



# INSPECTION & EVALUATION: CFTC STRESS-TESTING DEVELOPMENT EFFORTS

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This statement has been added for publication:

This Report has been redacted by the Commodity Futures Trading Commission, not by the CFTC OIG.

OIG does not agree with the redaction on page 24.

At this time, OIG is not seeking redaction and publication of appendices 1-34. OIG believes appendices 1-34 are described in the text of the paper, and that the redaction process at this time would therefore not be worth the benefit derived, given the additional delay in publication that would result. OIG advises individuals seeking publication of appendices 1-34 to consult the CFTC Freedom of Information Act guidance found at <https://www.cftc.gov/FOI/foiarequests.html>.

Message from the CFTC Office of General Counsel: Some individuals named in this report consented to the release of their names and personal information upon request by the OIG.

We wish to thank  
Wajiha Sharief and Vanessa Davis  
for their work in support  
of this report.

## EXECUTIVE SUMMARY

Leadership in the Division of Clearing and Risk's Risk Surveillance Branch ("RSB") have retarded the development of CFTC stress-testing capabilities, undermined efforts to improve the usability of uncleared swaps data, denied various employees access to certain IT resources, and overstated the independence and coverage of its existing stress-testing program.

### *Shutdown of Swaps Stress-Testing Development*

Prior to Dodd-Frank, RSB had a program for stress-testing futures and options. Under [REDACTED] this program was run by [REDACTED], [REDACTED] Chicago-based sections of RSB. After Dodd-Frank expanded the CFTC's jurisdiction to include swaps, Shallom Moses and a small, technically capable team, the Margin Model Group, began developing a battery of full-revaluation stress-testing programs for cleared and uncleared swaps. This effort went on for five years, with the support of [REDACTED], and made great progress. In 2015, the Margin Model Group presented to the Commission a proof-of-concept stress-test based on the 2008 financial crisis. Later that summer, [REDACTED] turned to the Margin Model Group to simulate a potential Greek debt crisis, as requested by then-Chairman Massad. Citing that effort, [REDACTED] awarded Shallom Moses a time-off award, calling his work "innovative."

Around the same time, however, the Chicago-based RSB sections began a duplicative effort to develop stress-testing capabilities for cleared swaps. Lacking the technical expertise of the Margin Model Group, [REDACTED] hired Nancy Dong, a skilled programmer previously in the Office of Data and Technology. Dong was tasked with recreating swaps stress-testing programs that the Margin Model Group already had operational, including a full-revaluation stress-testing program for credit default swaps. Dong questioned the logic of recreating a program that the Margin Model Group had already created, but the Chicago leadership insisted.

Toward the end of 2015, then-Acting Director Jeff Bandman expressed a desire to incorporate uncleared swaps in a comprehensive in-house systemic stress test. The Margin Model Group had already begun working on incorporating uncleared positions, and by the first half of 2016, the Margin Model Group was able to produce a slide deck showing the results of a first-of-its-kind stress-test encompassing all major asset classes, cleared and uncleared. Meanwhile, the Chicago sections were struggling to find a purchase on uncleared swaps and were still using linear approximations received from industry for cleared interest rate swaps and

swaptions. Chicago was, and still is, unable to apply a uniform stress-scenario across all asset classes—a problem that precluded their involvement in the Greek stress-test final product.

The continued development of stress-testing tools by the Margin Model Group did not sit well with ██████████ historically and organizationally responsible for stress-testing. In early 2016, ██████████ expressed his frustration to ██████████, writing, “. . . this is r[i]diculous. [A]ny of [S]hallow’s staff that has excess time after margin model review should be reassigned to me and you.” And in May 2016, after refusing a Margin Model Group staff member’s request to access software that could be used to stress-test futures and options, ██████████ expressed his desire “to get [the Margin Model Group] off of stress-testing cleared swaps and futures.” This soon came to pass.

The following month, ██████████ inexplicably reversed his support of the Margin Model Group’s stress-testing efforts. In a meeting with Acting Director Jeff Bandman, the Margin Model Group’s work on a systemic stress test spanning cleared and uncleared positions across asset classes came up, and Bandman expressed interest in seeing the slide deck. After the meeting, Moses sent Bandman the slide deck, copying ██████████ stormed into Moses’s office and berated Moses for going outside the chain of command and sending Bandman something without ██████████ approval. Not long thereafter, ██████████ commanded the Margin Model Group staff to cease development of stress-testing tools, erroneously citing the lack of stress-testing in the Margin Model Group staff’s position descriptions as the basis for the shut-down.

During the ensuing six months, ██████████ sought to transfer the Margin Model Group’s work product to the Chicago sections. But the Chicago leadership’s lack of technical abilities made such a transfer unworkable. ██████████ devised a move of two of the Margin Model Group’s staff to the Chicago sections, but that fell through as well. The Chicago sections continued their protracted efforts to duplicate the Margin Model Group’s stress-testing capabilities, but there is only one Nancy Dong, who creates the Chicago sections’ swaps-related stress-testing. As of the end of 2017, a year and a half after the shutdown of the Margin Model Group’s stress-testing efforts, the Chicago sections rely on Nancy Dong’s full-revaluation cleared credit default swaps stress-testing program using Part 39 data, and Dong’s linear approximations for cleared interest rate swaps and swaptions. On the uncleared side, the Chicago sections effectively have no capabilities yet.

██████████ justifications for shutting down the Margin Model Group’s development of swaps stress-testing capabilities, particularly their repeated assertions that the Margin Model Group’s programs were of poor quality, were false and pretextual. A third-party review (Appendix 35), conducted by NERA Economic Consulting at the CFTC

OIG's request, confirms that the Margin Model Group's efforts were of high quality. Instead, it was bureaucratic territoriality that led to the forced abandonment of the Margin Model Group's efforts and retarded the CFTC's development of independent swaps stress-testing capabilities.

### *Shutdown of SDR Data Review*

The Margin Model Group, in order to incorporate uncleared swaps into their stress-testing, had initiated a clean-up effort of Part 45 data sometime in 2015, enabling them to input an increasing share of that data into their stress-testing programs. When ██████ ordered the Margin Model Group to cease stress-testing work, he allowed the data clean-up to continue, as that had independent value. But that, too, would eventually get shut down.

In late 2016, ██████ initiated what purported to be a "validation" of Part 45 data. As described in a slide deck from February 2017, he found large discrepancies between select firms' SDR-reported positions and their actual positions as reported in response to ad hoc requests. When ██████ presented that slide deck at a CFTC Data Steering Committee ("SteerCo") meeting, it elicited a response from the Division of Market Oversight ("DMO") that was stunning in its intensity. DMO staff in the Data and Reporting Branch found the presentation to be so egregious that a formal response was prepared. Comparing data ██████ received from the select firms to Part 45 SDR data, DMO personnel determined that ██████ analysis was wildly inaccurate, providing little insight into the quality of the SDR data, and that discrepancies between the two data sets were due almost entirely to the CFTC's jurisdictional limitations or a failure to account for orphaned alpha-swap entries. At the next SteerCo meeting, ██████ gave a second, shorter presentation that elided mention of data validation and instead couched the original analysis in terms of inadequacy for risk-surveillance (implicitly due to jurisdictional limitations). The DMO staff member who performed the critical review of ██████ work characterized ██████ as "disingenuous," "misleading," and "irresponsible," and indicated other colleagues felt similarly.

██████ superseding interpretation of his own analysis was not volunteered to the OIG or the Margin Model Group. Rather, ██████ provided only the initial data-validation slide deck as justification for eschewing any use of Part 45 data in stress-testing. Indeed, Michael Roberson, the Margin Model Group staff member leading the SDR data review, independently discovered what DMO had found, that the data were more meaningful and useful than ██████ had stated. In an email chain between the two, Roberson asked ██████ a series of questions trying to gain detail about ██████ analysis, but ██████ responses were curt and condescending. ██████ could have volunteered that the slide deck had been superseded by another one showing that data

limitations were not due to reporting quality but to CFTC jurisdictional limitations. Instead, after Lawton was named Acting Director, ██████ shut down Roberson's data review efforts.

### *Shutdown of SIMM Review*

Having given up on SDR data, the Chicago sections chose an approach for stress-testing uncleared products that relies on ISDA's Standard Initial Margin Model ("SIMM"). The Chicago sections reached out to a subset of firms to request the same kinds of linear approximations on which they previously based stress-testing of cleared interest-rate swaps and swaptions. Whatever the merit of this approach, it explicitly relies on SIMM-based calculations by industry. Not surprisingly, the Margin Model Group requested to analyze SIMM. But ██████ shut down this effort, too, in June 2017.

In July 2017, the same DMO staff member who conducted the analysis of ██████ slide deck on SDR data validity, and who recognized that the real pith of ██████ complaint about SDR data related to the CFTC's jurisdictional limitations, was also leading efforts to improve the Part 45 SDR uncleared swaps data and harmonize with other regulators throughout the world. As he explained, the regulators were well aware that data fragmentation would result from unavoidable jurisdictional limitations, so the intent from early on was to harmonize and enable the sharing of SDR data in the event of a crisis. This DMO staff member sent out requests to various different divisions and branches throughout the CFTC for input on those data improvement and harmonization efforts. He was repeatedly frustrated by the lack of a response from RSB and finally received an explanation from a DSIO staff member, who revealed his understanding that the SIMM-related project was being pursued within the Chicago sections of RSB, at the expense of Part 45 SDR data, to provide ██████ with a program they could retain control over and that would be too far along to be terminated by the new Director.

### *Blocking Access to IT Resources*

██████ have also restricted access to IT resources so the Chicago sections' retain exclusive control over stress-testing. First, a staff member in the RSB section that ██████ supervised prior to his elevation to Acting Deputy Director had his access to FirmRisk, a third-party risk management platform ██████ section uses for stress-testing futures and options, rescinded without reasonable justification. He was regranted limited access after OIG inquiries. Second, a member of the Margin Model Group was blocked by ██████ from accessing FirmRisk for over a year and a half, despite its potential usefulness in clearinghouse margin model reviews. He likened his experience to being "in a Dilbert cartoon." Third, a Margin Model Group

staff member's access to a swaps data repository was cut off by ██████ in early 2017, also impeding a margin model review. He was regranted access after OIG inquiries.

*Potentially Misleading Representations*

RSB leadership has emphasized in public settings like the Market Risk Advisory Committee the importance of what they call the “fourth level of regulation”—CFTC oversight independent of industry risk assessments. But they fail to disclose where their stress-testing relies on industry calculations that they cannot perform themselves and do not independently validate.

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## **INTRODUCTION**

Surveillance of systemic risk in futures and swaps markets is part of the CFTC's core mission. The Commission, financial market participants, Congress, and the public expect and rely on the leadership of the Division of Clearing and Risk ("DCR") to marshal resources efficiently and effectively to identify systemic risk within the market place and ameliorate potential issues that may arise.

But the CFTC's risk surveillance efforts have been undermined by a failure of leadership, poor decision-making, and territoriality in DCR's Risk Surveillance Branch ("RSB"). Among other things, RSB's leadership abruptly terminated an impressive multi-year effort by a group of technically capable risk analysts to develop novel full-revaluation swaps stress-testing tools using data reported to the CFTC per its Dodd-Frank rulemakings; discontinued a staff member's uncleared swaps data quality review effort that threatened to contradict the leadership's previous assessment; snubbed requests from the Division of Market Oversight ("DMO") for comment on, and arguably undermined, data-improvement and international data-harmonization efforts; and denied various employees access to certain IT resources needed to complete work assignments. RSB leadership have acted in each instance without reasonable justification, undermining the efficiency and economy of the CFTC's stress-testing program. Moreover, RSB leaders and senior staff members have made statements in public that may create a false impression of the robustness, independence, and coverage of its active stress-testing program.

## **METHODOLOGY**

This report is an evaluation of decision-making related to the development, from 2011 to the end of 2017, of swaps stress-testing capabilities and related issues germane to the overall stress-testing program. We undertook this project in response to a complaint received in June 2017. To complete our analysis, we conducted over 50 hours of interviews with 19 CFTC employees in the Chicago Regional and D.C. offices between July and November 2017. We requested and reviewed stress-testing data and output, internal memos, emails, and numerous relevant documents, including the 2016 and 2017 Supervisory Stress Tests completed by the CFTC. In addition, we contracted with NERA Economic Consulting ("NERA") to provide an objective third-party assessment of RSB sections' stress-testing capabilities.

OIG recorded all of the interviews, and cataloged all relevant internal documents that contributed to our conclusions. We believe that the work performed provides a reasonable basis for our conclusions. This evaluation was conducted in accordance with the *Quality Standards for*

*Inspections and Evaluations* issued by the Council of the Inspectors General on Integrity and Efficiency.<sup>1</sup>

## **BACKGROUND**

Stress-testing of financial positions and portfolios is a key approach market regulators use to protect markets from systemic risk. A stress test involves an event scenario, based on historical events or an extreme-but-plausible hypothetical/theoretical event, in which financial conditions change dramatically. The effects on financial positions or portfolios are estimated by revaluing the positions in the new financial environment. Stress-testing thus requires detailed information regarding institutions' market positions, robust understanding of financial and economic theory, and technical modeling tools to revalue those positions under the given stress scenario. In theory, stress-testing can enable the CFTC to gauge potential sources of risk to the financial system, e.g., the adequacy of a clearinghouse's guarantee fund, or the likelihood of systemically important firms becoming insolvent.

At the CFTC, RSB is the organization responsible for stress-testing. [REDACTED] was the leader and [REDACTED] from its inception until January 2017, when he was named [REDACTED]. Under [REDACTED] stress-testing was run by [REDACTED] ("Chicago leadership"), who were until recently the heads of the two Chicago-based sections within RSB. [REDACTED] relied heavily on [REDACTED] to run RSB.

Prior to 2010, the CFTC's jurisdiction, and consequently its stress-testing, was limited to futures and options. RSB stress-tested clearing organizations using third-party software and positions reported to CFTC's Large Trader database. In 2010, the Dodd-Frank Wall Street Reform and Consumer Protection Act<sup>2</sup> ("Dodd-Frank") amended the Commodity Exchange Act ("CEA")<sup>3</sup> to provide the CFTC with jurisdiction over non-securities-based swaps. Revaluing swaps under market stress conditions can require more technical understanding of pricing dynamics than revaluing futures and options; RSB's Chicago groups lacked the technical knowledge and programming abilities to begin immediate development of swaps stress-testing capabilities.

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<sup>1</sup> Council of the Inspectors General on Integrity and Efficiency, Quality Standards for Inspections and Evaluations <https://www.ignet.gov/sites/default/files/files/committees/inspect-eval/iestds12r.pdf>.

<sup>2</sup> Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub.L. 111-203, 124 Stat. 1376 (2010).

<sup>3</sup> 7 U.S.C. § 1 et seq.

## DEVELOPMENT OF SWAPS STRESS-TESTING AT THE CFTC

### *The Margin Model Group's Stress-Testing Programs*

The third section of the Risk Surveillance Branch is called the Margin Model Group and is primarily located in Washington, D.C. It is led by Associate Director Shallom Moses, who supervises five risk analysts. The Margin Model Group was originally tasked with reviewing clearinghouses' swap margin models—Dodd-Frank mandated the clearing of certain swaps, leading to a flurry of margin model submissions. But, as position descriptions and other early documents show, the Margin Model Group was also expected, from early on, to use their skill set to develop swaps stress-testing capabilities.<sup>4</sup>

Sometime in 2011, Moses recognized an opportunity to use Part 39 data<sup>5</sup> to stress-test cleared swaps. In 2011 and 2012, Moses began developing a MATLAB program that revalued credit default swaps under given scenarios.<sup>6</sup> He verified the program by successfully duplicating, within a margin of error, ICE Clear Credit's stress-testing. Moses informed ██████ of his credit default swaps revaluation program, and ██████ recognized the merit of the effort. Since the Chicago sections lacked the ability to stress test credit default swaps, ██████ considered transferring Moses's MATLAB program to a Chicago section of RSB led by ██████. However, the Chicago sections also lacked the technical expertise needed to further develop the program, so Moses retained ownership and was given approval by ██████ to work on it separately from the Chicago group's ongoing stress testing of traditional futures and options. There were allegedly some early-on complaints from the Chicago sections that stress-testing was their domain, and Moses reportedly offered to abandon his efforts, but ██████ recognized the value of Moses' work and asked that he continue. The expectation was that Moses's group would further develop the stress-testing tools to include other products and then pass them on to the Chicago sections when development was complete, i.e., when the operation of the tools was "push-button simple."

Michael Roberson was brought on to the Margin Model Group sometime in 2012, first as an intern and later as a full-time employee. In addition to margin model review work, Roberson

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<sup>4</sup> ██████ *Emails related to Lawton request* (July 7, 2017). APPENDIX [16].

<sup>5</sup> 17 C.F.R. Part 39 (2011).

<sup>6</sup> In December 2012, Moses circulated an internal memo to then-Director Ananda Radhakrishnan and ██████ that proposed to define the responsibilities of the Margin Model Group. The proposed responsibilities included analysis of the various methodologies used by clearinghouses to calculate initial margin; creation of a back-testing model for evaluating the historical performance of clearinghouses' margin models; and development of stress-testing capabilities that stress risk factors and evaluate the resulting impact on clearinghouses' guaranty funds. Shallom Moses, *Proposal to Define Responsibilities of Margin Model Group* (December 7, 2012). APPENDIX [1].

was tasked with further developing the credit default swaps stress-testing program. By late 2014, Moses and Roberson developed a program capable of fully revaluing cleared and uncleared credit default swaps.

In early 2015, ██████████ who joined RSB in 2014, began developing a full revaluation interest-rate swaps program. ██████████ passed this program off to Steven Cho, who had joined the Margin Model Group that year, and Cho completed the program in early 2016. Meanwhile, ██████████ began developing a full-revaluation stress testing program for swaptions in the summer of 2015, and completed it in early 2016. ██████████, who joined the CFTC in 2010, created a futures and options program that uses Part 39 data.<sup>7</sup> Taken together, the Margin Model Group had created the CFTC’s first battery of full-revaluation futures, options, and swaps stress-testing tools.<sup>8</sup>

Throughout the development of the Margin Model Group’s programs, there was friction between Chicago leadership and the Margin Model Group, but ██████████, to his credit, continued to support the Margin Model Group’s work. He was the ██████████ when ██████████ and Roberson received time-off awards in recognition of their development of interest rate swaps and credit default swaps stress-testing programs.<sup>9</sup> The Chicago leadership, too, conceded at times that the Margin Model group was doing good work. For example, in March 2015, Roberson was initially getting what appeared to be erroneous results from his program, but his further investigations enabled him to correct for an idiosyncratic data practice at a particular clearinghouse.<sup>10</sup> After Roberson circulated his updated results to ██████████ and the Chicago leadership, ██████████ replied, “These results look great.” ██████████ were both copied on the exchange.<sup>11</sup>

In April 2015, Phyllis Dietz, DCR’s Acting Director at the time, allowed the Margin Model Group to present their efforts to the Commission.<sup>12</sup> The presentation included analyses of futures and options, cleared credit default swaps, and cleared interest rate swaps. It also incorporated a subset of uncleared positions as well, using Part 45 data. The presentation was

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<sup>7</sup> The Chicago sections’ futures and options stress-testing at that time used, and as of December 2017 still uses, the Large Trader database.

<sup>8</sup> Alberto Torres and Shallom Moses completed a foreign exchange option pricing program in 2017 that could be used for stress-testing as well. Moreover, the entire program made use of both Part 39 and Part 45 data—the Chicago sections have not been able to incorporate Part 39 data into its futures and options program.

<sup>9</sup> *CFTC Nomination for Star Award, Time-Off Award, and Special Act of Service Award* (March 12, 2015). APPENDIX [2].

<sup>10</sup> Michael Roberson contacted ICE Clear Credit, a clearinghouse that clears credit default swaps, and learned that the data anomaly was due to ICE Clear Credit’s internal practice of limiting “offsetting” between house and customer accounts. Roberson, *RE CDS stress test PnL discrepancy* (March 24, 2015). APPENDIX [3].

<sup>11</sup> *Id.*

<sup>12</sup> ██████████, *RE Presentation for Commission Meeting Tomorrow* (April 23, 2015). APPENDIX [4].

received well, and the integration of uncleared positions was of particular interest to then-Chairman Massad.

A few months after the presentation to the Commission, Chairman Massad requested an assessment of systemic risk in the event of another Greek debt crisis. RSB wanted to base the stress scenario on the 2012 Greek debt crisis, but the Chicago sections did not have the capability to stress-test credit default swaps and were unable to apply the 2012 scenario to their sensitivities-based interest rate swaps and futures and options programs. ██████ therefore turned to the Margin Model Group. They stress-tested cleared house accounts using positions from June 30, 2015, and market volatility from June 12, 2012 (the “Greek stress test”).<sup>13</sup> ██████ sent the results to Chairman Massad, copying the Margin Model Group and then Acting-Director Dietz, writing, “Our preliminary conclusion is that DCOs have sufficient financial resources to cover losses more extreme than what we have seen so far.”<sup>14</sup>

The next month, ██████ nominated Moses for a time-off award for Moses’s “effort to quantify the potential financial risk of a Greece default.”<sup>15</sup> ██████ described the exercise as “[an] innovative analysis [that] was very helpful to senior management in anticipating the potential financial impact of a default” and said that it would “serve as a blue print for future analysis around large systemic events.”

### ***RSB’s Road Map for Stress-Testing Uncleared Swaps***

In late 2015, DCR’s then-new Acting Director, Jeff Bandman, was interested in developing stress-testing capabilities that incorporated uncleared swaps. The Margin Model Group’s stress-testing capabilities for uncleared swaps were in early development at the time, and the Chicago sections had no capabilities in development.

In November 2015, ██████ put together an internal memo describing RSB’s uncleared risk-surveillance program moving forward.<sup>16</sup> ██████ wrote that the memo was the product of the collaborative effort of ██████, and Moses. The email was circulated to Bandman, as well as to ██████, and Moses.<sup>17</sup> In the version that was forwarded to Bandman, the memo stated that the “Margin Model Group of RSB has been working to develop tools to conduct periodic stress tests across asset classes . . . [B]uilding on the analysis above, staff will move forward on incorporating uncleared risk surveillance with its cleared surveillance

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<sup>13</sup> ██████ described that date as “a significant past market reaction to [the 2012] Greek Crisis.” ██████, *FW: Stress Losses (Greek Crisis)*. APPENDIX [5].

<sup>14</sup> *Id.*

<sup>15</sup> *CFTC Nomination for Star Award, Time-Off Award, and Special Act or Service Award* (July 13, 2015). APPENDIX [6].

<sup>16</sup> ██████, *RSB Program* (November 10, 2015). APPENDIX [7].

<sup>17</sup> *Id.*

program . . . .”<sup>18</sup> RSB’s goal, per the memo, was the capacity to produce a single market-wide analysis providing the Commission with a more complete picture of the risk stemming from financial products, cleared and uncleared, within the CFTC’s jurisdiction.<sup>19</sup> And the Margin Model Group was the group that would create and develop the tools necessary to integrate the cleared and uncleared stress-testing programs.<sup>20</sup> Importantly, there were a number of items listed in the memo that the Margin Model Group felt it needed to properly complete the task, including: the ability to work with swap dealers to clean up the SDR data; access to tools such as MATLAB; and external data such as Bloomberg to price positions and obtain volatility measures. All of these were provided to the Margin Model Group by [REDACTED].

### ***Chicago Leadership’s Rival Swaps Stress-Testing Development***

[REDACTED] the leaders of the RSB sections historically and organizationally responsible for stress-testing, were increasingly unhappy with Moses and the Margin Model Group’s stress-testing efforts. By the end of 2014, they felt the need for the Chicago sections to develop their own programs, even though the Margin Model Group’s programs were intended to be made available to them upon completion. At the time, the Chicago sections did not have staff capable of writing full-revaluation swaps stress-testing programs. In late 2014, Moses was attempting to hire a skilled programmer named Nancy Dong, who had worked with DCR on various projects while in the Office of Data & Technology. When [REDACTED] learned of the potential hire, he interceded and hired Dong to his own section in January 2015.

Dong was immediately asked to write a full-revaluation credit default swaps stress-testing program. However, Dong knew of Roberson’s program and questioned the purpose of the assignment.<sup>21</sup> According to Dong, Chicago leadership, due to their limited technical abilities, were unable to run the Margin Model Group’s programs on their own and wanted Dong to create a more user-friendly version of the models. But in fact, Dong was not allowed to collaborate with Roberson or modify his program; she was asked to write *from scratch* a new credit default swaps stress-testing engine. In September 2015, after nine months of work, Dong completed a full-revaluation credit default swaps stress-testing program using Part 39 data.

Dong was also instructed to write an interest rate swaps stress-testing program. With little technical help available in the Chicago sections, and still trying to complete the full-revaluation credit default swaps program, Dong created a sensitivities-based approach. Chicago leadership

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<sup>18</sup> *Id.*

<sup>19</sup> *Id.*

<sup>20</sup> *Id.*

<sup>21</sup> Nancy Dong, *RE: CDS & IRS* (July 19, 2017). APPENDIX [8].

did not tell Dong about the existence of ██████████ and Cho's existing full-revaluation interest rate swaps stress-testing program using Part 39 data.

In the summer of 2016, Dong wrote a sensitivities-based stress-testing program for cleared swaptions; again, Dong was not made aware of ██████████ full-revaluation swaptions program.<sup>22</sup>

While these development efforts were going on, ██████████ complained to each other about Moses and his group's efforts. On November 17, 2015, a week after ██████████ circulated the internal memo on RSB's uncleared-swaps risk surveillance described above, ██████████ emailed ██████████ complaining about some criticism of Part 39 data by Moses: "[I'm] sick of taking his shit but I know ██████████ doesn't want me to yell at [S]hallom so [I] won't." <sup>23</sup> On January 13, 2016, ██████████ emailed ██████████ asking, "[A]re you ready to confront ██████████ We have tons of work to do on uncleared swaps and data and systems. [W]e can't even keep up. [W]e're not allowed to hire or backfil[il]. [I]n fact [I]'m losing 2 contract[o]rs. [M]eanwhile, [S]hallom is trying to recreate work we already do. [T]his is r[i]diculous. [A]ny of [S]hallom's staff that has excess time after margin model review should be reassigned to me and you." <sup>24</sup> ██████████ responded to ██████████ the same day, "Let's get some people together tomorrow and discuss. I think the key is to come up with an alternate plan such as the reassignment you mention. Has to be well thought out." <sup>25</sup> ██████████ then asked, "Do you think it should be an intervention?" <sup>26</sup> ██████████ replied, "I think the key is to really think everything out. I'm not sure if that makes sense." <sup>27</sup>

Then, in May 2016, after ██████████ had refused a Margin Model Group staff member's request for access to a risk-surveillance IT resource, <sup>28</sup> ██████████ and ██████████ emailed back and forth about the Margin Model Group's activities. ██████████, referring to Moses, wrote, "[S]ounds like he's still plowing ahead with a futures stress testing program though. Somehow, we need him to get off of stress testing cleared swaps and futures." <sup>29</sup>

██████████ and ██████████ would get their wish the following month. ██████████, who in years past had supported the Margin Model Group, suddenly turned against them.

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<sup>22</sup> Nancy Dong has written all of Chicago's swaps stress-testing programs.

<sup>23</sup> ██████████, *Re where does shallom think the Part 39 data came from? I'm sick of his shit but I know ██████████ doesn't want me to yell at shallom so I won't* (November 17, 2015). APPENDIX [9].

<sup>24</sup> ██████████, *Re shallom* (January 13, 2016). APPENDIX [10].

<sup>25</sup> *Id.*

<sup>26</sup> *Id.*

<sup>27</sup> *Id.*

<sup>28</sup> *Infra*, p. 14-15.

<sup>29</sup> ██████████, *RE: FW: Access to Global Risk* (May 18, 2016). APPENDIX [11].

## TERMINATION OF THE MARGIN MODEL GROUP'S STRESS-TESTING EFFORTS

In a June 2016 meeting involving Moses and ██████, DCR Acting Director Jeff Bandman inquired about stress-testing capabilities. ██████ had not previously kept Bandman apprised of the Margin Model Group's efforts. The meeting provided an opportunity for Moses to broach the issue with Bandman, who expressed interest in seeing the Margin Model Group's results. After the meeting, Moses sent Bandman, copying ██████, a slide deck detailing the results of the Margin Model Group's systemic stress test.<sup>30</sup>

Upon seeing the email, ██████ stormed into Moses's office and berated Moses for going outside the chain of command by sending Bandman the slide deck without ██████ approval. Unbeknownst to Moses, ██████ separately advised Bandman that Moses's presentation was not finished and not worth looking at. Bandman, relying on what he believed to be fact-based, objective advice from his deputy, put aside the slide deck and did not review it.

In June, ██████ had lunch with Moses to "clear the air" and agreed to hear the Margin Model Group's stress-testing presentation, but he did not agree to allow Bandman to see it. When the presentation finally occurred, the interaction was tense and adversarial. ██████ voiced criticisms, which the Margin Model Group strongly and unanimously rebuffed.

Afterward, ██████, with input from ██████, sent Moses a memo laying out his criticisms of the presentation.<sup>31</sup> Notably, ██████ main criticisms were directed not at the Margin Model Group's stress-testing apparatus, but at the stress scenario chosen to illustrate those capabilities. The scenario was, in ██████ view, not extreme enough, and not all clearing members had positions that were susceptible to the scenario used. ██████ concluded the memo by restricting the scope of the Margin Model Group's stress-testing to uncleared swaps.

Moses, with the help of his staff, drafted a memo responding point-by-point to ██████ criticisms.<sup>32</sup> It was a substantive memo, but it further alienated ██████. ██████ summoned Moses to his office and told Moses the memo was "the most arrogant thing that I've ever seen." Moses asked ██████ to allow his group to present to the Commission or to Bandman, arguing the Director and the Commission should have the opportunity to see their program and decide the best path forward. ██████ refused and ended the conversation by telling Moses he intended to terminate the Margin Model Group's stress-testing work and to restrict the group's scope to margin model reviews.

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<sup>30</sup> Shallom Moses, *Systemic Risk Analysis* (May 24, 2016). APPENDIX [12].

<sup>31</sup> ██████, *sm stress.docx* (June 9 2016). APPENDIX [13].

<sup>32</sup> Shallom Moses, *Memo to ██████* (July 1, 2016). APPENDIX [14].



### ***Margin Model Review Work***

██████████ claimed that the Margin Model Group’s stress-testing diverted their attention away from margin model review work, but provided no instances of deficient, incomplete, or untimely margin model reviews. In fact, the accusation is contradicted by ██████████ themselves. In the months after the shutdown, they tried to transfer at first three, and then just two, Margin Model Group staff members to the Chicago sections. In two different memos, they justified the move by pointing to the paucity of margin model review work. The first draft memo to Chief Human Capital Officer Karen Leydon asserted that “[t]he number of new [margin] models and changes to old models submitted for Commission review has been declining over the last year,” and that a Margin Model Group consisting of “one Supervisor and three staff will be sufficient to complete the on-going margin model work required.”<sup>37</sup> ██████████ reiterated his claim in an email request to ██████████ ██████████, claiming, “the number of margin model submissions that require review has decreased sin[ce] they [Margin Model Group] joined the branch.”<sup>38</sup> After the attempted transfer fell through,<sup>39</sup> however, leaving the Margin Model Group with its full contingent of five staff members under Moses, ██████████ again represented to the Margin Model Group that a reason for the shutdown of their stress-testing efforts was the “substantial work that needs to be done in the area of margin models.”<sup>40</sup>

### ***Poor Quality and Duplication of Margin Model Group Stress-Testing Work***

██████████ also asserted that the Margin Model Group’s stress-testing efforts were poor, inaccurate, and duplicative of the Chicago groups’ work. These assertions, too, are inaccurate.<sup>41</sup>

NERA’s review of the Margin Model Group’s capabilities, as well as Nancy Dong’s review of the same, concludes that the Margin Model Group’s work is of high quality.<sup>42</sup> The history of ██████████ support suggests the same conclusion as well. ██████████ backed the Margin Model Group’s 2015 presentation to the Commission. He resorted to the Margin Model Group for the Greek crisis stress-test exercise in 2015, and transmitted the results of that exercise directly to then Chairman Massad. He granted a time-off award to Moses for his team’s

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<sup>37</sup> ██████████, *DCR Realignment* (September 12, 2016). APPENDIX [17].

<sup>38</sup> ██████████, *RE: Staff Reassignments* (October 11, 2016). APPENDIX [18].

<sup>39</sup> The would-be transferees, ██████████ Cho, voiced opposition to the transfer when they learned about it, and they sought guidance from their Union representatives. Once ██████████ informed ██████████ of potential Union involvement, ██████████ stopped pursuing the transfer.

<sup>40</sup> ██████████, *mng role in stress testing* (December 23, 2016). APPENDIX [19].

<sup>41</sup> See NERA Consulting, *Review of CFTC DCR Stress Testing Programs*, (February 8, 2018). APPENDIX [35].

<sup>42</sup> *Id.*

successful stress-testing effort, calling it “innovative” and saying it will serve “as a blue print for future analysis around large systemic events.”<sup>43</sup>

As noted above, ██████ mid-2016 criticism of the slide deck Moses sent Bandman had no criticism of the full-revaluation stress-testing capabilities, only of the chosen stress scenario.<sup>44</sup> Neither ██████ provided any evidence of the Margin Model Group’s efforts being consistently and/or irretrievably inaccurate; on the contrary, one email shows ██████ congratulating ██████ for good work. Moreover, if the Margin Model Group’s work product were so poor, ██████ would not have attempted to move Margin Model Group personnel over to the Chicago teams. And ██████ likely would not have transmitted Margin Model Group stress-testing results to the Chairman if he suspected their work was deficient. Nor did Chicago leadership ask their lead quantitative analyst, Nancy Dong, to analyze the Margin Model Group models or to collaborate with them. OIG asked Dong to review their code—Dong had high praise for their work.<sup>45</sup>

It is also simply incorrect that the capabilities developed by the Margin Model Group were duplicative of the Chicago groups’ work. ██████ backed the Margin Model Group’s efforts for so long *precisely because* the Chicago groups lacked swaps stress-testing capabilities and, with the exception of Nancy Dong, lacked the technical ability to create them. Through the end of 2015, the Chicago groups had essentially no swaps stress-testing capabilities. As of the end of 2017, they had Dong’s completed full-revaluation stress-testing program for cleared credit default swaps using Part 39 data, but still lacked full-revaluation capabilities for all other swaps, cleared and uncleared, and had yet to incorporate Part 39 data for all asset classes other than cleared credit default swaps—which of course was incorporated by Dong, without any assistance from Chicago staff. Furthermore, because of the mish-mash of capabilities, they are unable to employ a uniform stress-scenario across all asset classes, an issue that precluded the Chicago sections from contributing to the Greek stress test in 2015.

In comparison, the Margin Model Group’s various programs have lain fallow for close to a year and a half. Yet the Margin Model Group was able, upon our request, to use their programs to duplicate *in a matter of days* the 2016 Supervisory Stress Test

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<sup>43</sup> *Supra*, note 15.

<sup>44</sup> It is also worth pointing out that, because the Chicago teams had no full-revaluation models of their own and no independent method to validate the results from their method of extrapolating linear sensitivity estimates, they did not have an independent, reliable method for impeaching the Margin Model Group’s calculations. Moreover, the Chicago group’s own methodology suffered from significant shortcomings. According to NERA’s analysis, “[T]he scenarios of the November 2016 Stress Test approach do not model asset correlations, they are more extreme than plausible, and they depart from BIS and IOSCO’s guidance,” whereas the Margin Model Group’s purely historical scenario comports with the very same standards. NERA Consulting, *Review of CFTC DCR Stress Testing Programs*, at 22. (February 8, 2018). APPENDIX [35].

<sup>45</sup> ██████ referred to Dong as “the best programmer in the Commission.”

that [REDACTED] sections took six months to produce. In fact, the Margin Model Group improved upon it by creating a far more robust stress-scenario, using Part 39 data, incorporating uncleared products using Part 45 data, and running a uniform scenario across all asset classes. As Nancy Dong protested when she was first asked to write a credit default swaps stress-testing engine, the Chicago groups' development of swaps stress-testing tools is what was duplicative.

### CHICAGO LEADERSHIP'S TERRITORIALITY

In light of [REDACTED] historical support of what he himself described as innovative work by the Margin Model Group, his precipitous volte-face in mid-2016, to the point of asserting the work was subpar and duplicative, is incomprehensible. And [REDACTED] anger at what he described as Moses going "outside the chain of command" seems nonsensical in light of the fact that Bandman himself—[REDACTED]—okayed Moses's emailing of the presentation and Moses copied [REDACTED] on the transmittal email. If the proffered justifications for the shutdown were clearly pretextual, what was really going on?

Multiple RSB staff members with different perspectives on [REDACTED] and the Chicago leadership's thinking on the matter explained to us that the shutdown of the Margin Model Group's stress-testing, and the Chicago sections' development of alternate swaps stress-testing plans, was the result not of any shortcomings in the work of the Margin Model Group but rather of the territoriality of the Chicago leadership.

The documentary record substantiates this view. [REDACTED] RSB sections were historically responsible for stress-testing. Despite the understanding that they would be given the Margin Model Group's stress-testing programs when completed and made "push-button simple," [REDACTED] sought to create from scratch their own swaps stress-testing programs, and traded emails stating, e.g., that anyone who wanted to do stress-testing should be transferred to their sections, and discussing the need for an intervention, to confront [REDACTED], and to "get [Moses] off of stress-testing." [REDACTED] memo to Acting Director Bandman, from August 2016, accused Moses of attempting a "hostile takeover" which "no rational shareholder would accept . . . ." <sup>46</sup>

[REDACTED] likewise stated his opinion that the Margin Model Group was trying to take over Chicago's stress-testing responsibilities, though he admitted that that opinion was not, prior to 2017, based on anything other than the lack of communication from Moses about the progress of their stress-testing development efforts. [REDACTED] also averred that the Margin Model Group would

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<sup>46</sup> [REDACTED], *Reallocation of Resources within the Risk Surveillance Branch* (August 26, 2016). APPENDIX [20].

probably have been permitted to continue developing stress-testing programs if they had consistently and affirmatively reiterated their intention to hand over the completed programs to the Chicago sections.

In addition, two further considerations support this view. The first is what appears to be the Chicago leadership's zealous guarding of access, to the point of undermining others' work, to IT resources that might be used for stress-testing. The second is the Chicago leadership's apparent hostility to critical review of their stress-testing work.

### ***Blocking Access to IT Resources***

The CFTC pays for a risk-management platform called FirmRisk.<sup>47</sup> As of the end of 2017, the Chicago sections used FirmRisk for stress-testing futures and options only, though there are plans to expand its use to various categories of swaps. The service is capable of running both batched and ad hoc risk analyses. The CFTC pays for ten concurrent-use licenses, meaning that up to ten CFTC staff members can use the service at the same time without incurring additional charges. Even though FirmRisk is paid for using ODT funds and is capable of supporting a variety of risk-surveillance tasks, [REDACTED], [REDACTED], [REDACTED], controls who can use it.<sup>48</sup>

In early 2017, [REDACTED] rescinded FirmRisk access of a Chicago-based RSB risk analyst named Rick Torres. R. Torres works in what was at the time [REDACTED] section and discovered that his FirmRisk access had been revoked and his risk-analysis scenarios were no longer in his directory. R. Torres explained that, without access, he was unable to do his job effectively. He complained to [REDACTED], his supervisor at the time, and [REDACTED] replied that [REDACTED]'s group was responsible for futures risk-surveillance and therefore R. Torres did not need access to FirmRisk; any analyses he needed could be run by [REDACTED] group and the results communicated to him. This was needlessly cumbersome and, so far as we can tell, done with no gainful purpose, while having the effect of protecting [REDACTED] turf. R. Torres eventually had his scenarios restored to his directory, but his access was still revoked. In October 2017, after we began this inquiry and asked [REDACTED] why the access was

*“I think I’m  
in a Dilbert  
cartoon.”*

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<sup>47</sup> Congress earmarks \$50 million of the CFTC's budget for Information Technology. P.L. 115-31, 131 Stat. 135 (2017).

<sup>48</sup> According to [REDACTED], [REDACTED] asserted that they were in charge of who gets access to FirmRisk and told [REDACTED] that no one should be provided access prior to their authorization.

denied, R. Torres again requested restored access, reminding ██████ of his prior stance. ██████ who is no longer R. Torres’s supervisor, replied that he had no recollection of the denial of access and that if he were still R. Torres’s supervisor, he would “greatly encourage you [R. Torres] to use [FirmRisk] to stress test.”<sup>49</sup>

Margin Model Group staff member Alberto Torres has had an even more maddening experience worth recounting at length. A. Torres originally had access to FirmRisk when he was a member of the Chicago sections of RSB. In July 2015, after he moved over to the Margin Model Group, his access was terminated without advance notice.<sup>50</sup> Then, for over a year and a half thereafter, ██████ blocked him from regaining access.

In early November 2015, A. Torres learned of a FirmRisk training session sponsored by RSB that excluded the Margin Model Group. He asked to attend the training but was apparently told that he could not participate because he did not have and would not get FirmRisk access.<sup>51</sup>

In May 2016, Moses requested access for A. Torres.<sup>52</sup> A fruitless back and forth ensued, in which ██████ made clear that he did not want anyone outside his group stress-testing futures and options—“if there are stress tests he’d [A. Torres] like to run, we can run them and get him the results.”<sup>53</sup> The next morning, Moses challenged ██████ to justify refusing access to A. Torres or anyone else in RSB. ██████ again asked for a justification, and Moses provided a justification involving stress-testing, which was at the time still part of the Margin Model Group’s purview. Later that very morning is when ██████ wrote to ██████ about “get[ting Moses] off of stress-testing . . . .”<sup>54</sup> In early June, Moses wrote to A. Torres that ██████, who had previously had no objection to A. Torres’s access request, “is totally ignoring our request because of ██████.” That same month, ██████ shut down the Margin Model Group’s stress-testing.

In October 2016, A. Torres refreshed his request for access to FirmRisk, first addressing ██████ and then ██████: “In order to properly vet these [LCH and CME] margin models we need [FirmRisk] to allow us to access current production portfolios and test those portfolios for margin adequacy.”<sup>55</sup> The request made its way to ██████, who, according to ██████ put the request “on hold until some things get sorted out.”<sup>56</sup> Those “things” turned out to be, in A. Torres’s words, “higher level discussions about the specific scope of people’s

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<sup>49</sup> ██████, *Something is up* (October 3, 2017). APPENDIX [21].

<sup>50</sup> ██████, “Global Risk Users” and “Global Risk Admin” Email List Change (July 8, 2015). APPENDIX [22].

<sup>51</sup> Alberto Torres, *RE: Global Risk Training* (November 3, 2015). APPENDIX [22].

<sup>52</sup> Shalom Moses, *RE: GlobalRisk* (May 16, 2016). *Id.*

<sup>53</sup> ██████, *RE: Access to Global Risk* (May 17, 2016). APPENDIX [22].

<sup>54</sup> *Supra*, note 29.

<sup>55</sup> Alberto Torres, *Global Risk* (October 25, 2016); Alberto Torres, *Global Risk* (February 1, 2017). APPENDIX [22].

<sup>56</sup> ██████, *RE: Global Risk* (December 1, 2016). APPENDIX [22].



Later that day, A. Torres met with ██████, after which ██████ emailed ██████ conceding that “there are certain functions in Firm Risk that might be useful for his purpose.”<sup>60</sup> The ██████ request was forwarded to ██████ on February 22, and he approved installation by reply email that day. However, on February 28, an ODT worker tried to install FirmRisk on A. Torres’s computer but could not because A. Torres had not been added to the Firm Risk User group. Eventually, on March 2, 2017, FirmRisk was installed on A. Torres’s computer. Unfortunately, it was too late for FirmRisk to be used for the LCH and CME margin model reviews. A risk analyst was once again kept from completing his work in an efficient and optimal manner.

████████ offered no substantive justification for his denials of access, nor could ██████ or ██████.<sup>61</sup> None of the three could justify ██████ exclusive authority over access to Firm Risk. ██████ only attempt at an explanation was that access must be limited because the CFTC has a limited number of licenses. Yet ██████ and ██████ both admitted they are not aware of any time when the number of concurrent users ever approached the limit, and neither ever looked up concurrent-user rates. Moreover, staff that requested and were denied access to FirmRisk voluntarily stipulated that they would sign-off in the event that all the licenses were being used.

More recently, in June 2017, ██████ cut off Michael Roberson’s access to the DTCC SDR, without any communication to Roberson that he was doing so. ██████ told us he cut off access because he thought Roberson was still doing stress-testing, contrary to orders. But Roberson explained that he was using DTCC data for margin model review work. ██████ ultimately restored access after OIG inquired about his purported justification.

### ***Resistance to Criticism and Open Debate***

The notion that the shutdown of Margin Model Group stress-testing was driven by territoriality over stress-testing, triggered by the Margin Model Group’s successful efforts, is further supported by what appears to be the Chicago leadership’s tendency to bristle at external criticism of their own stress-testing work.

████████ explicitly volunteered his lack of interest in criticism from Moses and the Margin Model Group. ██████ explained that he had approached Moses sometime in the summer of 2017 to attempt to move on from the stress-testing shut-down by offering Moses an opportunity to review some of the stress-testing work of the Chicago sections. According to ██████, Moses indicated he would be interested but would criticize aspects he found wanting. ██████ told OIG, “I just thought, you know, what’s the point? . . . The whole point was saying, here’s what we’re

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<sup>60</sup> ██████, *RE: Global Risk* (February 8, 2017). APPENDIX [22].

<sup>61</sup> ██████ was asked on numerous occasions to settle the issue but apparently instead chose to defer to ██████

doing, here's what we're trying, and [Moses's] thing was like, yeah, we're going to question why do you do this, why do you do that.”

Similarly, as recounted above, ██████ responded rather dismissively when Roberson attempted to engage him regarding SDR data analysis.

OIG, too, met with unexpected hostility on multiple occasions during fieldwork for this project. Just days after we first reached out to Chicago leadership to arrange discussions of RSB stress-testing, ██████<sup>62</sup> and Lawton<sup>63</sup> separately wrote lengthy emails to the Inspector General impugning OIG's independence and motives and protesting the review of their stress-testing efforts. This happened before any specific subject matter, or the scope or direction of our inquiry, had been identified. When ██████ told OIG that RSB had presented their stress-testing capabilities to numerous government agencies and received nearly universal positive feedback, we asked for a list of contacts at other agencies where RSB presented. ██████ responded flippantly, “You want to call Janet Yellen?” ██████ ultimately agreed to provide such a list but, despite follow-up requests, never provided one.

#### **FURTHER QUESTIONABLE DECISIONS REGARDING SDR DATA AND SIMM**

In 2017, after Lawton became the Acting Director of DCR and named ██████ the ██████ ██████ discontinued two other Margin Model Group initiatives—a systematic assessment of SDR data quality, and a review of the Standard Initial Margin Model (SIMM) for uncleared swaps. The discontinuation of these initiatives helped insulate the Chicago teams from Margin Model Group criticism and competition regarding the development of its uncleared swaps risk-surveillance tools, which involves the use of SIMM-generated sensitivities.

#### ***SDR Data Review***

In early 2015, RSB Special Counsel Chris Hower began investigating missing values and other anomalies in the Part 45 uncleared swaps transactional data. Later, Margin Model Group Risk Analyst Michael Roberson joined the project, hoping to add value to the full-revaluation credit default swaps stress-testing program. After Roberson's stress-testing efforts were shut down that summer, he continued the data-review work and expanded his inquiry to include a wider set of asset classes.

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<sup>62</sup> ██████, *OIG DCR Stress Testing Review* (July 28, 2017). APPENDIX [23].

<sup>63</sup> John Lawton, *stress testing* (July 28, 2017). APPENDIX [24].

Roberson's reports documenting missing values piqued the interest of Acting DCR Director Jeff Bandman. Once it became clear to Bandman that the project was viable,<sup>64</sup> Bandman approved Hower and Roberson's plan to write letters of engagement to four different firms requesting information that would enable a reconciliation of Part 45 data.<sup>65</sup>

While [REDACTED] was originally supportive of these attempts to assess and improve uncleared swaps data, [REDACTED] had plans to conduct his own review. That review involved requesting from 13 firms their credit default swap positions and comparing that data to what was in the SDR. In December 2016, [REDACTED] circulated a DCR-wide email concluding the following:

Based on our review of the SDR open position data, it appears to be completely unusable for risk purposes at this time. We have not yet completed our review, but at this point, the evidence indicates that the

[REDACTED]

[REDACTED] It would take a thorough investigation of the processes used by the SDs and SDRs before I could make a recommendation as to [REDACTED]. Please let me know if you have any questions.

In February 2017, [REDACTED], along with his subordinate [REDACTED], presented their conclusions to the CFTC's Data Steering Committee ("SteerCo"), an agency-wide group that regularly meets to discuss CFTC data issues. The presentation was entitled "SDR Data Validation" and purported to "validate[] open swaps data reported to SDRs."<sup>67</sup>

Staff in the Division of Market Oversight were immediately skeptical of the conclusions presented by [REDACTED] and [REDACTED] and began reviewing both the SDR data and the data [REDACTED] and [REDACTED] had requested from industry. After communicating with Goldman Sachs to understand purported discrepancies, DMO was able to establish that the SDR data were far more accurate than [REDACTED] and [REDACTED] had stated: 100% of notional currencies matched; 99% of notionals matched exactly; 99.96% of buy/sell indicators matched.<sup>68</sup>

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<sup>64</sup> Roberson spent a considerable amount of time in October and November 2016 developing firm-specific tables that identified which fields had missing values. Bandman wanted to validate Roberson's results, so they met with [REDACTED] in ODT, who was able to validate Roberson's SAS code. The two also met with staff from the Chairman's Office, DMO, and DSIO.

<sup>65</sup> An example of the letters of engagement: Jeffrey M. Bandman, [REDACTED] ) is the reporting counterparty. (January 13, 2017). APPENDIX [25].

<sup>66</sup> [REDACTED], RE: Cleared swap reporting issue (December 6, 2016). APPENDIX [26].

<sup>67</sup> [REDACTED], SDR Data Validation (February 15, 2017). APPENDIX [27].

<sup>68</sup> DMO Data and Reporting Branch, Review of DCR SDR Data Validation Project (March 22, 2017) at 7. APPENDIX [28].

The staff member who led DMO’s review concluded that ██████ presentation was misleading and erroneous.<sup>69</sup> The discrepancies ██████ had found were not due to data-quality issues but rather almost entirely to the CFTC’s congressionally limited jurisdiction over swaps. DMO staff prepared a slide deck they intended to present at the following SteerCo meeting<sup>70</sup> and privately communicated to ██████ and ██████ their contrary findings. Once ██████ and ██████ realized that DMO planned on formally responding, they requested the opportunity to “clarify” their previous presentation.

At the following SteerCo meeting, ██████ and ██████ presented a revised slide deck now entitled “SDR Data Analysis for Uncleared Risk Surveillance Program” that implicitly retracted the prior presentation but maintained the conclusion that SDR data was unusable for risk surveillance.<sup>71</sup> The SteerCo meeting quickly became heated—several members felt ██████ and ██████ were being disingenuous and had acted “in bad faith” in calling their original presentation an SDR data “validation.” At the very least, the episode should have provided instruction to ██████ on the overriding cause—the CFTC’s jurisdictional limitations—of any alleged SDR data insufficiency for risk surveillance purposes.

Meanwhile, Roberson, unaware of the contemporaneous back-and-forth between ██████ team and DMO, was making progress with his own data-review effort. In February 2017, compliance officers from the four firms contacted by Hower and Roberson had begun responding with helpful information about the identified SDR data errors.<sup>72</sup> With the new understanding gleaned from these communications, Roberson determined that SDR data was reasonably accurate with respect to those firms.<sup>73</sup> In April 2017, he began expanding his outreach efforts to a larger pool of CFTC-regulated entities.

Also in April 2017, unapprised of DMO’s criticism of ██████ original work, Roberson emailed ██████ to ask questions about his team’s methodology and conclusions—questions of a similar nature to the ones put forward by DMO months earlier.<sup>74</sup> ██████ dismissively referred Roberson back to the original February 2017 slide deck, omitting mention of DMO’s criticism and of the subsequent, rewritten version of the slide deck (██████ likewise referred OIG to the original February 2017 slide deck and failed to disclose DMO’s criticism or the rewritten slide

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<sup>69</sup> Among other things, DMO concluded that ██████ and ██████ had failed to account for “orphaned alphas”—swap transactions later sent to a clearinghouse—and swaps marked “not reported to an SDR” because they were outside of the CFTC’s jurisdiction and thus not subject to the reporting mandate.

<sup>70</sup> *Supra*, note 66.

<sup>71</sup> ██████ and ██████, *SDR Data Analysis for Uncleared Risk Surveillance Program* (March 22, 2017). APPENDIX [29].

<sup>72</sup> The compliance officers described which errors were ██████ or internal data structure-based.

<sup>73</sup> The firms verified that Roberson’s end results provided a fairly accurate snapshot of ██████.

<sup>74</sup> *Supra*, note 66.

deck). Roberson pressed for the actual analysis behind the presented conclusions and suggested a phone conversation to facilitate communication. ██████ sent a terse, condescending reply that brushed aside Roberson’s specific queries.<sup>75</sup>

On May 1, 2017, Roberson and Moses had a conference call with ██████ and ██████ to discuss the potential uses of, and past analyses performed on, ██████ data.<sup>76</sup> ██████ reiterated his position that the Part 45 data was useless for stress-testing, due to a mixture of reporting errors and jurisdictional limitations. But he did not quantify the contribution of each factor to the incompleteness of the data, and in fact left Roberson with the impression, incorrect in light of DMO’s analysis, that the CFTC “has no measure of where these notional discrepancies are coming from, how significant one source is compared to the other, and whether or not some of these dealers are actually non-compliant in their reporting.”<sup>77</sup>

A week later, ██████—empowered by newly minted Acting Director Lawton—discontinued Roberson’s data review efforts. He emailed Roberson and Moses, “We will no longer be analyzing data quality.”<sup>78</sup> Roberson objected by memo to ██████ and sought clarification as to the reason for the discontinuation.<sup>79</sup> In Roberson’s view, even if Margin Model Group stress-testing tools were no longer desired by Chicago for uncleared swaps risk surveillance, and a different approach was being adopted that did not employ SDR data, the SDR data analysis still held value for informing potential data-quality improvements that might be pursued, as well as for other research of interest, such as comparison of cleared and uncleared margin requirements.<sup>80</sup>

Despite Roberson’s objections, the discontinuation of data review was final.

### *Non-Participation in SDR Data-Improvement Efforts*

██████ and ██████ not only discontinued Roberson’s data-review work, they also ignored repeated DMO requests for RSB participation in official agency attempts to review and improve SDR data in pursuance of long-standing plans for data harmonization with domestic and international regulators.

Following the financial crisis, G20 leaders made specific commitments to create trade repositories for over-the-counter derivatives and to enable access to that data by various

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<sup>75</sup> *Supra*, note 66.

<sup>76</sup> Michael Roberson, *Status of ██████ Data Project* (May 15, 2017). Appendix [30].

<sup>77</sup> *Id.*

<sup>78</sup> ██████, *RE: April 2017 Status Report* (May 8, 2017). Appendix [31].

<sup>79</sup> *Supra*, note 76.

<sup>80</sup> For example, analyzing how the CFTC’s uncleared margin requirements compare to clearinghouses’ margin requirements on cleared products.

regulatory authorities,<sup>81</sup> including “international financial institutions . . . in appropriate form where consistent with their mandates.”<sup>82</sup> This commitment was based on the assumption that data-sharing would facilitate risk-surveillance and recovery in the event of a major financial meltdown.<sup>83</sup>

DMO’s Data and Reporting Branch is responsible for revising data-reporting rules and harmonizing SDR data standards with international regulators. Part of DMO’s process for accomplishing the above involved reaching out to various divisions, including DCR, to get their opinions on what kinds of data they need to better perform their mission. DMO staff reached out to ██████, but these inquiries were ignored for several months.

Eventually, ██████ ██████ personally reached out to ██████ group and explained to them the G20 initiative and that there was an upcoming meeting involving various heads of major regulators. ██████ was able to schedule a meeting with ██████, one of ██████’s team members, and ██████ Analyst ██████. The three of them voiced their displeasure with various aspects of the harmonization process, but ██████ reminded them of the Fed’s support of the harmonization principles and stated that if the CFTC wanted something different, then DMO needed to hear about it and press for it with the other regulators.

██████ finally discovered what he understood to be the real reason RSB had been unresponsive to his staff’s initial requests. Lawton, ██████, and ██████r had little interest in helping improve the SDR data because they were trying to create a new data stream that would enable them to use ISDA’s SIMM for stress-testing uncleared swaps, an inchoate program discussed below. And they wanted this new data stream and stress-testing approach to be sufficiently far along in development that whoever was named the new DCR Director would be unwilling or unable to terminate it. ██████ described RSB leadership’s plan, as he understood it, as “subversive,” and the new discovery further colored his view of ██████ slide deck from back in February 2017 that DMO had found so misleading.<sup>84</sup>

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<sup>81</sup> Bank for International Settlements, *Report on OTC derivatives data reporting and aggregation requirements* (January 2012); Financial Stability Board, *Implementing OTC Derivatives Market Reforms* (October 25, 2010).

<sup>82</sup> Financial Stability Board, “Implementing OTC Derivatives Market Reforms,” (October 25, 2010), at 46.

<sup>83</sup> See Bank for International Settlements, *Report on OTC derivatives data reporting and aggregation requirements* (January 2012) at 1.

<sup>84</sup> When asked his opinion on why ██████ would present the slide deck from February 2017, ██████ replied, “Well, yeah, in retrospect, I guess there was— they had this alternative plan that I heard about in June or July for the first time,” and said it made sense of his feeling at the time of the February 2017 presentation that ██████ had an “agenda.”

## *SIMM Program*

Because the CFTC does not have jurisdiction over all of a firm's uncleared swaps—e.g., foreign-to-foreign swaps are reported to foreign jurisdictions' SDR-equivalents, single-name credit default swaps are reported to SDR-equivalents under the SEC's jurisdiction, etc.—██████████, ██████████, and ██████████ asserted that the SDR data are not a good basis for assessing firms' risk exposure.

To stress-test firms' uncleared swaps, ██████████, ██████████, and ██████████ adopted an idea suggested to them by ██████████ Analyst ██████████ as an interim measure.<sup>85</sup> The plan involves asking firms for the sensitivities they calculate as inputs to the SIMM model for their uncleared swaps portfolios, then using those linear sensitivities to extrapolate valuation changes from extreme market moves.

While the approach may potentially have the advantage of covering many uncleared swaps not reported to CFTC-regulated SDRs, it also has significant disadvantages. First, it, too, potentially fails to cover a substantial portion of uncleared swaps. Due to numerous exceptions and thresholds in the CFTC's Margin Rule for Uncleared Swaps, initial margin is not always required,<sup>86</sup> so there may not be SIMM sensitivities available to the CFTC. ██████████, ██████████, and ██████████ each acknowledged that they had not yet thought about such gaps but suggested they can be addressed in the future. Second, the sensitivities-based approach relies on extrapolations of linear estimates, which calls into question its accuracy due to nonlinear price movements in response to market moves. Third, the CFTC, because it relies on firm-calculated portfolio sensitivities without the underlying position data, would not be able to discern the specific instruments that drive large losses in a particular stress-test. Given the existing Part 45 data-reporting mandates and the international harmonization process, it is curious that Chicago leadership sought voluntary reporting of SIMM sensitivities rather than of uncleared swaps position data outside the CFTC reporting mandate. After all, such data had been requested and received from numerous market participants during ██████████ and ██████████ purported data-validation study. Doing so would solve the data-coverage limitations of the SDRs, provide fine-grained insight into what positions are driving stress-test losses, and not risk undermining the international data-harmonization process. It would, however, require the technical expertise of the Margin Model Group to apply pricing models to the various uncleared swaps positions being reported.

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<sup>85</sup> ██████████ offered ██████████ suggestion as a "band-aid" that could be used until DCR could develop full-revaluation methods to apply to Part 45 data. ██████████ was not aware of the Margin Model Group's stress-testing capabilities.

<sup>86</sup> CFTC Margin Requirements for Uncleared Swaps for Swap Dealers and Major Swap Participants, 81 Fed. Reg. 636 (January 6, 2016).

Fourth, the approach lacks independence—the CFTC receives the sensitivities from the firms themselves, and no validation is possible. As Lawton explains it:

Staff has received SIMM data from a firm and also had meetings in NY and Chicago related to the SIMM margin model. Staff has generated output from the SIMM margin model and shared it with the firm. The firm confirmed the accuracy of staff’s calculations. Staff has asked the firm if they would be able to perform a full revaluation of the portfolio. With that calculation staff will evaluate the difference between the full revaluation and the SIMM calculation.<sup>87</sup>

Fifth, the approach imposes further non-trivial data-reporting costs on industry.<sup>88</sup>

Finally, SIMM is still a relatively new model. It has not yet been studied extensively by RSB’s own margin model experts, the Margin Model Group. In fact, upon learning of the Chicago sections’ intended use of SIMM for uncleared swaps stress-testing purposes, the Margin Model Group sought to review SIMM to ascertain its fitness for such use. But when the Chicago leadership found out that the Margin Model Group was reviewing SIMM and reaching out to other regulators regarding SIMM, the Chicago leadership shut down the Margin Model Group’s SIMM-review effort, leaving them with no independent assessment of SIMM’s suitability for the intended use.

### **POTENTIALLY MISLEADING COMMUNICATIONS**

In addition to making decisions that impeded the development of more sophisticated stress-testing capabilities and undermined CFTC data-improvement and data-harmonization efforts, the Chicago leadership and its subordinates have communicated with the public and the Commission in a manner that may give misleading impressions about the robustness and independence of its stress-testing program.

#### ***June 2017 Market Risk Advisory Committee Meeting***

At the June 20, 2017, meeting of the CFTC’s Market Risk Advisory Committee (“MRAC”), leaders of RSB gave a presentation on efforts to monitor risk in the derivatives and swaps markets.<sup>89</sup> Acting Associate Director Glenn Schmeltz stated early in the presentation, “We

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<sup>87</sup> John Lawton, *DCR Monthly Report* (May 1, 2017). Appendix [32].

<sup>88</sup> In internal correspondence to ██████ and Lawton, ██████ acknowledges that the SIMM project will create additional burdens on industry and go outside the data-flow stipulated by the G-20 agreement. See ██████ *FW: Data Harmonization* (June 19, 2017). Appendix [33].

<sup>89</sup> Market Risk Advisory Committee (June 20, 2017),

[http://www.cftc.gov/About/CFTCCommittees/MarketRiskAdvisoryCommittee/mrac\\_meetings](http://www.cftc.gov/About/CFTCCommittees/MarketRiskAdvisoryCommittee/mrac_meetings)

strive to conduct *independent assessments* of the risks posed by market participants, *primarily through stress testing* [emphasis added].”<sup>90</sup> Schmeltz explained the meaning of “independent assessments” by reference to the “fourth level of regulation,” as described in a June 2017 *Market Voice* article by Lawton and Greska.<sup>91</sup> In that article, Lawton and Greska posited four levels of financial regulation.<sup>92</sup> Only “Level 4” regulation encompasses “independent verification of the data and testing of assumptions by the regulator itself,” rather than relying on industry’s own data reporting and risk-modeling.<sup>93</sup> Level 4 “entails the use of proactive techniques by which the regulator conducts independent assessments of the risks posed by a regulated entity’s business.”<sup>94</sup>

Throughout the remainder of the presentation, Schmeltz, Assistant Director Hugh Rooney, and Assistant Director Joseph Miller gave a high-level, summary description of the regulatory efforts of the RSB, but did not explain which efforts fit into the Level 4 rubric. They did not volunteer that their interest rate swaps and swaptions stress-testing programs are sensitivities-based, relying on delta ladders calculated by industry and not independently validated. Nancy Dong, who is responsible for running all of the swaps stress-testing computer programs for the Chicago teams’ stress tests, acknowledges that the use of “independent analysis” is misleading with respect to any asset classes for which stress-testing relies on industry-supplied delta ladders. [REDACTED]

During the MRAC question-and-answer period, Marcus Stanley of Americans for Financial Reform zeroed in on the independence issue, asking whether risk surveillance stress-testing was “dependent on the clearinghouse internal models in order to translate . . . the stress-test scenarios into losses” and how RSB staff “check, for example, the correlation assumptions across risk classes and those models?” A fully forthcoming answer might have mentioned that, at least for some asset classes, the stress-testing involves scaling estimates supplied by industry

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<sup>90</sup> *Id.*

<sup>91</sup> John Lawton & Steve Greska, *The Four Levels of Financial Regulation*, *Market Voice* (June 8, 2017), <https://marketvoice.fia.org/issues/2017-06/the-four-levels-of-financial-regulation>.

<sup>92</sup> *Id.* “Level 1” regulation involves mere review of industry-reported position, margin, and other data. “Level 2” regulation adds periodic auditing of the reported data to verify accuracy. “Level 3” regulation includes a review of firms’ risk-management procedures—e.g., “frequent meetings with senior management of the regulated entity,” “station[ing] regulatory staff on-site at the regulated entity,” “impose[ing] internal control procedures,” and “require[ing] . . . third party reviews such as credit ratings or validations of risk management models.” According to the article, simply using “Level 3” analysis is insufficient because it lacks “independent verification of data and testing of assumptions by the regulator.”

<sup>93</sup> *Id.*

<sup>94</sup> *Id.*

participants based on their internal models and that the CFTC does not validate those estimates. Schmeltz, however, interpreted the question as a general one about clearinghouse margin model reviews, and drew a sharp line between stress-testing and margin model reviews. Rooney then invited Stanley to contact the Margin Model Group.<sup>95</sup>

The panel’s prepared remarks may also have given listeners an inaccurate impression about the RSB’s capabilities to assess risk in the uncleared swaps market. Schmeltz stated, “Team 1 has responsibility for futures and options and *uncleared* commodity swaps risk surveillance, cleared *and uncleared* credit default swaps and *uncleared* equity swaps risk . . . Team 2 monitors cleared *and uncleared* interest rate swaps, cleared *and uncleared* foreign exchange swaps . . . (emphasis added).” But the Chicago groups, as [REDACTED], [REDACTED], and [REDACTED] acknowledge, do not yet have uncleared swaps stress-testing capabilities. And the SIMM-based approach they have chosen lacks independence. Notably, [REDACTED] acknowledged that they need to use Part 45 data to reach “Level 4” independent analysis.

### ***RSB Communications to the Commission***

In May 2017, Lawton wrote a memo to then-Acting Chairman Giancarlo outlining ongoing efforts in DCR. Lawton wrote that RSB staff “continues to work on the integration of uncleared swaps into the risk surveillance program.” He made no mention of the Margin Model Group’s work on independent, full-revaluation stress-testing using Part 45 data, or of the opportunity to improve data coverage through DMO’s data-improvement outreach and harmonization with other regulators. He referred only to the Chicago groups’ sensitives-based SIMM approach. He also wrote, “Staff is working toward a better understanding of the uncleared SIMM margin model and how it might be used in our uncleared swaps efforts,” despite discontinuing a month later any substantive review of SIMM by the RSB group with expertise in margin model reviews. Lawton also did not emphasize the project’s dependence on industry, which runs contrary to the “fourth level of regulation” rhetoric of Lawton and Greska’s Market Voice article and RSB’s June 2017 MRAC presenters.

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<sup>95</sup> As it turns out, the Margin Model Group was seated in the audience, but had not been invited to participate on the panel and had, in fact, only learned of the presentation the night before. Asked why the Margin Model Group was not included, Lawton stated, “We had a limited window and the request was really to talk about what we were doing for daily risk surveillance, not what we’re doing with regard to margin model. That was the specific request.” In an email to Moses, the day after the presentation, [REDACTED] likewise stated that he had been told by the MRAC organizer, Petal Walker, then-Chief of Staff to Commissioner Bowen, what the presentation could include. [REDACTED], *RE: Yesterday’s presentation* (June 21 2017). Appendix [34]. Walker stated to OIG that, to her knowledge, there was no such subject-matter limitation. Moreover, a large portion of the presentation focused on DCR’s 1.73 reviews, which are not a part of daily risk-surveillance.

## CONCLUSION

Lawton and the Chicago leadership shut down and abandoned the development of an impressive battery of full-revaluation stress-testing tools created by the Margin Model Group, and had a technically capable programmer in their own section recreate from scratch various swaps stress-testing tools. They also restricted access to IT resources without reasonable justification.

Furthermore, the Chicago leadership declared SDR data to be unusable and then misrepresented to multiple parties within the CFTC the robustness of and justification for the finding. The Chicago leadership terminated a staff member's review of SDR data that questioned their analysis, and used their finding to justify the abandonment of uncleared swaps stress-testing based on Part 45 data in favor of an approach that lacks the independence and accuracy of in-house full revaluation of individual positions. They ignored multiple requests from DMO to participate in SDR-related improvements in data quality and long-standing international harmonization efforts. And they shut down Margin Model Group efforts to analyze SIMM, the backbone of RSB's ad hoc uncleared swaps stress-testing approach.

All of the above undermined the efficiency and effectiveness of agency programs, and was apparently motivated by little more than bureaucratic territoriality.

## APPENDICES

