


2019

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Recommended Citation

Zeissler, Arwin G. and Metrick, Andrew (2019) "JPMorgan Chase London Whale B: Derivatives Valuation," *Journal of Financial Crises*: Vol. 1 : Iss. 2, 60-74.

Available at: <https://elischolar.library.yale.edu/journal-of-financial-crises/vol1/iss2/3>

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JPMorgan Chase London Whale B: Derivatives Valuation¹

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Yale Program on Financial Stability Case Study 2014-2b-V1

December 1, 2014, Revised: August 26, 2019

Abstract

After consistently producing positive results through 2011, the JPMorgan Chase (JPM) traders who oversaw the bank's Synthetic Credit Portfolio (SCP) grew alarmed by a consistent string of losses beginning in January 2012. (The SCP was maintained by JPM to help hedge default risk and was the source of the 2012 London Whale trading loss.) To minimize the losses reported to their superiors until such time that market prices hopefully turned in their favor, the SCP traders began valuing their largest derivative positions in a manner that was not consistent with Generally Accepted Accounting Principles (GAAP) and JPM policy. The fair values recorded by the SCP traders were reviewed by the Valuation Control Group, as required by banking regulators, and by JPM's Controller, but neither review raised any objection. However, after the JPM Task Force that investigated the 2012 London Whale incident uncovered evidence that the SCP traders had not estimated fair values in good faith, the bank restated its first-quarter 2012 earnings on July 13, reducing consolidated total net revenue by \$660 million (2.5%), which in turn reduced after-tax net income by \$459 million (8.5%).

¹ This case study is one of nine produced by the Yale Program on Financial Stability (YPFS) examining issues related to the JPMorgan Chase London Whale. The following are the other case studies in this case series:

- *JP Morgan Chase London Whale A: Risky Business*
- *JP Morgan Chase London Whale C: Risk Limits, Metrics, and Models*
- *JP Morgan Chase London Whale D: Risk-Management Practices*
- *JP Morgan Chase London Whale E: Supervisory Oversight*
- *JP Morgan Chase London Whale F: Required Securities Disclosures*
- *JP Morgan Chase London Whale G: Hedging Versus Proprietary Trading*
- *JP Morgan Chase London Whale H: Cross-Border Regulation*
- *JP Morgan Chase London Whale Z: Background and Overview.*

Cases are available from the Journal of Financial Crises.

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1. Introduction

After producing positive revenues each year from 2008 through 2011, the JPMorgan Chase & Company (JPM) traders in charge of the bank's Synthetic Credit Portfolio grew alarmed when they consistently lost money beginning in January 2012. Disbelieving the quotes they saw for the credit derivatives they traded, and wanting to minimize the losses they reported to their superiors until such time that market prices turned in their favor, Javier Martin-Artajo, Bruno Iksil, and Julien Grout began to value their largest derivative positions in a manner that did not comply with United States (US) Generally Accepted Accounting Principles (GAAP) and bank policy.

JPM was the largest US bank holding company in December 2011, with almost \$2.3 trillion in total assets. The bank's Chief Investment Office (CIO) had as its primary function to profitably and safely invest a \$350 billion pool of the bank's excess deposits, which exceeded its loan balances. One of CIO's secondary functions was to partially offset the credit risk, also known as default risk, to which JPM was exposed as part of its core lending activities. This risk was to be partially hedged by CIO's Synthetic Credit Portfolio (SCP), which was run out of London by senior trader Iksil, junior trader Grout, and their supervisor Martin-Artajo. The SCP, which ultimately became the source of JPM's \$6 billion "London Whale" loss in 2012, consisted of long and short positions in various credit default swaps and other credit derivatives.

GAAP requires that credit derivatives and certain other financial instruments be adjusted to fair value every day, with the resulting profit and loss also being recorded on a daily basis, known as "mark to market" accounting. However, unlike exchange-traded securities (for example, common stock of companies in the Dow Jones Industrial Average), credit derivatives trade in a much smaller, less liquid dealer market, introducing greater uncertainty and discretion into the valuation process.

After losing money on 17 of 21 business days in January 2012, Martin-Artajo started to think that the market had become irrational and that the dealer quotes used by his traders to set fair values were not reliable. In response, Iksil informed Martin-Artajo on January 31 that one of their largest positions was being marked to market value at a "realistic level" instead of at the midpoint price that was standard JPM policy. Grout, who was responsible for marking the fair value of the SCP book each day, was valuing the derivative positions using whichever side of the bid-ask spread was more favorable to SCP. As the strategy that the SCP traders pursued proved increasingly unsuccessful, losing money on 15 of 21 business days in February and 16 of 22 business days in March, the traders likewise continued their aggressive marking of the credit derivatives, hoping for markets to become rational and waiting for prices to move in their favor.

As required by banking regulators, the internally estimated SCP fair values were reviewed monthly by CIO's Valuation Control Group (CIO VCG). Though evidence later showed that the SCP traders had understated their losses at the March 31 quarter-end by upwards of \$500 million, CIO VCG only called for a \$17 million adjustment. However, a March 30 analysis by JPM Internal Audit concluded that CIO VCG itself "need[ed] improvement" in several areas, considered an adverse rating.

JPM uncovered the mismarking when CIO began having disputes with several counterparties in March and April. CIO and some of the firms with which it traded could not agree on the amount of collateral required by certain credit derivative contracts, because the parties were

valuing the same derivatives at different amounts. These collateral disputes came to the attention of JPM senior management, which ordered CIO to resume marking the SCP book at midpoint prices, which in turn quickly resolved the collateral disputes by the end of May.

After the Internal Audit report and the collateral disputes cast doubt on the quality of CIO VCG's monthly reviews of the fair values assigned to the SCP positions, JPM senior management asked the Controller's office to undertake an additional special assessment. The Controller concluded on May 10 that CIO valuations were consistent with industry practice, and that CIO properly reported \$719 million in year-to-date SCP losses at March 31, instead of the \$1.2 billion that would have been reported if midpoint pricing had been used. JPM provided the Controller's report to its external audit firm, PricewaterhouseCoopers, who in turn concurred with this determination.

At this point, JPM senior management concluded that the fair values included in the firm's publicly reported financial results as of March 31 were acceptable. However, the management task force conducting an internal investigation of the trading losses uncovered evidence in June that the SCP traders "did not provide good-faith estimates of the exit prices for all the positions in the Synthetic Credit Portfolio" as required by GAAP (JPM Task Force). As a result, JPM suspended Grout (who later resigned) and terminated the employment of Iksil, Martin-Artajo, and his superior Achilles Macris. JPM announced July 13 that it was restating its first-quarter 2012 earnings, reducing consolidated total net revenue by \$660 million, which in turn reduced after-tax net income by \$459 million.

The remainder of the case is organized as follows. Section 2 explains GAAP requirements and JPM procedures for valuing derivative securities. Section 3 details the motivation for and manner of mismarking the SCP book, including specific instances. Section 4 discusses CIO VCG's regular review of the traders' fair value calculations and Internal Audit's criticism of this review. Section 5 describes how collateral disputes brought the mismarking to the attention of JPM senior management. Section 6 summarizes additional reviews of the SCP values that were undertaken as the result of Internal Audit's critical report and the collateral disputes. Section 7 concludes with a discussion of the aftermath of the mismarking, including changes made to the CIO valuation review procedure, as well as legal and regulatory action against JPM and certain of the traders. See Appendix 1 for a timeline of key events pertinent to this case.

Questions

1. Why are credit default swaps and other derivatives difficult to value precisely?
2. Why were the SCP traders motivated to mismark their positions, and how did they accomplish this?
3. Why did an external control (collateral disputes with counterparties) prove more reliable in uncovering and halting the mismarking than internal procedures (recurring and special audits of fair values)?
4. Could marking financial instruments at an amount that is different than their economic value have systemic risk implications?

2. Valuing Derivatives in General and at JPMorgan Chase

Under GAAP, credit and other derivatives must be adjusted to fair value in a company's accounting records every day, a process known as "marking to market." This is true even if the derivative in question did not trade on a given day. GAAP defines "fair value" as "the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date" (FASB ASC Topic 820-10-30).

Unlike many equity securities that trade continuously and actively on an exchange, credit derivatives trade in a less liquid "over the counter" dealer market among a small number of financial firms, including JPM. Market participants can have a difficult time properly estimating the fair value of credit default swaps and other credit derivatives because of the relatively low volume of trading.

In the case of credit derivatives, such as those traded by JPM's CIO in its SCP, the following data sources can be used to estimate fair value.

1. Markit and other credit index providers
2. Independent price reporting services
3. Broker/dealer quotes

Credit derivative prices are quoted at a "bid-ask spread," representing the prices at which market makers are willing to buy from (at the lower bid price) or sell to (at the higher ask price) participants who are not market makers. Less liquid securities, such as credit derivatives, generally are quoted at wider bid-ask spreads than securities that are more actively traded. GAAP states, "the price within the bid-ask spread that is most representative of fair value in the circumstances shall be used to measure fair value" (FASB ASC Topic 820-10-30). Many financial firms report their derivatives at the midpoint of the bid-ask spread, which is a safe harbor under GAAP, though they are not required to do so (US Senate Report, 100).

Based on the foregoing, the fair value of an asset or a liability must be considered an estimate rather than an exact determination, even for actively traded securities, since different market participants may reasonably reach different estimates of fair value.

As one of the largest derivative dealers and traders, JPM has well-established policies in place for how to value derivative assets and liabilities, and how these values should be captured in the bank's accounting records. JPM disclosed its fair value measurement process in footnote 3 of the consolidated financial statements included in the bank's 2011 Form 10-K:

Fair value is based on quoted market prices, where available. If listed prices or quotes are not available, fair value is based on internally developed models that consider relevant transaction data such as maturity and use as inputs, market-based or independently sourced market parameters, including but not limited to yield curves, interest rates, volatilities, equity or debt prices, foreign exchange rates and credit curves. (JPM 10-K 2011, 184-185)

When CIO received authorization in 2006 to trade credit derivatives, the internal approval document stated that CIO was to use JPM Investment Bank's risk and valuation systems to transact its products, since CIO was not a market maker, whereas the Investment Bank (IB) had large derivative holdings and a long history of trading derivatives. The IB's standard practice was to value derivatives at the midpoint price, using an independent price reporting

service such as Markit or Totem. Markit provides price data for credit derivative indices, and Totem (owned by Markit) provides data for credit index tranches (US Senate Report, 102).

Julien Grout, a junior CIO trader, had the task of marking the SCP book to market value on a daily basis under the guidance of Bruno Iksil, the head SCP trader. Iksil is the trader known as the “London Whale” in subsequent media reports about the CIO losses, and he and Grout worked in JPM’s London office.

By 2012, these CIO traders no longer relied on the IB for assistance when marking the SCP and would instead estimate fair value themselves. Given GAAP’s focus on “an orderly transaction between market participants,” they would estimate the value of the credit derivatives:

[b]y typically seeking quotes from the dealers with whom CIO would most frequently transact and with whom CIO would seek to exit positions, rather than looking for more broad based consensus pricing from a wide variety of dealers not active in these credit markets. (US Senate Report, 103)

At the close of each business day in London, Grout would estimate the fair value for each SCP position, use those marks to calculate the profit or loss for the day, and then send this information along with a brief explanation of the day’s market activity to CIO personnel in New York in a document that was internally called the “SCP P&L Predict.” This was incorporated into the “CIO EOD P&L” report, which was distributed to 20 CIO employees, including Ina Drew, who was JPM’s Chief Investment Officer and CIO head. CIO profit and loss, including SCP results, was consolidated into JPM’s bank-wide profit and loss statement on a daily basis.

Because derivatives are a key input to bank profit and loss calculations, yet are difficult to value properly, banks are required by regulators to have an internal process to verify the accuracy of derivative fair values. At JPM, each unit had a Valuation Control Group which reported to the Chief Financial Officer of that business line, who in turn reported to the firm’s Chief Financial Officer, Douglas Braunstein. At each month-end, the CIO Valuation Control Group would test the marks that had been internally generated by the CIO traders, and it had the authority to adjust the marks if deemed necessary, a process described more fully in Section 4. (The characteristics of credit default swaps, credit indices, and credit tranches, as well as CIO’s use of credit derivatives in the failed SCP trading strategy, are explored in greater detail in Zeissler, et al. 2014A.)

3. Mismarking the SCP Book

The SCP was consistently profitable from its founding through 2011, and CIO’s practice was to value the SCP’s credit derivatives at or very close to the midpoint of the bid-ask spread, consistent with GAAP and firm policy. However, the CIO traders began mismarking the SCP in January 2012, a month in which the SCP lost money on 17 of 21 business days, including on the last 9 days of the month, as changes in credit spreads caused the value of protection owned by SCP to decrease more rapidly than did the value of protection that the traders had sold. (See Appendix 2.)

Iksil reported to Javier Martin-Artajo, who was also based in London as CIO’s head of credit and equity trading. Iksil later told the JPMorgan Chase Management Task Force (JPM Task Force) during its review of the CIO losses that Martin-Artajo instructed him in late January 2012 to “estimate the value of positions” himself, since the market had become “irrational”

and because the dealer quotes used to set fair values were not reliable (US Senate Report, 104-105). One weakness of the quotes Grout used to estimate fair value was that they were “indicative” or non-binding quotes, which meant that dealers were not obligated to buy or sell at the prices they quoted.

In response, Iksil e-mailed Martin-Artajo on January 31 that “we can show that we are not at mids but on realistic level” for credit derivatives linked to the CDX.NA.IG9 index (US Senate Report, 106). A major component of the unsuccessful SCP trading strategy was to sell large amounts of default protection on the CDX.NA.IG9, which is the ninth series of a credit index of North American bonds rated as Investment Grade. The mismarking continued into February, when SCP suffered losses on 15 of 21 business days, including the last seven days of the month, and further into March (losses on 16 of 22 business days, including 15 of the last 16 days).

The SCP book consisted of both long and short positions, and Grout would mismark certain of the larger positions at the bid price or the ask price, whichever was more favorable, rather than using the midpoint between the bid and ask prices. This would minimize SCP losses.

Because of the very large size of SCP’s credit derivative positions, with notional exposures in the billions, a small change in the fair value mark would result in a large change in reported losses. For example, the actual premium for credit protection on the CDX.NA.IG9 index with 10-year maturity was about 115 basis points on March 12, 2012. (A basis point is equal to 1/100th of 1%, or 0.0001.) By mismarking the premium by just two basis points, Grout was able to reduce reported losses by \$90 million.

Grout prepared a spreadsheet for March 12 through March 16, tracking the difference between the amounts that he was reporting and the amounts that he would have reported using midpoint prices. As the notional amount of the SCP book increased rapidly, Grout became more aggressive with his mismarking. By March 16, the SCP book had reported year-to-date losses of \$161 million, but if midpoint prices had been used, losses would have swelled by an additional \$432 million to a total of \$593 million for the period. (Majority and Minority Staff Report, 11).

Grout’s immediate superiors were aware of the mismarking. On March 15, Iksil asked Grout to e-mail a copy of the spreadsheet to Martin-Artajo. Grout confirmed that he was “not marking at mids as per a previous conversation.” Iksil described the SCP book as growing “more and more monstrous” and the mismarking as becoming “idiotic” (US Senate Report, 112, 114).

On March 23, Drew ordered Iksil and Martin-Artajo to stop trading the SCP book after it first exceeded the CSW10% risk limit, which is the expected profit or loss to a portfolio if the spread on each credit position simultaneously widened by 10% of its current amount (e.g., from 200 to 220 basis points). However, the derivatives mismarking continued even after the trading stopped. Later the same day, Iksil informed Martin-Artajo that SCP losses were between \$300 million (using favorable prices within the bid-ask spread) and \$600 million (using mid-point prices) for the day, yet CIO reported a daily loss for the SCP book of only \$13 million.

One week later, March 30, was the last trading day of the first quarter. Because the March 30 fair values would be incorporated into JPM’s first-quarter publicly announced earnings results, CIO management asked Martin-Artajo early in the day for an assessment of SCP’s results, which he estimated as a \$150 million loss. However, by the close of trading in London, Grout initially calculated the day’s loss at \$200 million. When Martin-Artajo then asked Iksil if fair values could be adjusted to reduce the loss to only \$150 million, Iksil replied

that this would not be possible. In response, Martin-Artajo told Iksil to leave work for the day (SEC Complaint, 15-16).

Martin-Artajo then asked Grout to wait to finalize the day's results until after markets closed in New York in case late trading in US markets would provide more favorable prices, even though this instruction was against JPM policy to value derivatives at the "same time each business day." Grout followed Martin-Artajo's direction and reported a \$138 million loss after New York had closed. (SEC Complaint, 15-16). However, CIO personnel in New York changed Grout's late submission to a loss of \$319 million, adding a liquidity reserve of \$155 million to reflect the poor liquidity of some of SCP's positions (US Senate Report, 132).

On April 6, *Wall Street Journal* and Bloomberg published the first news stories about the "London Whale." On April 10, the first trading day after the news broke, Grout issued an initial SCP P&L Predict with a reported daily loss of \$6 million, but he revised this to an estimated loss of \$395 million just 90 minutes later. One revision was to the mark for the CDX.NA.IG9 10-year credit default swap, which was changed from 123.75 to 126.00 basis points. Applied to a notional value of \$79 billion, this one change increased the daily loss by \$88 million. The final SCP daily loss on April 10 was recorded at \$415 million, pushing year-to-date losses past \$1 billion for the first time.

4. Reviews by the CIO Valuation Control Group and JPM Internal Audit

As noted in Section 2, financial regulators require all banks to regularly verify the accuracy of internally calculated derivative values. At CIO, this monthly review was conducted by the unit's own Valuation Control Group (CIO VCG). In turn, JPM's Internal Audit department would periodically review CIO VCG.

Chief Investment Office Valuation Control Group

CIO VCG independently tested the marks generated by the traders and made adjustments when necessary to determine fair value for the purpose of complying with GAAP. Though CIO VCG conducted reviews at every month-end, the quarter-end and year-end reviews were particularly important since those derivative values determined JPM's financial position and results of operations reported publicly and filed with regulators.

By the end of March 2012, the SCP trading book had grown to over 130 separate positions. Even so, only one CIO VCG staff member was assigned to test all the SCP positions, and this same individual was responsible for testing all the other London-based CIO portfolios (SEC Settlement Agreement, 9). Furthermore, CIO VCG's month-end audits were to be completed no later than the third trading day of the following month.

CIO VCG would make its own determination of the fair value of each position, as well as an acceptable range around the fair value based on the typical bid-ask spread for that instrument. Consistent with GAAP and JPM accounting policy, VCG did allow CIO traders to deviate from midpoint prices. If the trader's reported mark was within the acceptable range, then CIO VCG would not adjust the reported mark. However, if the trader's reported mark was outside the acceptable range, then CIO VCG would adjust the mark to the outer boundary of the range.

Example. If CIO VCG estimated that the fair value of a position was 100 basis points with a bid-ask spread of 4, then the acceptable range would be from 98 to 102. If a trader marked that position at 105, then CIO VCG would adjust the mark from 105 to 102 (not to 100).

By April 4, CIO VCG completed its review of SCP's March 2012 quarter-end marks. CIO VCG concluded that the value of SCP using estimated mid-market prices was \$192 million less than what the CIO traders had calculated. CIO VCG later discovered an error in its calculations, which increased the discrepancy from \$192 million to \$275 million. However, since only \$17 million of this difference was outside of the acceptable range, CIO VCG only notified CIO management of the \$17 million adjustment (SEC Settlement Agreement, 9-10).

Internal Audit

JPM's Internal Audit group released a report on March 30, finding that CIO VCG used "unreviewed risk models, unsupported and undocumented pricing thresholds, inadequate procedures for evaluating pricing sources, and inadequate procedures for requiring reserves." The report concluded that CIO VCG "needs improvement" in several areas, which is considered an adverse rating (US Senate Exhibits, 386-393).

In addition, Internal Audit learned in early May that CIO VCG had in some cases calculated the acceptable price range by applying the entire bid-ask spread to the midpoint price, instead of half the spread (SEC Settlement Agreement, 9).

Example: Continuing the example above of a position with a fair value of 100 basis points and a bid-ask spread of 4, CIO VCG would in some cases incorrectly use an acceptable range from 96 to 104 (equal to 100 ± 4), instead of the narrower range from 98 to 102.

5. Uncovering and Stopping the Mismarking

To ensure payment of amounts owed under a credit default swap or other type of swap, one party to a swap contract may require the other party to post collateral in the form of cash or very low risk bonds. The amount of collateral that must be posted will change over time as the fair value of the swap changes. To be able to agree on the amount of collateral to transfer, the counterparties must also agree on the fair value of the swap. If the parties cannot agree, then a "collateral dispute" ensues. While collateral disputes are common, the disputed amounts are usually minor.

CIO's mismarking of the SCP book came to light because of a series of collateral disputes beginning in March between CIO and some of its counterparties. By mid-April, CIO had collateral disputes with 10 different counterparties, all pertaining to the SCP book, with the disputed amounts totaling almost \$700 million. The largest single dispute was with Morgan Stanley over \$90 million in collateral. Morgan Stanley e-mailed JPM that it traded with JPM's IB and CIO, sometimes buying or selling the exact same credit derivative from both JPM units. While Morgan Stanley's internal marks generally closely matched the IB marks, they were widely different from CIO's marks.

These collateral disputes came to the attention of the bank's Chief Executive Officer Jamie Dimon, and Drew has stated that Dimon suggested that the SCP traders be told to narrow the bid-ask spreads they used for valuation to determine whether the "disputes were real or not" (US Senate Report, 137). Ashley Bacon, the deputy JPM Chief Risk Officer, was sent to London on April 27 to review the marks used to set fair value for the SCP. Bacon subsequently ordered CIO to mark the SCP book at midpoint prices and to use the same independent pricing services used by the IB. These changes rapidly resolved the collateral disputes with Morgan Stanley and the other counterparties by the end of May.

6. Additional Reviews of the SCP Valuations

After the March 30 Internal Audit report and the April collateral disputes cast doubt on the quality of CIO VCG's monthly reviews of the fair values assigned to the SCP positions, JPM senior management asked the IB and the controller's office to undertake additional assessments.

Investment Bank Valuation Control Group

On April 25, JPM senior management ordered the Investment Bank's own Valuation Control Group (IB VCG) to specifically test SCP's March 30 marks for accuracy and to evaluate CIO VCG's review of those marks. IB VCG analyzed the spreadsheet into which CIO VCG would manually enter data as part of its monthly price-testing process. In so doing, IB VCG found and corrected an error in the spreadsheet, which increased CIO VCG's calculated SCP March 30 price discrepancy from \$275 million to \$512 million.

Using only pricing data supplied by Markit and Totem (the companies who maintain and calculate the major credit default swap indices), and not broker-supplied quotes, IB VCG estimated that the difference between mid-market prices and reported SCP values was \$767 million. Had CIO traders valued the SCP book using the conservative side of the bid-ask spread (since CIO was a price taker, not a market maker), the difference would have been over \$1 billion. However, JPM management chose not to adopt this more conservative approach since GAAP allowed mid-market pricing (SEC Settlement Agreement, 11-12).

Controller's Office

On April 28, the JPM controller's office began a special assessment of CIO's month-end profit and loss figures for the first-quarter 2012. The controller's office tested 18 credit derivative positions in the SCP book that were present throughout the entire period. CIO marks were generally close to midpoint at January 31. Mismarking was evident by February 29, at which date 5 of the 18 marks "deviated noticeably". By March 31, all 18 marks had "moved to the extreme boundaries," with 16 marks on the bid-ask boundary, one just inside the boundary, and one in fact outside the boundary. Furthermore, each mark that was materially different than the midpoint was in the direction that benefited the SCP by minimizing losses (US Senate Report, 144).

Despite this analysis, the controller's special assessment report issued May 10 concluded that CIO "properly reported" \$719 million in year-to-date SCP losses at March 31, instead of the \$1.2 billion that the controller's office determined would have been reported at quarter-end if midpoint pricing had been used. The report also stated that "valuation practices at CIO are consistent with industry practices" (US Senate Report, 147). JPM provided the controller's special assessment report to its external audit firm, PricewaterhouseCoopers, who concurred with this determination (US Senate Exhibits, 190-207).

7. Aftermath

JPM and CIO management quickly implemented four remedial measures on May 10 to improve the CIO VCG process. First, variances between CIO VCG and trader marks were limited to \$500,000 for an index position and \$2,000,000 for a tranche position, rather than being calculated in basis points. Second, CIO VCG was required to obtain price quotes directly from the market, rather than from the CIO traders. Third, CIO VCG was required to obtain at least two dealer quotes (or else to use quotes from Markit or Totem). Fourth, a new protocol

to escalate to management any valuation disputes between CIO VCG and the unit's traders was put into place (SEC Settlement Agreement, 16).

Nevertheless, after the controller's office reviewed SCP's marks and found them to be acceptable (and the auditors at PricewaterhouseCoopers agreed), JPM senior management was not concerned about the fair values previously included in the March 31 publicly issued financial statements. However, management began doubting the SCP marks in early June, when the JPM Task Force uncovered evidence that the traders were criticizing their previously reported marks. The JPM Task Force finally concluded that the traders "did not provide good-faith estimates of the exit prices for all the positions in the Synthetic Credit Portfolio" during the latter half of March, and possibly longer (JPM Task Force 2013, 89).

As a result, JPM terminated the employment of Iksil, Martin-Artajo, and his superior Achilles Macris on July 12. Grout was suspended but not terminated, because JPM senior management wanted to review if he may have been coerced by his superiors into mismarking the SCP book. (Drew had previously resigned on May 13, and Grout later resigned in December.) One day later, on July 13, JPM announced that it was restating its first-quarter earnings, reducing consolidated total net revenue by \$660 million from \$26.712 billion to \$26.052 billion, which in turn reduced after-tax net income by \$459 million from \$5.383 billion to \$4.924 billion (JPM 8-K 20120713, 2).

In the longer term, JPM created a new Valuation Governance Forum (VGF) at the firm-wide and line-of-business levels, including at CIO, in an effort to strengthen oversight of the valuation process. The CIO VGF, which consists of the unit's Chief Financial Officer, Chief Risk Officer, and Global Controller, meets on a monthly basis to understand and manage valuation-related risks within CIO and to escalate these matters to the firm-wide VGF if necessary. One of CIO VGF's first tasks was to increase CIO VCG headcount and to fold CIO VCG into the investment bank's VCG structure (JPM Task Force 2013, 108).

On August 14, 2013, the US Securities and Exchange Commission (SEC) charged Martin-Artajo and Grout with fraud for overvaluing investments in an effort to hide losses in the SCP portfolio (SEC Press Release 2013-154). The US Department of Justice announced criminal charges against both Martin-Artajo and Grout the same day. Iksil had entered into a non-prosecution agreement with the government and accordingly was not charged.

Note that the charges brought against Martin-Artajo and Grout were based on improperly setting a fair value for the derivatives, which is an accounting matter, instead of based on the actual losses from the failed trading strategy. Though the mismarking did not affect the amount of cash that JPM actually lost on the credit derivative trades, JPM was fortunate that evidence of its poor system of internal controls that failed to prevent and detect the mismarking did not cause its counterparties to evaluate their continued dealings with the bank.

Financial regulators use accounting measures, among other tools, to measure and monitor threats to the financial system, so regulators took the mismarking by the JPM traders very seriously. On September 19, 2013, the Federal Reserve Board, the Office of the Comptroller of the Currency, the SEC, and the United Kingdom's Financial Conduct Authority announced a global settlement with JPM, penalizing the firm a total of \$920 million and requiring it to admit wrongdoing in certain instances, a rare occurrence in such settlements. One month later, the Commodity Futures Trading Commission also settled with JPM for a penalty of \$100 million.

In its part of the global settlement, the SEC charged JPM with misstating financial results in SEC filings and with failing to have an internal control system that would have prevented the

firm's traders from fraudulently valuing investments and would have detected such mismarking if it occurred. JPM agreed to certain findings of fact, to cease and desist from violations of the securities laws, and to pay a \$200 million penalty (SEC Press Release 2013-187). (The appropriateness of the bank's disclosures to the investing public under US securities laws is explored in greater detail in Zeissler, et al. 2014F.)

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Development of this case has been supported by a generous grant from the Alfred P. Sloan Foundation to the Yale Program on Financial Stability.

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Appendix 1: Timeline of Key Events

2012	January	Synthetic Credit Portfolio (SCP) lost money on 17 of 21 business days.
	January 31	An e-mail from Bruno Iksil to Javier Martin-Artajo provided the earliest evidence that the Chief Investment Office (CIO) had begun using unreasonably favorable valuations for the SCP book.
	February	SCP lost money on 15 of 21 business days.
	March	SCP lost money on 16 of 22 business days.
	March 12-16	Julien Grout prepared a spreadsheet tracking the difference between daily SCP values he was reporting and values that would have been reported using midpoint prices. By March 16, the SCP book had reported year-to-date losses of \$161 million, but if midpoint prices had been used, losses would have swelled by an additional \$432 million to a total of \$593 million for the period. (Majority and Minority Staff Report, 11).
	March 15	Iksil asked Grout to e-mail the spreadsheet to Martin-Artajo.
	March 23	Ina Drew (JPM Chief Investment Officer and head of CIO) ordered the CIO traders to stop trading the SCP.
	March 30	Last trading day of the first quarter. JPM's Internal Audit group released a report, stating that CIO Valuation Control Group "needs improvement."
	April 4	CIO VCG completed its regular review of SCP's March 31 marks.
	April 6	Bloomberg and the <i>Wall Street Journal</i> published the first news stories about the "London Whale."
	April 10	First trading day after the London Whale gained public attention. The initially reported SCP daily loss of \$6 million was revised upward to \$395 million just 90 minutes later (\$415 million final loss reported).
	April 20	SCP had collateral disputes with 10 different counterparties, involving \$690 million. The largest dispute was with Morgan Stanley.
	April 25	JPM senior management ordered the Investment Bank's own Valuation Control Group to test SCP's March 30 marks for accuracy and to evaluate CIO VCG's review of those marks.
	April 28	The controller's office began a special assessment of CIO's month-end profit and loss figures for the first quarter.

	May	Mismarking ended after the Deputy Chief Risk Officer ordered CIO to mark the SCP positions the same as the Investment Bank, which used an independent pricing service.
	May 10	The controller's special assessment memo determined that CIO "properly reported" \$719 million in total losses at March 31—instead of the \$1.2 billion that would have been reported if midpoint pricing had been used—and that CIO had acted "consistent with industry practices."
	May 13	Drew resigned.
	Late May	Collateral disputes between CIO and its counterparties generally ended.
	June	JPM officials began doubting the SCP marks when the JPM Task Force uncovered evidence that traders were criticizing their reported marks.
	July 12	JPM terminated the employment of Iksil, Martin-Artajo, and his superior Achilles Macris. Grout was suspended (and later resigned).
	July 13	JPM restated Q1 earnings, reporting additional pre-tax losses of \$660 million due to SCP (\$459 million after tax).
	December 31	Year-to-date SCP losses = \$6.2 billion.
2013	August 14	Securities and Exchange Commission and Justice Department charged Martin-Artajo and Grout with fraud.
	September-October	Four regulators in the US and one in the UK reached settlement agreements with JPM, totaling \$1.020 billion in penalties.

Appendix 2: Synthetic Credit Portfolio: Profit and Loss Reports

Synthetic Credit Portfolio - Daily and YTD Profit and Loss														
January 1, 2012 through May 15, 2012														
Trading Date	Daily P&L	YTD P&L	Trading Date	Daily P&L	YTD P&L	Trading Date	Daily P&L	YTD P&L	Trading Date	Daily P&L	YTD P&L	Trading Date	Daily P&L	YTD P&L
3-Jan	-\$2,331,403	-\$2,331,403	1-Feb	\$11,899,066	-\$88,468,701	1-Mar	\$15,808,609	-\$153,233,146	2-Apr	\$11,615,112	-\$707,057,081	1-May	-\$794,944	-\$2,132,563,367
4-Jan	-\$9,405,151	-\$11,736,554	2-Feb	-\$2,476,245	-\$90,944,946	2-Mar	-\$878,902	-\$154,112,048	3-Apr	-\$10,407,844	-\$717,464,925	2-May	-\$32,404,248	-\$2,184,967,615
5-Jan	\$11,489,045	-\$247,509	3-Feb	\$800,677	-\$90,144,269	5-Mar	-\$1,171,999	-\$152,940,049	4-Apr	-\$11,100,155	-\$728,565,080	3-May	-\$91,590,554	-\$2,276,558,169
6-Jan	-\$6,118,207	-\$6,365,716	6-Feb	-\$3,633,327	-\$93,777,596	6-Mar	\$3,161,395	-\$149,778,654	5-Apr	-\$9,517,665	-\$738,082,745	4-May	-\$103,250,854	-\$2,379,809,023
9-Jan	-\$8,161,497	-\$14,527,213	7-Feb	-\$749,985	-\$94,527,581	7-Mar	\$1,264,716	-\$148,513,938	10-Apr	-\$415,342,049	-\$1,153,424,794	7-May	-\$58,065,892	-\$2,437,874,915
10-Jan	-\$1,147,064	-\$15,674,277	8-Feb	-\$23,773,934	-\$118,301,515	8-Mar	\$1,154,204	-\$147,359,734	11-Apr	-\$6,301,198	-\$1,159,725,992	8-May	-\$195,248,051	-\$2,633,122,966
11-Jan	\$223,462	-\$15,450,815	9-Feb	-\$4,114,971	-\$122,416,486	9-Mar	-\$4,565,697	-\$151,925,431	12-Apr	-\$4,809,755	-\$1,164,535,747	9-May	-\$108,126,095	-\$2,741,249,061
12-Jan	-\$3,552,588	-\$19,003,403	10-Feb	\$1,044,270	-\$121,372,216	12-Mar	-\$838,406	-\$152,763,837	13-Apr	-\$50,629,714	-\$1,215,165,461	10-May	-\$36,461,805	-\$2,777,710,866
13-Jan	-\$1,328,679	-\$20,332,082	13-Feb	-\$5,029,818	-\$126,402,034	13-Mar	-\$55,325	-\$152,819,162	16-Apr	-\$37,415,502	-\$1,252,580,963	11-May	-\$570,159,849	-\$3,347,870,715
16-Jan	-\$1,474,654	-\$21,806,736	14-Feb	-\$1,756,535	-\$128,158,569	14-Mar	-\$3,654,838	-\$156,474,000	17-Apr	\$9,948,665	-\$1,242,632,298	14-May	-\$227,592,775	-\$3,575,463,490
17-Jan	\$538,245	-\$21,268,491	15-Feb	-\$3,310,361	-\$131,468,930	15-Mar	-\$730,181	-\$157,204,181	18-Apr	-\$28,338,553	-\$1,270,970,851	15-May	-\$119,236,467	-\$3,694,699,957
18-Jan	\$1,531,279	-\$19,737,212	16-Feb	\$2,787,722	-\$128,681,208	16-Mar	-\$3,864,759	-\$161,068,940	19-Apr	-\$29,239,630	-\$1,300,210,481			
19-Jan	-\$2,497,903	-\$22,235,115	17-Feb	\$151,612	-\$128,529,596	19-Mar	-\$3,368,891	-\$164,437,831	20-Apr	-\$32,236,022	-\$1,332,446,503			
20-Jan	-\$5,824,024	-\$28,059,139	20-Feb	\$1,402	-\$128,528,194	20-Mar	-\$43,553,294	-\$207,991,125	23-Apr	-\$161,148,061	-\$1,493,594,564			
23-Jan	-\$14,937,654	-\$42,996,793	21-Feb	-\$3,647,248	-\$132,175,442	21-Mar	\$701,825	-\$207,289,300	24-Apr	-\$81,602,918	-\$1,575,197,482			
24-Jan	-\$18,663,381	-\$61,660,174	22-Feb	-\$5,258,735	-\$137,434,177	22-Mar	-\$1,786,282	-\$209,075,582	25-Apr	-\$187,629,766	-\$1,762,827,248			
25-Jan	-\$5,349,602	-\$67,009,776	23-Feb	-\$1,144,086	-\$138,578,263	23-Mar	-\$12,555,383	-\$221,630,965	26-Apr	-\$162,235,258	-\$1,925,062,506			
26-Jan	-\$1,609,067	-\$68,618,843	24-Feb	-\$5,248,999	-\$143,827,262	26-Mar	-\$32,426,419	-\$254,057,384	27-Apr	\$15,364,325	-\$1,909,698,181			
27-Jan	-\$3,637,880	-\$72,256,723	27-Feb	-\$7,575,866	-\$151,403,128	27-Mar	-\$44,740,604	-\$298,797,988	30-Apr	-\$222,070,242	-\$2,131,768,423			
30-Jan	-\$22,790,129	-\$95,046,852	28-Feb	-\$2,894,309	-\$154,297,437	28-Mar	-\$50,685,464	-\$349,483,452						
31-Jan	-\$5,320,915	-\$100,367,767	29-Feb	-\$14,744,318	-\$169,041,755	29-Mar	-\$49,996,238	-\$399,479,690						
						30-Mar	-\$319,192,503	-\$718,672,193						

Source: US Senate Exhibits, 21