banks, Hedge Funds, Asset Managers, Insurance Companies, Pension Funds, or Other.[5]

We also use regulatory swap transactions data from mid-2019 to late 2020 collected by the CFTC from swap data repositories (SDRs) through Part 45 of the Commodity Exchange Act (CEA) to focus on trading activity by various sectors during the pandemic.[6] These data contain information on all CFTC jurisdiction swap trades including credit indices, options on credit indices, and credit tranches; single-name CDS transactions are not included in this dataset. Data on trading activity reveal which firms were actively trading in the market before, during, and after the peak COVID period in March 2020.

3 Long-term trends in CDS positions

3.1 Major CDS product trends

Figure 1 shows gross notional positions in index and single-name CDS between August 2014 and September 2020.[7] With the exception of the March 2020 spike, the long-term CDS market trend of gross notional positions through 2020 was one of a steady decline. In **Figure 1**, as well as in all subsequent figures, the shaded area denotes the COVID stress period: February 14 through March 20, 2020 for positions, and February 21 through March 20, 2020 for trading activity. Note that the trading activity data for each Friday includes daily transactions during the preceding week; thus, the February 21 data include trades that occurred between February 15 and February 21.

Figure 2 indexes the gross notional values for each major product type to a common starting point and shows that single-name CDS declined at a faster rate than either standard or non-standard indices.[8] Additionally, while standard and non-standard indices declined over the

[4] ENNs reports are available on the Reports of the Office of the Chief Economist webpage at https://www.cftc.gov/About/EconomicAnalysis/ReportsOCE/index.htm.

[5] Note that the "Dealer" category is prioritized over all others. Therefore, if an entity is a registered swap dealer, it is placed into this category even if that entity also falls into another category such as "Bank".

[6] 17 CFR Parts 45, 46, and 49, available at https://www.ecfr.gov/current/title-17/chapter-I/part-45.

[7] Five-year tenors are most liquid: for example, 95% of index CDS trades are five-year swaps.

[8] The "standard" index series are major indices that fall under the clearing mandate—CDX North American Investment Grade and High Yield, and iTraxx Europe and Crossover. All indices that are not categorized as "standard" are assigned to the "non-standard" category, which includes (but is not limited to) indices such as CDX Emerging Market, iTraxx Australia, iTraxx Japan, etc.

sample period, they appear to have reached a trough by mid-2016. From that point onward, the downward trend in CDS indices halted and perhaps even slightly reversed. By the end of our sample in September 2020, single-name CDS gross notional was 60% lower than its starting point in 2014, while standard index CDS gross notional was approximately 30% lower. Both single-name and standard index CDS had just over $3tn in open positions by the end of our sample.

Figure 1

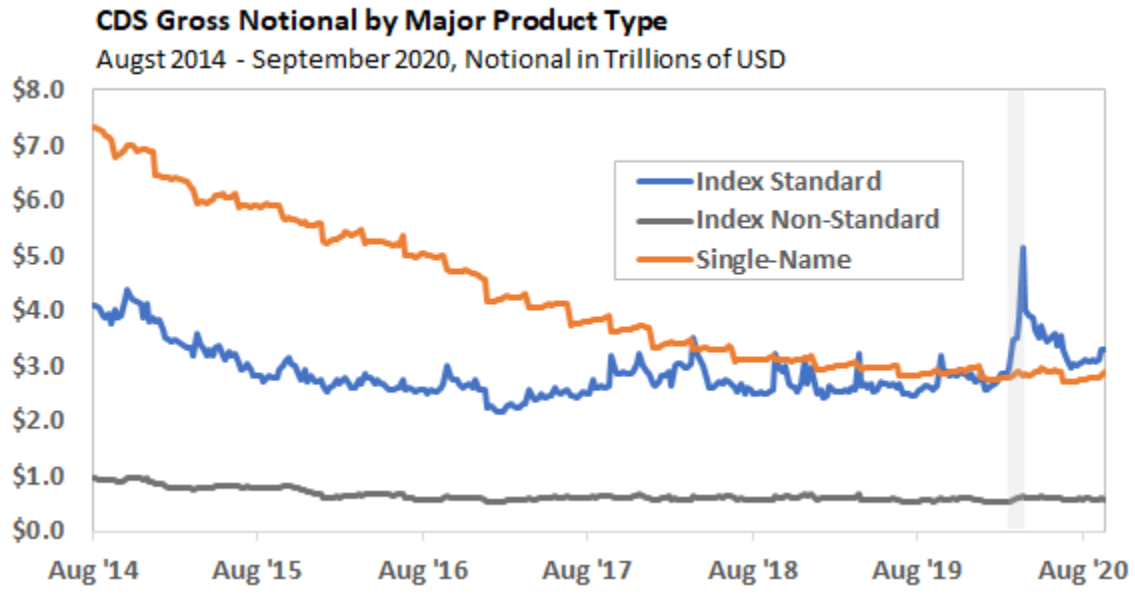
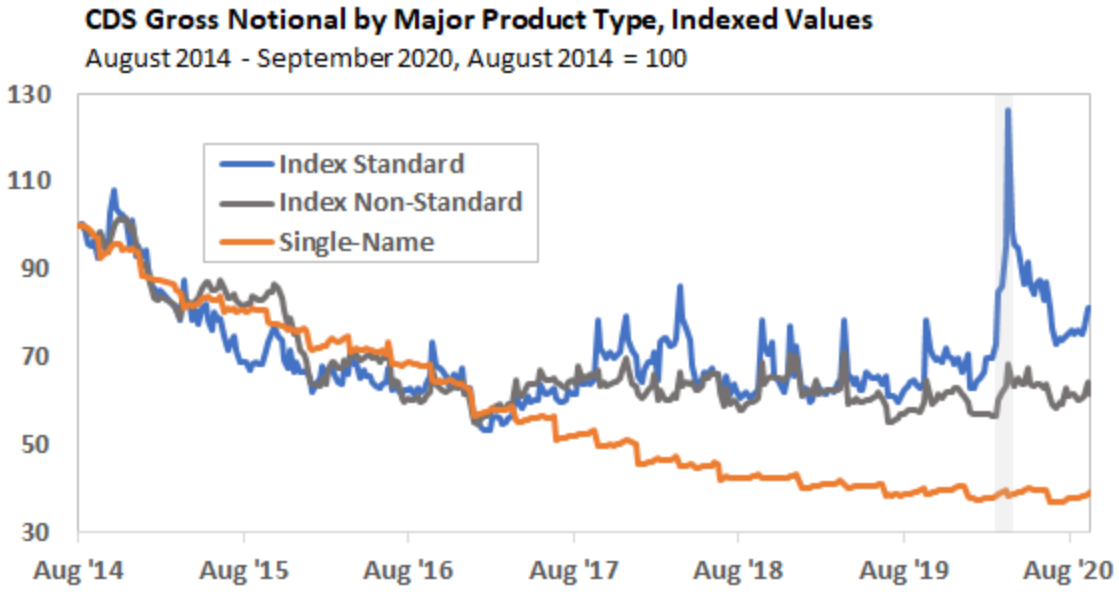


Figure 2



3.2 Swap dealer, central counterparty, and client position trends

Figure 3 shows standard index CDS gross notional positions broken down by counterparty relationship among swap dealers, CCPs, and clients; the figure also reports the total number of counterparties holding standard index swap positions. Gross notionals for the major counterparty relationships continued the general trends observed in Coughlan et al. (2019), and the most notable deviations from these trends are the spikes in notional amounts during the COVID period. The CDS market's transition to increased clearing rates observed before the pandemic continued through 2020.

The 2013 clearing mandate required major CDS index products to be cleared by September 2013 for all relevant participants (before our time series begins in 2014).[9] The Financial Stability Oversight Council (FSOC) notes that between 70% and 80% of CDS index products, including all standard and non-standard indices, were cleared in 2020 (FSOC, 2021). Single-name CDS and other indices continue to clear voluntarily as of the writing of this paper. As a result, the uncleared market for standard index CDS products continued its significant decline, led by reductions in inter-dealer holdings. Cleared standard index client and dealer positions both trended upwards gradually over the entire sample and peaked during the COVID period. Note that positions held between clients exist but are negligible in size and the sample does not contain enough active counterparties to pass CFTC public release standards. Therefore, client-to-client holdings are not included in **Figure 3**.

[9] "CFTC Issues Clearing Determination for Certain Credit Default Swaps and Interest Rate Swaps," CFTC Press Release Number 6429-12, November 28, 2012, available at https://www.cftc.gov/PressRoom/PressReleases/6429-12. Note that end users entering swap contracts for "hedging or mitigating commercial risk" and "small financial institutions" with assets of $10 billion or less are exempt from the clearing mandate. For more details, see https://www.cftc.gov/LawRegulation/DoddFrankAct/Rulemakings/ClearingRequirement/index.htm.

Figure 3

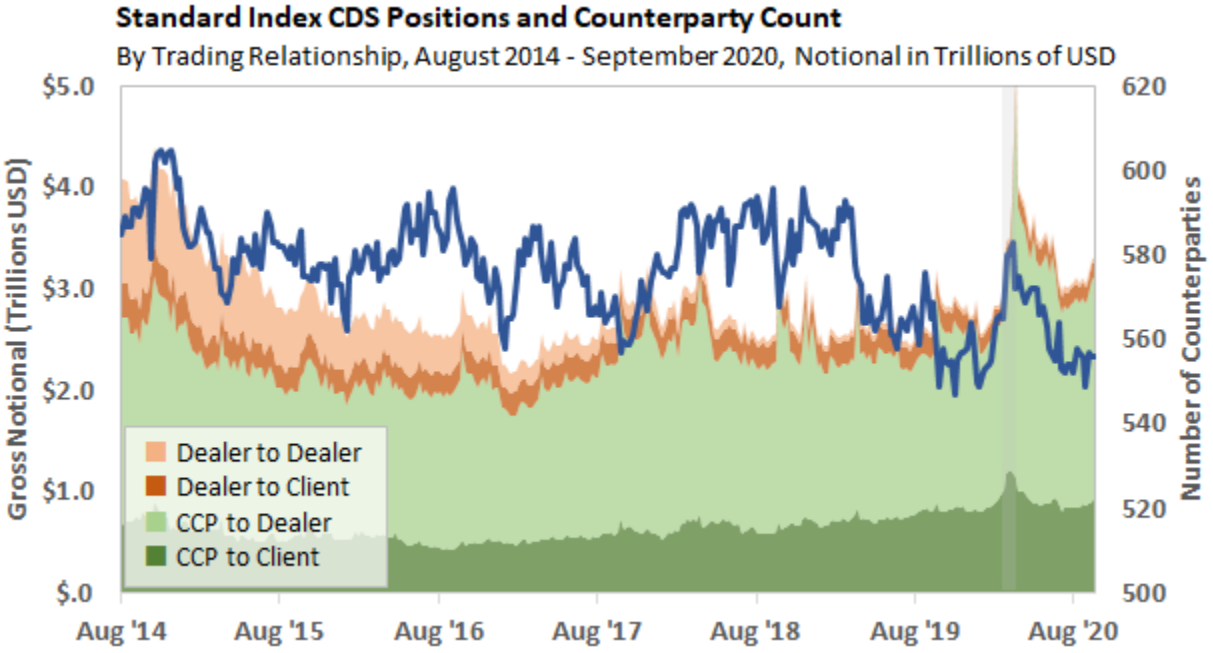


Figure 4 depicts single-name CDS gross notional positions for the various relationships among swap dealers, CCPs, and clients; also included in the figure are counts of counterparties holding positions and reference entities with CDS contracts written on them (both indexed to the beginning of the sample). Single-name CDS positions continued their secular decline in gross notional, although the rate of decline slowed around 2019. Dealer positions with CCPs gradually increased, which partially offset the continued trend of declining positions with other dealers. Dealer positions with clients remained relatively stable in the second half of the sample, and client positions with CCPs remained very small in comparison. The number of active counterparties and reference entities continued to trend down, declining by over 20% and 35%, respectively, over the sample period. Note that similar to the previous figure, positions held between clients are negligible in size and do not pass CFTC public release standards. Therefore, they are not included in **Figure 4**.

Figure 4

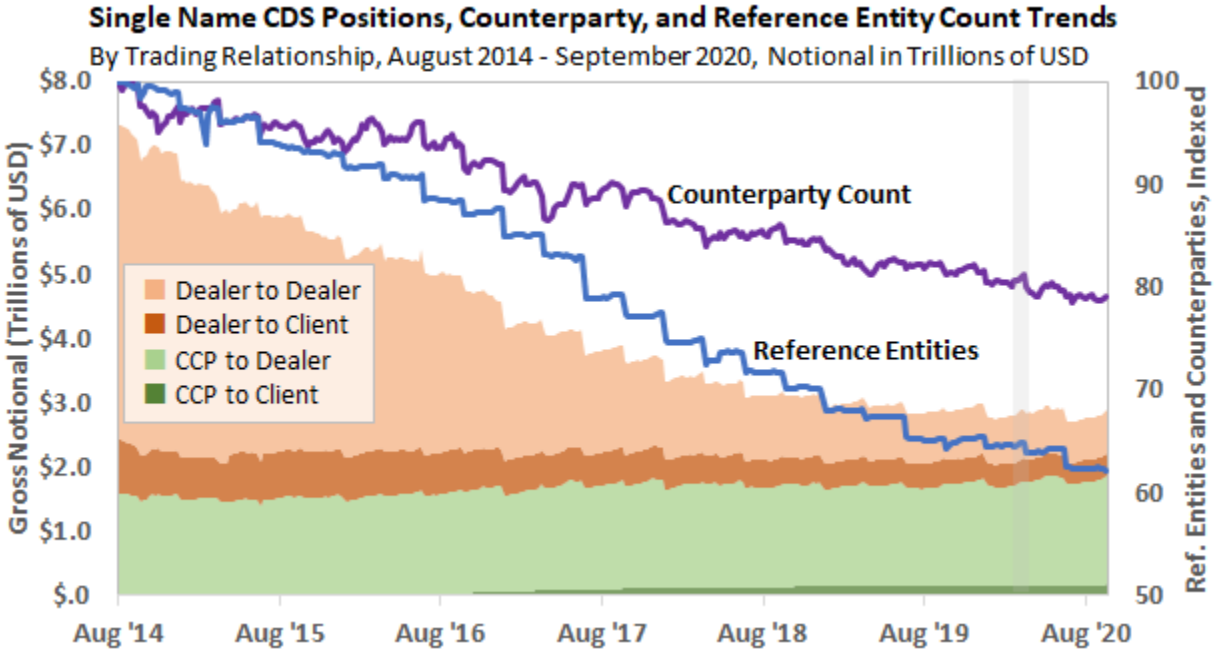
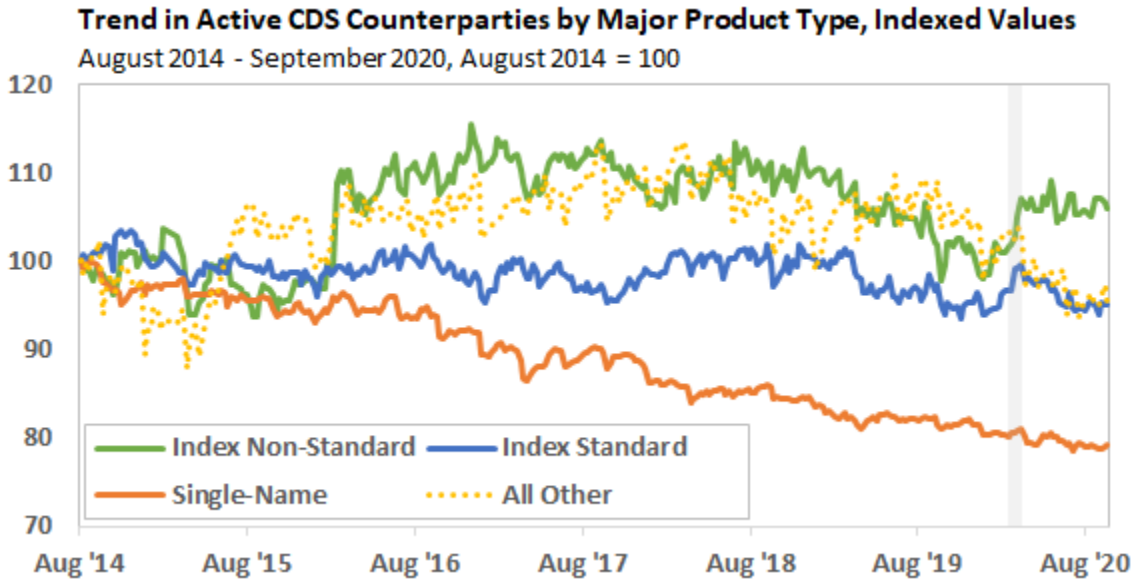


Figure 5 shows the number of active counterparties in each major product indexed to the beginning of our sample in August 2014. This allows us to directly compare the trend in each product and observe that all products except non-standard indices saw a decrease in the number of counterparties holding positions over our sample. Single-name CDS underwent the biggest decrease of approximately 20%, standard indices and all other product types decreased by approximately 5%, and non-standard index products saw a modest increase of approximately 7% in active counterparties.

Figure 5



4 CDS market dynamics during the COVID period

4.1 Overview

During the COVID-related market turmoil of 2020, trading in the CDS market increased drastically as global credit markets responded to new expectations of credit risk and default. In addition to the long-term trends, **Figure 1** showed that the CDS market responded dramatically to the COVID pandemic, and that this response was concentrated in the standard index segment of the market. Standard CDS index positions increased by 100% from $2.57tn on January 3, 2020 to $5.14tn at the peak of the market stress on March 20, 2020 (see **Table 1** in the succeeding section). Around the same period, March spreads on the main credit indices increased by about 200% relative to their February levels, and ICE Clear Credit had approximately 25 consecutive business days with daily cleared notional amounts over $200bn vis-à-vis a pre-COVID average of $80bn (Ivanov, Jordan, and Springle, 2021).

The COVID market event coincided with the March 2020 CDS index roll when a new index series was issued. The roll occurs on or around the 20th of March and September of every year.[10] During the roll period there are often temporary increases in reported positions as participants move to the new on-the-run series. However, the typical increase in positions is much smaller than what we observe for March 2020. For example, the average one-month increase for the

[10] For more details on CDS index mechanics, see IHS Markit's "CDS Indices Primer", November 2021, available at https://cdn.ihsmarkit.com/www/pdf/1221/CDS-Indices-Primer---2021.pdf.

previous six roll dates was 22%. Therefore, a large share of the increase in standard CDS index positions in March 2020 can be reasonably ascribed to the COVID-related trading activity.

While positions in standard indices spiked in March 2020, positions in non-standard indices (e.g., CDX Emerging Market, iTraxx Australia, iTraxx Japan) remained largely unchanged. Additionally, single-name CDS positions remained relatively flat from 2019 to late 2020. This evidence suggests that both non-standard indices and single-name CDS were relatively unaffected by the pandemic-driven market shifts and that their long-term trend of decline halted, at least during this period. The market participants' apparent preference for standard CDS index products reflected the demand for quick, relatively inexpensive (in terms of transactions costs) access to broad market protection against widespread credit deterioration, rather than exposure through single names or non-standard indices that reference specific companies or sectors. Liquidity was also a factor driving participants to index CDS over single names. MSCI reports that liquidity in standard index CDS suffered during the height of CDS activity in March with bid-ask spreads rising from a pre-pandemic average of 1-2 basis points (bps) to over 10 bps, albeit rebounding quickly thereafter.[11] In contrast, bid-ask spreads for single names went from a pre-pandemic average of 5 bps to 20 bps in March with a much longer recovery period.[12]

4.2 Changes in positions

Table 1 details changes in positions for various entity types over the pandemic cycle. The table shows positions as of a common pre-COVID starting point of January 3, 2020, the peak of market stress on March 20, 2020, and a common post-recovery point of June 26, 2020.[13] Standard index CDS fall under the clearing requirement, so there are two position types involved—dealers and clients, both facing a CCP. Dealers drove the majority of the COVID spike in standard index CDS by more than doubling their starting position and accounting for over 85% of the total increase in positions across all market participants between January 3 and March 20, 2020.[14] Among the various firm types, the largest percentage changes were made by pension funds and hedge funds, which increased their positions by 99.7% and 52.6%, respectively.

[11] "The CDS Market Stayed Healthy amid COVID," Z. Fekete and R. Janosik, November 23, 2020, MSCI blog post, available at https://www.msci.com/www/blog-posts/the-cds-market-stayed-healthy/02201573906.
[12] Ibid.
[13] These reference dates were selected by the authors to facilitate a useful analysis based on the market trends as opposed to pre-determined judgements about how the COVID pandemic was unfolding. For example, March 20, 2020 is the last weekly observation before the Federal Reserve's stabilization monetary policy took effect on March 23, 2020.
[14] During our sample period, the top five FCM swap clearing members held approximately 75% of client margin, while the top 10 clearing members accounted for nearly 100% (FSOC, 2021).

Table 1

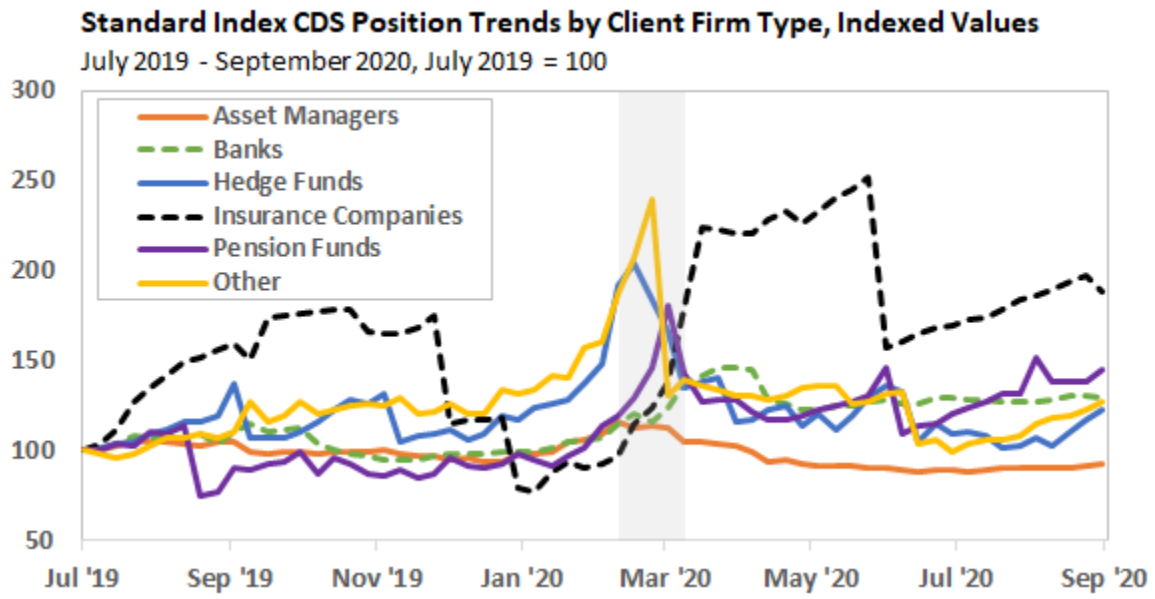
Standard Index CDS COVID Period Changes by Firm Type, Billions USD

Firm Type	Start*	Peak*	Recovery*	Percent Changes	
				Start to Peak*	Peak to Recovery*
Asset Managers	455.3	548.8	435.8	20.5%	-20.6%
Banks	25.5	32.0	32.7	25.5%	2.2%
Hedge Funds	262.2	400.1	320.2	52.6%	-20.0%
Insurance Companies	27.1	31.9	37.2	17.6%	16.6%
Pension Funds	88.6	177.0	107.2	99.7%	-39.4%
Other	64.4	69.6	70.4	8.1%	1.2%
Client Total	**923.1**	**1,259.3**	**1,003.6**	**36.4%**	**-20.3%**
Swap Dealer	**1,852.9**	**4,089.7**	**2,322.1**	**120.7%**	**-43.2%**
Grand Total**	**2,566.3**	**5,137.1**	**3,121.0**	**100.2%**	**-39.2%**
Clearing Residuals					
Cleared	2,356.6	4,925.3	2,916.2	109.0%	-40.8%
Uncleared	419.4	423.8	409.5	1.0%	-3.4%

* Key dates in 2020 defined as: Start—Jan 3, Peak—March 20, and Recovery—June 26.
** Total is the sum of client, swap dealer, and CCP positions divided by two to accommodate data from a two-sided market.

Looking over a slightly longer timeline highlights the variation in the timing of each client segment's response to the pandemic. **Figure 6** depicts the trends in standard index CDS by major client types (indexed to July 2019) and shows that insurance companies experienced the largest percentage increase in index exposure, which went up from $23bn in July 2019 to $58bn at the peak in June 2020 (a 152% increase). It is worth noting that insurance companies not only held their COVID-period positions longer than other sectors, but also continued adding to their positions before reducing their built-up exposures in June 2020. Insurance companies also began increasing their exposures in mid-2019, but it is unclear exactly what drove this early trend.

Figure 6



Hedge funds, pension funds, and the "other" group of firms also increased their exposure to standard index CDS. Hedge funds peaked slightly earlier than the other firm types, thereby reinforcing anecdotal evidence that hedge funds typically react more quickly to trading opportunities than other market participants. Hedge funds started January 2020 with $262bn and peaked on March 7 with $492bn. The "other" category includes firms that are otherwise unclassified and groups that are too small to report separately, such as proprietary trading funds, sovereign wealth funds, and nonfinancial firms. These firms started increasing their positions in January 2020 going from $64bn to a peak of $128bn on March 14, 2020. Most of this increase (about two thirds) in the "other" category's positions is accounted for by other financials and other non-financials. Pension funds started the year with $89bn and peaked at $177bn on March 20, 2020.

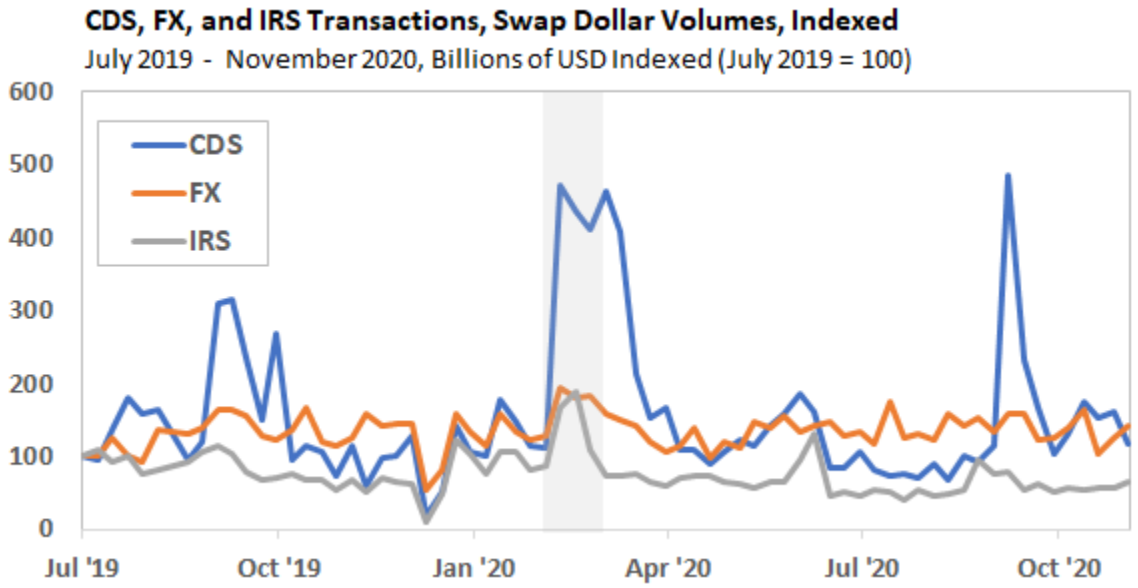
4.3 Changes in trading volumes

Using our Part 45 swap transactions data, we also analyze trends in CDS trading volumes during and around the COVID period. We find that in percentage terms, standard CDS index dollar volumes increased much more than either interest rate swaps (IRS) or currency swaps (FX) volumes (**Figure 7**). Standard CDS index swap dollar volumes increased more than ninefold (800%) between January 3 and March 20. FX and IRS also increased substantially during the same

period, but this increase was an order of magnitude smaller than that for CDS (FX trading volumes went up by 94% and IRS volumes rose by 51%).[15]

As was previously shown in **Figure 1** and **Figure 2**, the majority of CDS trading activity occurred in the standard indices. **Figure 8** details the gross notional traded in each of the standard index series: iTraxx Europe Crossover, iTraxx Europe, CDX North America Investment Grade, and CDX North America High Yield. **Figure 8** reveals that trading activity was highly concentrated in the iTraxx Europe and CDX North America Investment Grade series.

Figure 7



[15] Note that in absolute magnitudes, both FX and IRS gross notionals are much larger, on average, than CDS. Sample period average gross notionals are as follows: CDS—$0.6tn, FX—$9.1tn, and IRS—$15.5tn.

Figure 8

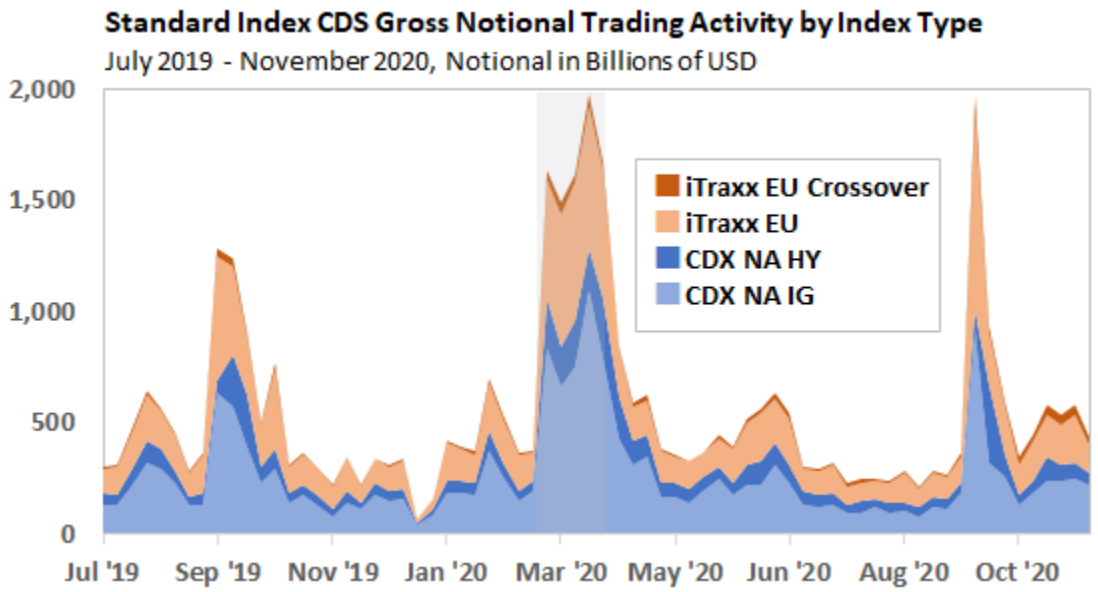


Table 2 and **Table 3** summarize directional trading—i.e., the total amount of credit risk protection bought and sold—in standard index CDS by firm type. **Table 2** summarizes trading activity from the pre-pandemic tranquil period to the peak (between January 3 and March 20, 2020), while **Table 3** summarizes trading activity during the recovery period (through June 26, 2020). For each firm type, the total volume bought and sold during the run-up and recovery are computed, along with gross notional, the percentage of total volume traded, and the net trading position for the period (which reflects only the trading for this period and is different from the actual position held, as reported in **Table 1**).

Table 2 shows that swap dealers accounted for 60% of the total volume traded, and all sectors showed significant increases over their average weekly volume in the rest of the non-COVID sample period (**Table 4**). Asset managers and hedge funds led the client trading activity, together accounting for 31% of the total volume traded. During this period, banks and insurance companies both bought and sold similar amounts. Asset managers and pension funds sold slightly more credit protection than they bought, and hedge funds, banks, and other client types bought slightly more than they sold.

Table 2
Standard Index CDS Directional Trading Summary by Firm Type, COVID Period, Start to Peak, Billions of USD

Firm Type	Bought	Sold	Net	Gross	% Total Gross
Asset Managers	899.7	941.5	-41.8	1,841.1	18.3%
Banks	34.9	26.3	8.6	61.3	0.6%
Hedge Funds	682.7	633.8	48.9	1,316.5	13.1%
Insurance Companies	13.0	10.8	2.3	23.8	0.2%
Pension Funds	103.6	138.7	-35.1	242.2	2.4%
Other	285.1	257.1	28.0	542.2	5.4%
Client Total	**2,019.0**	**2,008.1**	**10.9**	**4,027.1**	**40.1%**
Swap Dealer	**3,009.4**	**3,008.8**	**0.6**	**6,018.1**	**59.9%**
Grand Total	**5,028.4**	**5,016.9**	**11.5**	**10,045.2**	**100.0%**

As previously mentioned, **Table 3** summarizes gross and directional volume traded for the recovery period (through June 26, 2020). Trading in all firm types during the recovery period was also significantly higher than the average weekly volume in the rest of the non-COVID-related sample period (**Table 4**). Similar to the start-to-peak period, swap dealers accounted for approximately 60% of the total volume traded during the recovery period, and asset managers and hedge funds were again the most active client types. One important difference is the direction and magnitude of the selling of credit protection in the recovery period. Swap dealers were approximately net flat from the start to the peak, but in the recovery period they bought slightly more protection than they sold. Most client types were also net flat during the recovery with hedge funds being the noteworthy exception. Hedge funds bought more on net from the start to the peak and sold more on net after the peak, thereby partially reversing their trading during the first quarter of 2020. This adds to the suggestive evidence that hedge funds as a group were acting on the advantageous trading opportunities afforded by the COVID period as opposed to adjusting positions or buying credit risk protection during a period of elevated risk.

As noted above, peak COVID trading coincided with the March index roll that occurs on the 20th of March and September of every year. Our sample includes September 2019 and September 2020 in order to show the typical trading increase during rolls. It appears that trading typically doubles during the roll week, so the rest of the increase in March 2020 can reasonably be attributed to COVID-related trading activity.

Table 3
Standard Index CDS Directional Trading Summary by Firm Type, COVID Period, Peak to Recovery, Billions of USD

Firm Type	Bought	Sold	Net	Gross	% Total Gross
Asset Managers	788.4	797.4	-9.0	1,585.7	19.1%
Banks	28.4	30.2	-1.8	58.6	0.7%
Hedge Funds	429.5	450.1	-20.6	879.6	10.6%
Insurance Companies	13.7	14.1	-0.4	27.7	0.3%
Pension Funds	112.5	112.0	0.5	224.5	2.7%
Other	225.2	232.3	-7.1	457.6	5.5%
Client Total	**1,597.7**	**1,636.0**	**-38.3**	**3,233.7**	**39.0%**
Swap Dealer	**2,554.3**	**2,506.4**	**47.9**	**5,060.7**	**61.0%**
Grand Total	**4,152.0**	**4,142.4**	**9.6**	**8,294.4**	**100.0%**

Table 4
Standard Index CDS Directional Trading Summary by Firm Type, Non-COVID Period Sample Average

Firm Type	Bought	Sold	Net	Gross
Asset Managers	10.6	11.0	-0.4	21.6
Banks	0.4	0.4	0.0	0.8
Hedge Funds	6.4	6.3	0.1	12.7
Insurance Companies	0.3	0.3	0.0	0.5
Pension Funds	1.6	1.5	0.1	3.1
Other	0.3	0.3	0.0	0.7
All Client Average	**3.3**	**3.3**	**0.0**	**6.6**
Swap Dealer	**36.4**	**30.2**	**6.2**	**66.6**
Average All Types	**7.4**	**6.7**	**0.7**	**14.1**

Tables 2, 3 and 4 discussed above summarize the COVID period using two adjacent time periods. While this approach facilitates clear comparisons, some of the time-series dynamics are not captured by this approach. The following figures aim to highlight the variation in timing and trends among the various firm types during the COVID period. The tables discussed above and the figures that follow aggregate across all standard index trading. More detailed views of which indices were traded by each firm type are provided in the next section.

Figure 9 plots the total weekly notional bought and sold by swap dealers and all client types from July 2019 through November 2020. Here we see from another angle how much of the

market activity is accounted for by swap dealers. The figure also highlights the trend of both dealers and clients trading actively each week but remaining close to flat in net terms overall. **Figure 10** plots the net activity of swap dealers and all client types, and here we observe even more clearly than before that during the main spike of CDS activity around March 20, on net clients bought credit risk protection while swap dealers sold credit risk protection. The scale is also important here since the net figures are much smaller than the gross buys and sells—over $900bn USD were bought and sold but on net clients bought approximately $40bn worth of protection and swap dealers sold approximately the same notional amount.

Figure 9

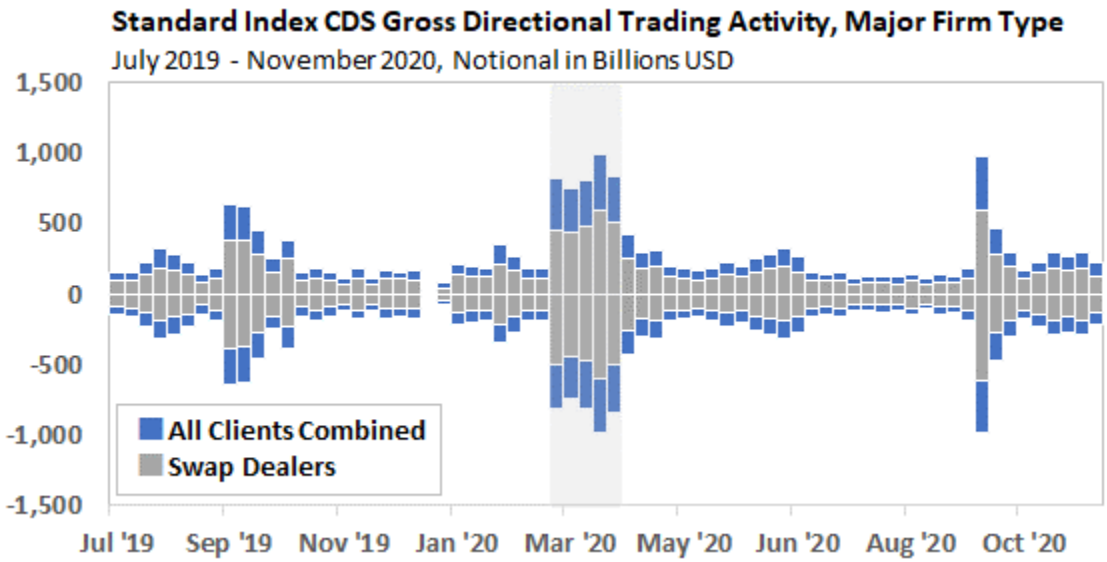
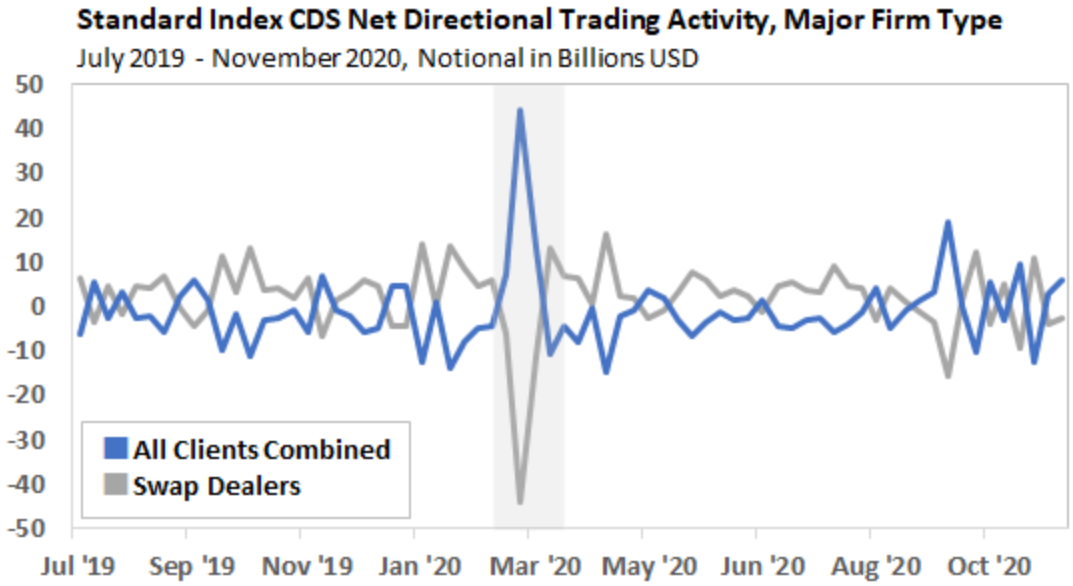


Figure 10



The client side of the COVID period activity was driven by asset managers and hedge funds (**Figure 11**). These are consistently the largest client firm types in the market, as other client types trade less frequently and in smaller sizes. Asset managers, hedge funds, and the combined category of all other client types follow the general trend of client activity shown in the previous figures with significant amounts bought and sold each week with the net result staying close to zero on average.

Figure 12 also adds more clarity to the client-side of the COVID spike discussed above and shows that hedge funds were quick to respond and that they were the main group buying protection. Hedge funds primarily bought protection leading into the spike and sold off much of that position almost immediately after the peak. Asset managers and other clients traded in the opposite direction and sold protection on net initially and then bought back shortly after the COVID spike. **Figure 10** showed that swap dealers sold roughly $40bn on net, and **Figure 12** shows that hedge funds bought approximately $80bn on net, with asset managers and other clients selling the remaining $40bn. With so much buying and selling activity and with all positions eventually facing a central counterparty, it is noteworthy that hedge funds emerge as the primary buyers of protection on net while dealers and all other clients were net sellers of protection.

Figure 11

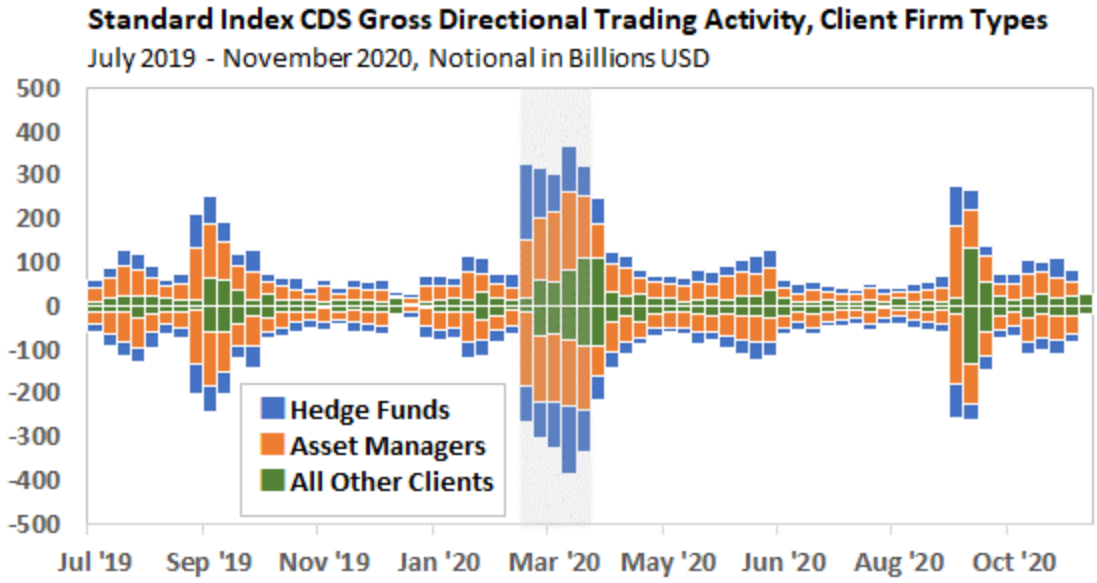
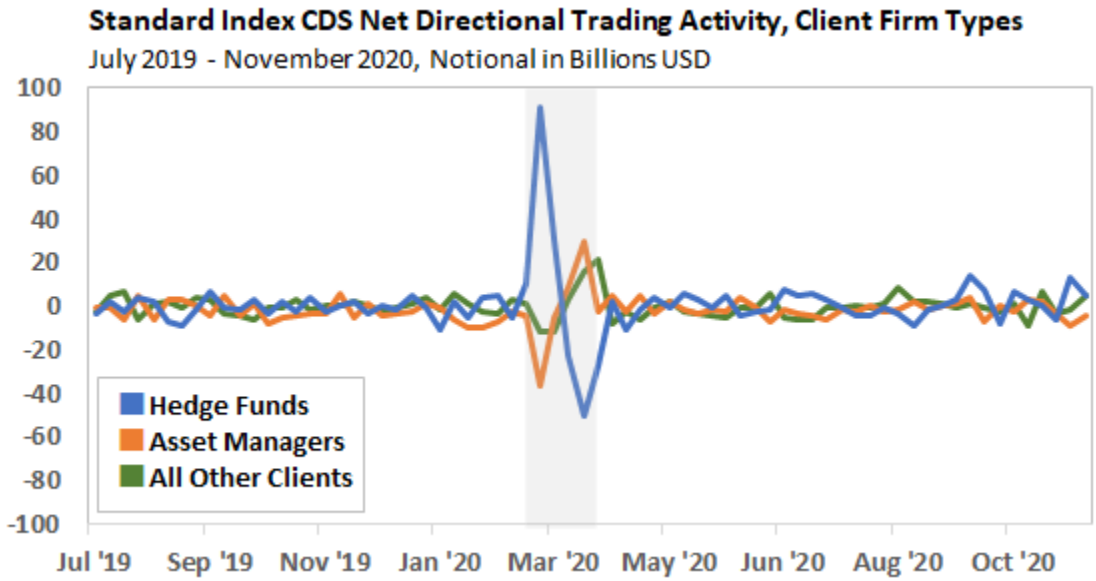


Figure 12



4.4 Sector details

This section further disaggregates our data by CDS product and firm type. We study positions, trading volumes, and directionality of each of the five major market participant groups—swap dealers, asset managers, hedge funds, insurance companies, and pension funds. We delineate these market participants' patterns of involvement in each of the main CDS market segments, including investment-grade and high-yield US and European indices, non-standard indices, and single-name CDS. Both the long-term trends (since 2014) and the dynamics during and around the COVID crisis are considered.

4.4.1 Swap dealers

Table 5 reports annual average positions of swap dealers in each major CDS product over the course of our sample. The long-term trend of decline in position size in all product types is highlighted in the full sample percentage changes at the bottom of the table. Swap dealers reduced their positions in all CDS products with single-name CDS and non-standard CDS indices both decreasing by over 50% (-72% and -60%, respectively). The composition of products held by swap dealers also changed over the course of the sample. In the first three years (2014–2016), swap dealers held 67% or more of their gross notional in single-name CDS. By 2020, single-name CDS accounted for only 53% of their gross positions. The declining share of single-name CDS was offset by standard index products, which accounted for less than 30% of the holdings during the first four years of the sample and grew to 38% of swap dealer positions by 2020. Interestingly, non-standard products' share of swap dealer holdings remained relatively constant.

Table 5
CDS Position Summary by Product Type, Swap Dealers

Annual Averages* and Percent of Annual Totals							
Year	Standard Index		Non-Standard Index		Single-Name		Annual Total
	Gross	% of Total	Gross	% of Total	Gross	% of Total	
2014	4,226.1	24%	1,491.9	9%	11,670.9	67%	17,388.9
2015	3,153.7	22%	1,215.1	9%	9,754.0	69%	14,122.9
2016	2,531.7	22%	897.0	8%	7,927.7	70%	11,356.3
2017	2,226.6	26%	753.7	9%	5,637.5	65%	8,617.8
2018	2,216.5	31%	704.4	10%	4,270.7	59%	7,191.6
2019	1,995.3	32%	651.5	10%	3,686.9	58%	6,333.7
2020	2,471.5	38%	639.5	10%	3,443.0	53%	6,554.0
Full Sample Percentage Changes (% change between first and last available reference dates)							
Reference Date	**Index Standard**		**Index Non-Standard**		**Single-Name**		**All Products**
8/1/2014	4,428.6		1,546.4		12,211.4		18,186.4
9/18/2020	2,469.2		624.7		3,470.4		6,564.3
% Change	**-44%**		**-60%**		**-72%**		**-64%**

* Notional in Billions of USD.

Figure 13 provides evidence that swap dealers both bought and sold significant amounts of CDS standard index products during the COVID period, although this activity concentrated in the investment-grade series (CDX NA IG and iTraxx EU). Further, **Figure 14** shows that swap dealers were selling protection, on net, most significantly in the CDS North American Investment Grade and iTraxx Europe indices during the height of COVID-related trading in March 2020.

Figure 13

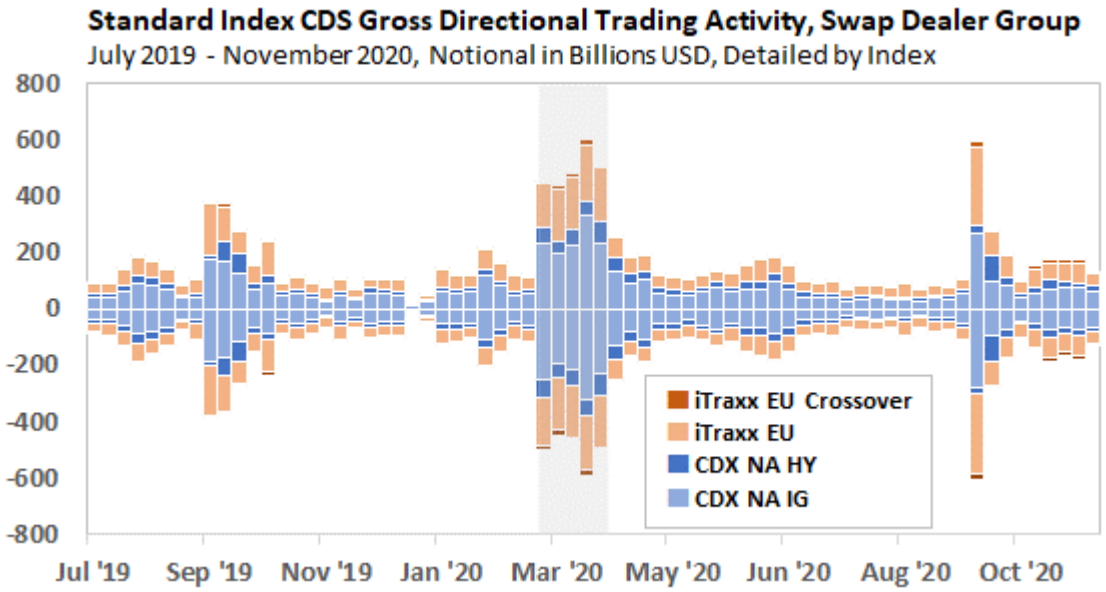
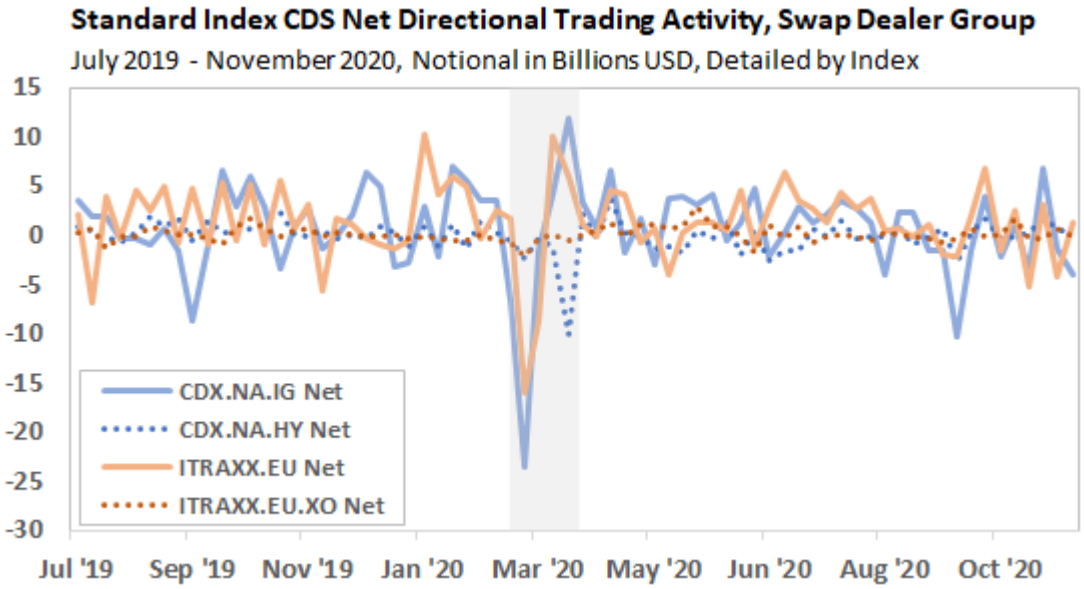


Figure 14



4.4.2 Asset managers

Table 6 depicts annual average positions of asset managers in each major CDS product since 2014. Asset managers decreased their single-name CDS holdings by 26% at the same time as they increased their standard and non-standard index CDS holdings by 49% and 35%, respectively. This resulted in a shift in the composition of their product holdings: the share of standard index CDS products increased from 51% of total holdings in 2014 to 66% in 2020, which offset the decline in single-name CDS from 44% in 2014 to 27% in 2020. Non-standard index products remained at less than 10% of total CDS positions over the entire sample.

Table 6
CDS Position Summary by Product Type, Asset Managers

Annual Averages* and Percent of Annual Totals							
Year	**Standard Index**		**Non-Standard Index**		**Single-Name**		**Annual Total**
	Gross	**% of Total**	**Gross**	**% of Total**	**Gross**	**% of Total**	
2014	294.0	51%	30.9	5%	252.7	44%	577.6
2015	272.4	54%	22.1	4%	207.1	41%	501.6
2016	255.2	54%	26.0	6%	189.6	40%	470.8
2017	282.2	56%	35.9	7%	183.0	37%	501.0
2018	389.6	62%	46.0	7%	195.7	31%	631.4
2019	478.6	65%	52.3	7%	203.8	28%	734.7
2020	470.2	66%	49.9	7%	187.9	27%	708.1

Full Sample Percentage Changes (% change between first and last available reference dates)				
Reference Date	**Index Standard**	**Index Non-Standard**	**Single-Name**	**All Products**
8/1/2014	301.5	36.1	258.6	596.2
9/18/2020	449.9	48.6	191.7	690.1
% Change	**49%**	**35%**	**-26%**	**16%**

* Notionals in Billions of USD.

Figure 15 shows that asset managers both bought and sold significant amounts of investment-grade CDS standard index products during the COVID period. **Figure 16** reveals that asset managers were net sellers of credit risk protection, most significantly in the CDS North American Investment Grade index, during the height of COVID-related trading in March 2020 and almost completely reversed their position in April 2020. Asset managers were approximately flat in the other standard indices, which reflects a distinct interest in exposure to US investment-grade credit during the COVID period.

Figure 15

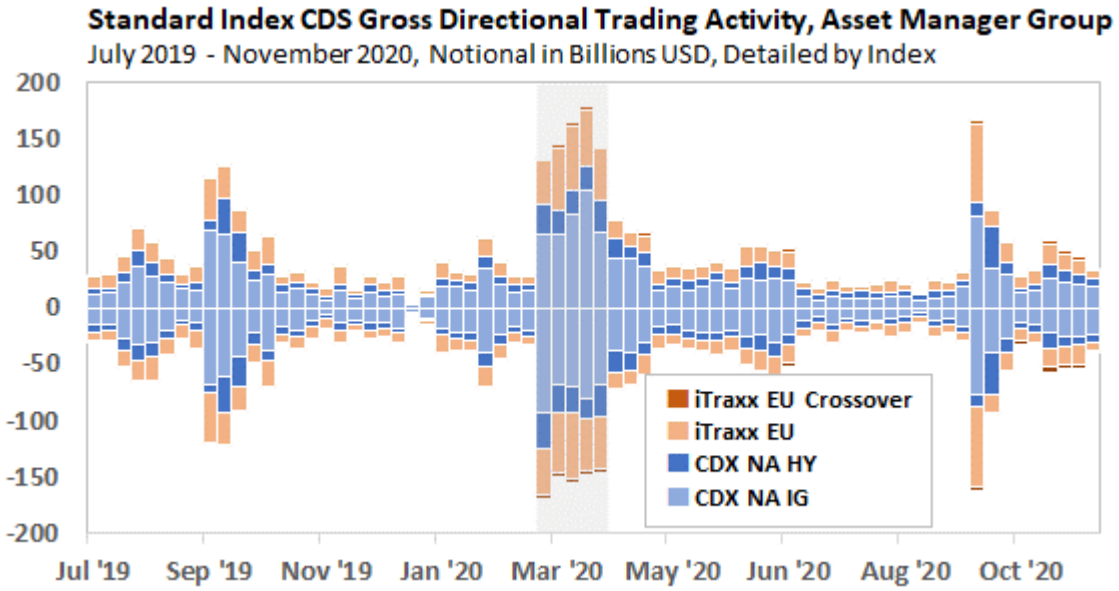
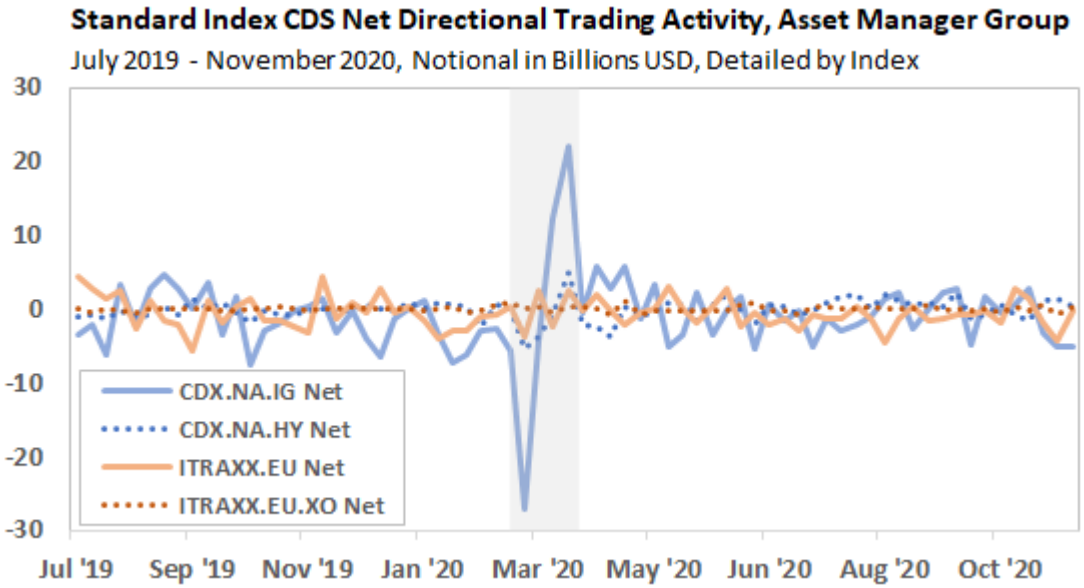


Figure 16



4.4.3 Hedge funds

Table 7 reports annual average positions of hedge funds in each major CDS product over the course of our sample. Hedge funds reduced their holdings in all major CDS products during the sample period, most notably in single-name and non-standard index products, which declined by

54% and 76%, respectively (standard index products declined by 38%). The composition of hedge fund product holdings varied over time with a period of an increasing share of single-name CDS positions in 2015, 2016, and 2017, followed by declines through the end of the sample period, when single names accounted for 20% of hedge funds' holdings. The relative holdings of standard index products by hedge funds showed the opposite trend over the sample period: their share declined at the same time as single-name CDS share was increasing. However, since the overall reductions in single-name CDS were higher, standard index products wound up at 73% of total hedge fund positions at the end of the sample.

Hedge funds' interest in non-standard index products is also noteworthy since these products accounted for 10% or more of total positions in 2014, 2015, and 2016. Hedge funds are the only firm type in the sample to hold more than 10% of their positions in non-standard index products at any point during the sample period. Since this product group saw the largest percentage decline, they ended the sample in 2020 at only 6% of hedge funds' total positions.

Table 7
CDS Position Summary by Product Type, Hedge Funds

Annual Averages* and Percent of Annual Totals							
Year	Standard Index		Non-Standard Index		Single-Name		Annual Total
	Gross	% of Total	Gross	% of Total	Gross	% of Total	
2014	518.3	63%	122.6	15%	183.9	22%	824.8
2015	331.3	55%	99.0	16%	176.6	29%	606.9
2016	245.3	53%	46.3	10%	169.6	37%	461.3
2017	270.3	60%	39.1	9%	143.6	32%	453.0
2018	272.4	65%	34.9	8%	110.6	26%	417.9
2019	263.3	68%	25.6	7%	99.9	26%	388.7
2020	305.5	73%	26.3	6%	84.2	20%	416.0
Full Sample Percentage Changes (% change between first and last available reference dates)							
Reference Date	**Index Standard**		**Index Non-Standard**		**Single-Name**		**All Products**
8/1/2014	479.3		120.2		183.9		783.4
9/18/2020	295.6		29.0		84.0		408.6
% Change	**-38%**		**-76%**		**-54%**		**-48%**

* Notional in Billions of USD.

Table 1 and **Figure 6** in Section 4.2 provided evidence that hedge funds were quite nimble and began trading sooner and more intensely than the other client firm types at the onset of the pandemic. **Figure 17** shows that hedge funds both bought and sold significant amounts of investment-grade CDS standard index products during the COVID period. **Figure 18** demonstrates that hedge funds were primarily focusing on the CDS North American Investment Grade and iTraxx Europe indices when building their positions. During the height of COVID-related stress of

March 2020, hedge funds were net buyers, and they almost completely reversed their positions in April 2020. Thus, as was noted in the previous section, one of the important findings of this paper is that hedge funds were the only major firm type buying protection on net heading into March 20 and selling protection on net immediately after March 20. Hedge funds were approximately net zero in the other indices, which reflects a distinct interest in exposure to investment-grade credit in both the US and EU during the COVID period.

Figure 17

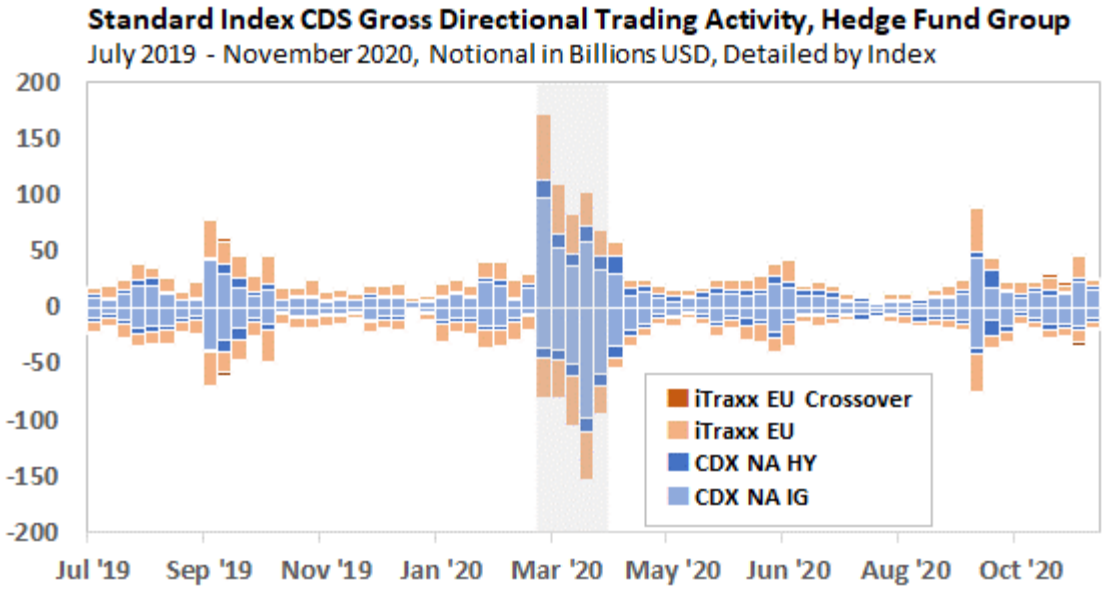
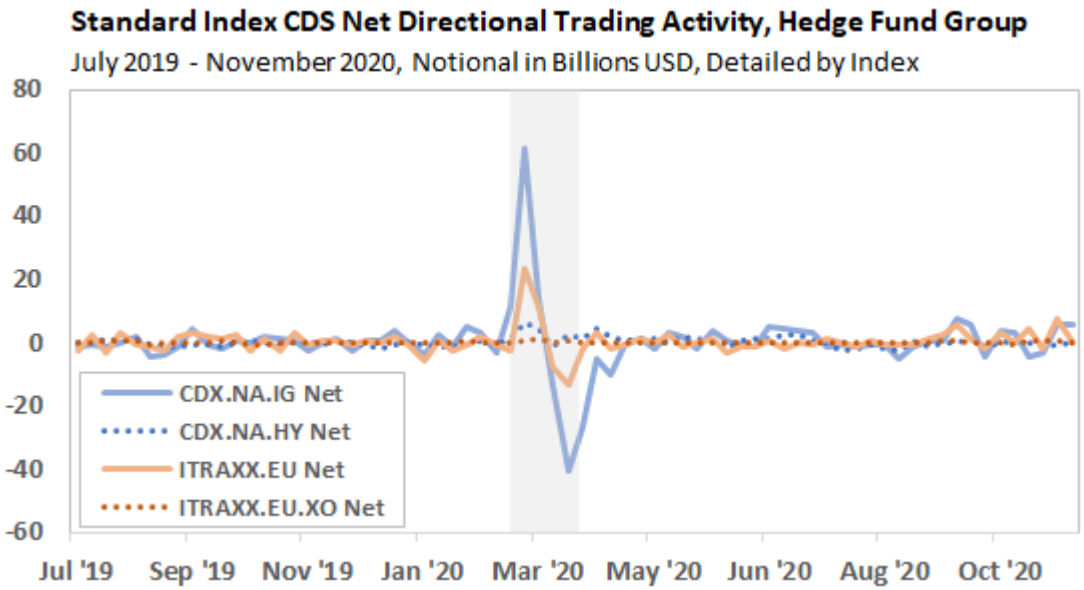


Figure 18



4.4.4 Insurance companies

Table 8 shows annual average positions of insurance companies in standard index and single-name CDS over the course of our sample period.[16] Insurance companies increased their gross positions in standard index CDS by 211%. Single-name positions edged up by 6% between 2014 and 2020. The large increase in standard index CDS resulted in a large composition shift toward standard index products and away from single names. The share of standard index CDS increased from 65% to 81%, while single-name CDS share declined from 35% to 19% during the sample period.

Table 8
CDS Position Summary by Product Type, Insurance Companies

Annual Averages* and Percent of Annual Totals							
Year	Standard Index		Non-Standard Index		Single-Name		Annual Total
	Gross	% of Total	Gross	% of Total	Gross	% of Total	
2014	18.5	65%	***	***	10.1	35%	28.5
2015	16.2	58%	***	***	11.6	42%	27.8
2016	20.6	64%	***	***	11.5	36%	32.1
2017	26.7	70%	***	***	11.7	30%	38.5
2018	24.9	68%	***	***	11.7	32%	36.7
2019	28.3	71%	***	***	11.4	29%	39.6
2020	39.2	81%	***	***	9.4	19%	48.5

Full Sample Percentage Changes (% change between first and last available reference dates)				
Reference Date	**Index Standard**	**Index Non-Standard**	**Single-Name**	**All Products**
8/1/2014	14.0	***	9.0	23.0
9/18/2020	43.6	***	9.5	53.1
% Change	**211%**	*******	**6%**	**131%**

* Notional in Billions of USD.
*** Insufficient sample for public release.

In unreported figures, we observe that during the COVID period insurance companies primarily traded the North American investment-grade CDS index.[17] Insurance companies' trading was essentially flat until the peak of the COVID period and there was no significant directional trading activity until after the peak of market stress.

[16] Non-standard index products are not included in this section due to insufficient sample for public release.
[17] Detailed figures of insurance companies' trading activity cannot be reported due to insufficient sample for public release.

4.4.5 Pension funds

Table 9 reports annual average positions of pension funds in each major CDS product since 2014. Pension funds increased their gross positions in standard and non-standard index CDS by 132% and 74%, respectively. Single-name positions rose marginally by 6% over the sample period. Despite the large increase in standard index CDS, the overall product composition was relatively stable over the sample period with over 80% of total holdings by pension funds accounted for by standard index CDS.

Figure 19 shows that pension funds both bought and sold significant amounts of CDS standard index products during the COVID period. Further, **Figure 20** indicates that they were net sellers of credit risk protection during the height of COVID-related trading in March 2020 and essentially reversed their position in April 2020, and that they were building their positions primarily relying on the CDS North American Investment Grade index. Pension funds were roughly flat in CDS North American High Yield index which reflects a distinct interest in exposure to US investment-grade credit during the COVID period.[18]

Table 9
CDS Position Summary by Product Type, Pension Funds

Annual Averages* and Percent of Annual Totals							
Year	**Standard Index**		**Non-Standard Index**		**Single-Name**		**Annual Total**
	Gross	**% of Total**	**Gross**	**% of Total**	**Gross**	**% of Total**	
2014	72.2	83%	2.7	3%	12.4	14%	87.4
2015	74.0	83%	3.7	4%	11.9	13%	89.6
2016	98.0	82%	4.3	4%	17.8	15%	120.1
2017	71.0	78%	4.8	5%	15.0	17%	90.9
2018	75.2	79%	4.6	5%	15.4	16%	95.2
2019	87.1	84%	3.4	3%	12.7	12%	103.2
2020	120.8	89%	2.5	2%	12.4	9%	135.7
Full Sample Percentage Changes (% change between first and last available reference dates)							
Reference Date	**Index Standard**		**Index Non-Standard**		**Single-Name**		**All Products**
8/1/2014	61.2		2.2		12.3		75.7
9/18/2020	142.0		3.7		13.3		159.1
% Change	**132%**		**74%**		**8%**		**110%**

* Notional in Billions of USD.

[18] Pension fund positions in the iTraxx EU and iTraxx EU Crossover series are not included in this section due to insufficient sample for public release.

Figure 19

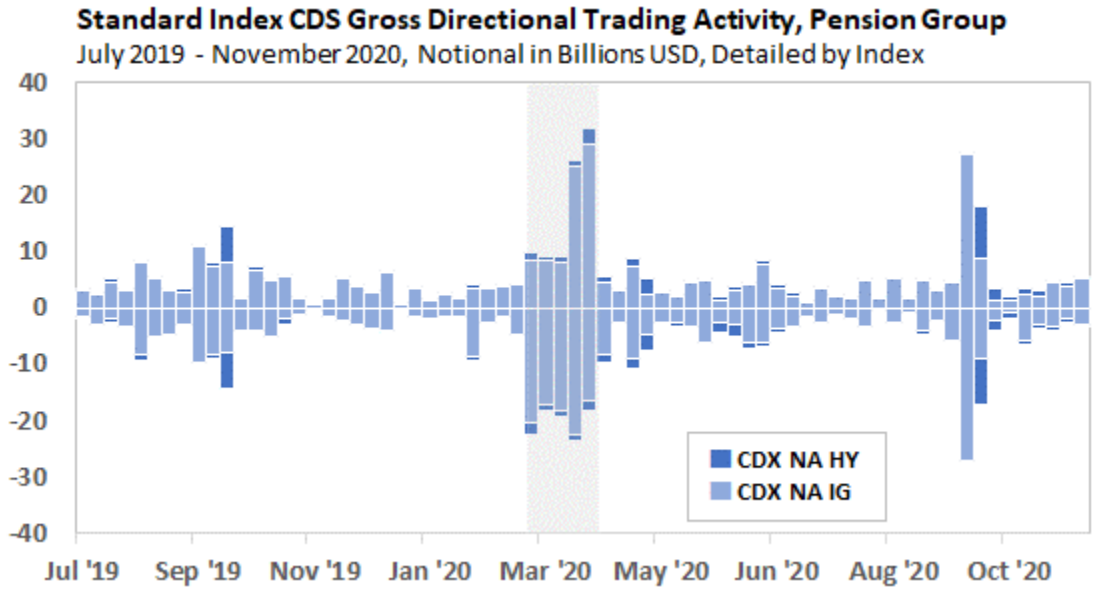
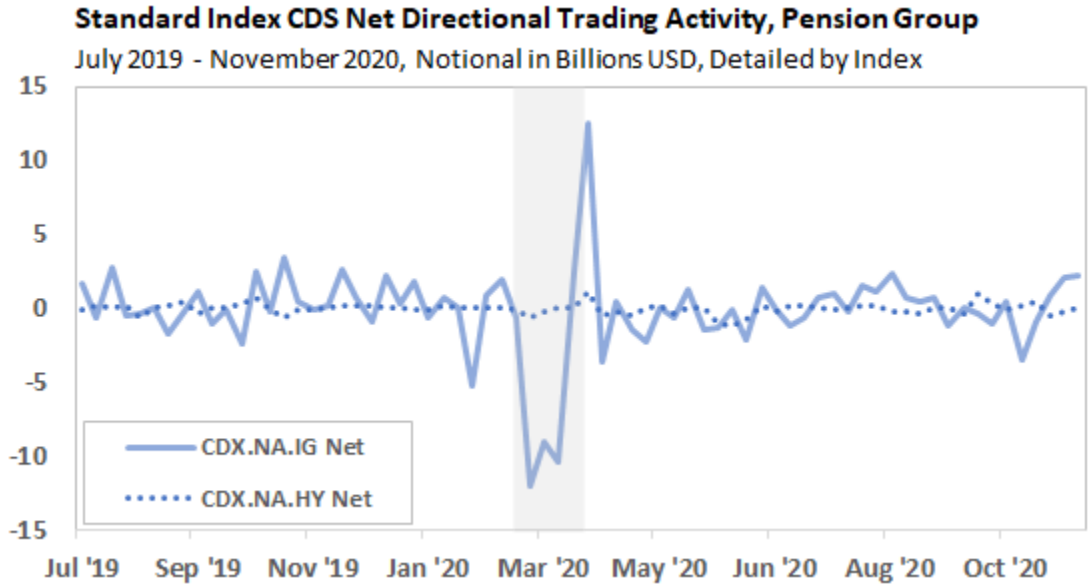


Figure 20



5 Conclusions

This paper uses both regulatory and nonregulatory data to study the behavior of single-name and index CDS markets across instruments and firm types during and around the market stress of March 2020. Among the findings reported in the paper, five stylized facts are most notable. First, gross notional in the standard CDS indices nearly doubled, while non-standard indices and

single-names remained largely unchanged at the height of the market stress. Second, hedge funds and asset managers were the most active client sectors in absolute terms, whereas insurance companies and pension funds showed significant relative movements. Third, CDS volume traded during the COVID period increased more in relative terms than the volume of either IRS or FX. Fourth, investment-grade indices in the US and Europe were the most heavily traded indices during the market stress of 2020, while high-yield indices accounted for a much smaller share of market activity. Finally, swap dealers more than doubled their standard index positions in March 2020, and this movement accounted for more than 85% of the total increase in positions across all market participants.

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