

**CREDIT SUISSE GROUP SPECIAL COMMITTEE OF THE BOARD OF DIRECTORS
REPORT ON ARHEGOS CAPITAL MANAGEMENT**

July 29, 2021

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INTRODUCTION

Credit Suisse (“CS”) incurred approximately \$5.5 billion in losses following the March 2021 default of Archegos Capital Management (“Archegos”), the family office of Sung Kook “Bill” Hwang, a New York-based former hedge fund manager. The CS Group AG Board of Directors (the “Board”) appointed a Special Committee comprised of four directors¹ to review the bank’s relationship with Archegos and retained the law firm of Paul, Weiss, Rifkind, Wharton & Garrison LLP (“Paul, Weiss”),² and its expert advisors (including former investment banker and risk manager Robert O’Rahilly),³ to conduct a comprehensive investigation and report the findings. That review, conducted over three months, included over 80 interviews of current and former CS employees and the collection of more than 10 million CS documents and other data. This Report is the culmination of that review, and seeks to explain *what* happened with Archegos, *why* and *how* it happened, and how CS can—and has already begun to—make changes to improve its risk management and culture to prevent similar situations from occurring in the future.

The Archegos-related losses sustained by CS are the result of a fundamental failure of management and controls in CS’s Investment Bank and, specifically, in its Prime Services business. The business was focused on maximizing short-term profits and failed to rein in and, indeed, enabled Archegos’s voracious risk-taking. There were numerous warning signals—including large, persistent limit breaches—indicating that Archegos’s concentrated, volatile, and severely under-margined swap positions posed potentially

¹ The Special Committee is comprised of two Group Board directors (Richard Meddings, Blythe Masters), one U.S. board director (Credit Suisse Holdings (USA), Inc.) (Hilary Ackermann) and one U.K. board director (Credit Suisse Securities (Europe) Ltd./Credit Suisse International) (Doris Honold). The Special Committee is chaired by Mr. Meddings.

² The Paul, Weiss team is led by Brad S. Karp, Claudia Hammerman, and Jessica S. Carey.

³ Paul, Weiss also retained a leading international consulting firm to assist with its review of certain technical subject areas.

catastrophic risk to CS. Yet the business, from the in-business risk managers to the Global Head of Equities, as well as the risk function, failed to heed these signs, despite evidence that some individuals did raise concerns appropriately.

The Archegos default exposed several significant deficiencies in CS's risk culture, revealing a Prime Services business with a lackadaisical attitude towards risk and risk discipline; a lack of accountability for risk failures; risk systems that identified acute risks, which were systematically ignored by business and risk personnel; and a cultural unwillingness to engage in challenging discussions or to escalate matters posing grave economic and reputational risk. The Archegos matter directly calls into question the competence of the business and risk personnel who had all the information necessary to appreciate the magnitude and urgency of the Archegos risks, but failed at multiple junctures to take decisive and urgent action to address them.

Notably, this is not a situation where the business and risk personnel engaged in fraudulent or illegal conduct or acted with ill intent. Nor is it one where the architecture of risk controls and processes was lacking or the existing risk systems failed to operate sufficiently to identify critical risks and related concerns. The Archegos risks were identified and were conspicuous. The persistent failure of the business and risk to manage and remediate the risks, and pervasive issues of business competence and resourcing adequacy, described in detail in this Report, require CS's urgent attention.

I. EXECUTIVE SUMMARY

During the week of March 22, 2021, the market value of Archegos's portfolio with CS and with its other prime brokers across the Street dropped precipitously, largely driven by declines in certain single-name tech stocks—most notably

ViacomCBS—to which Archegos had significant, leveraged exposure. The steep decline in the value of its positions triggered a chain reaction that led to Archegos’s default and caused CS to suffer approximately \$5.5 billion in losses.

These losses occurred in CS’s Investment Bank (“IB”) and, more specifically, in Prime Services, a sub-unit of the Equities division that provides a variety of products and services to hedge funds (as well as to family offices that operate like hedge funds), including the financing of both cash and synthetic equity positions.

A. The CS/Archegos Relationship

1. CS’s Early Relationship with Archegos

Archegos, formerly known as Tiger Asia, was one of a group of hedge funds started by alumni of Tiger Management (so-called “Tiger Cubs”), one of the largest and most successful hedge funds of the 1990s. CS’s relationship with Tiger Asia and Hwang began in 2003 with cash equities trading. Tiger Asia became a Prime Services client in 2005 when it began trading equity swaps. Archegos was covered by (and conducted most of its business with CS through) Prime Services in New York, consistent with CS’s regional client coverage model. Tiger Asia employed long/short equity and long-only equity trading strategies during this time, with a focus on Asian-issued securities.

In 2012, Tiger Asia and Hwang settled insider trading allegations with the U.S. Securities and Exchange Commission (“SEC”) and also pled guilty to wire fraud with the U.S. Department of Justice (“DOJ”). Tiger Asia subsequently returned its outside capital to investors and rebranded as Archegos, a family office with roughly \$500 million in assets. In 2014, Hwang and Archegos were banned from trading securities in Hong Kong for four years. As a result, Archegos shifted its trading strategy with CS to U.S.

equities, including U.S.-exchange-traded ADRs of Asian issuers. CS continued to do business with Archegos both during and after these criminal and regulatory matters.

We have seen no evidence that CS applied any additional scrutiny to Tiger Asia or Hwang in response to these matters. Although CS ultimately conducted two reputational risk reviews of Archegos, the first did not begin until years after the SEC and DOJ resolutions. In 2015, a routine compliance review of Archegos picked up the negative news about Tiger Asia and Hwang, which led Prime Services (at the persistent urging of Compliance) to subject Archegos to a reputational risk review. That process was largely perfunctory. Prime Services advocated maintaining Archegos as a client based on its strong market performance and self-proclaimed “best in class” infrastructure and compliance (as represented by Archegos to CS) and shrugged off the settlements, guilty plea, and trading ban as isolated, one-time events. None of the other reviewers (in Risk Management, Compliance, or Legal) raised any concerns, and CS approved the continuation of the relationship.

When the Hong Kong trading ban was lifted in 2018, Prime Services sought permission to restart trading with Archegos in Asia, which resulted in a second reputational risk review that largely mirrored the first. (Indeed, some of the same Archegos compliance documentation from 2015 was attached to the submission.) Although CS Compliance initially raised concerns about maintaining Hwang as a client, its concerns were allayed without any in-depth evaluation of the potential reputational risks to CS. No conditions or limitations were imposed on CS’s business dealings with Archegos as a result of either review.

2. Prime Services' Relationship with Archegos

Archegos's relationship with CS was centered in two of its Prime Services' sub-units: Prime Brokerage and Prime Financing. In general, Prime Brokerage handled Archegos's cash trading (*i.e.*, traditional securities financing, custody, and clearing) and Prime Financing handled Archegos's synthetic trading (*i.e.*, derivatives, particularly swaps, and other types of synthetic leveraged exposure). Both Prime Brokerage and Prime Financing are *intended* to be low-risk businesses—counterparty risk should be assessed and then offset through effective margining, and market risk should be evaluated and offset through hedging.

CS's risk exposure to Archegos, as with all hedge funds and family offices doing business with Prime Services, was overseen on a daily basis by multiple lines of defense. The Prime Services business is itself the first line of defense—every business-side employee is responsible for safeguarding CS from loss—and Prime Services has a dedicated in-business risk unit called Prime Services Risk (“PSR”) that works directly with the traders and clients to manage CS's risk. As the in-business risk function, PSR is responsible for setting margin rates and for communicating any necessary margin increases to the client. Among PSR's mandates is running and reviewing portfolio-level stress loss scenarios and other analytics designed to flag concerning client exposures, and monitoring the client portfolio to ensure that it does not exceed the risk limits prescribed by the second line of defense Risk Management function (“Risk”).

Credit Risk Management (“CRM”), a second line of defense Risk function that is independent from the business, is responsible for assessing credit risk across all CS businesses, including Prime Services. Within CRM, CS managed its exposure to Archegos

through its Counterparty Credit Risk unit, specifically the Hedge Fund sub-unit. Among other functions, CRM was responsible for (i) performing an annual counterparty risk review of Archegos, (ii) assigning Archegos an internal credit rating, and (iii) setting risk-related counterparty trading limits that Prime Services was required to monitor to ensure compliance. In particular, CRM set limits on the potential exposure (“PE”)⁴ as well as stress scenario exposure associated with Archegos’s portfolio; these exposure limits were risk management tools relied upon by both the Prime Services business and Risk to manage Archegos’s counterparty credit risk.

CS assigned a dedicated PSR analyst to Archegos, like other Prime Services counterparties. CS also assigned a dedicated CRM Hedge Fund analyst to Archegos. While PSR and the Prime Services traders were in regular communication with Archegos, and thus privy to information unknown to CRM, CRM had access to non-public credit-related information from Archegos (*e.g.*, the fund’s net asset value (“NAV”) and cash reserves, and the Archegos’s individual CS internal credit rating) that was not visible to the business.

Other than its trading shift away from Asian equities, Archegos’s investment strategy was largely unchanged from its Tiger Asia days. Archegos employed a “fundamental research-driven long/short equity strategy focused on long-term (18 months to 3 years) value investing,” with concentrations in “financial services, telecommunications and internet/media.” This proved to be a highly successful trading strategy for many years and Archegos’s NAV grew steadily, from \$500 million in 2012 to

⁴ PE is a calculation to assess the maximum potential exposure of the bank (at the 95% confidence level, ignoring the most unlikely tail risk) in the event of a counterparty default. Accordingly, PE takes into account, and provides one measure of, the sufficiency of the margins posted by a counterparty.

\$3.9 billion in 2016. CRM's annual credit reviews characterized the fund during this period as having a "solid capital base," "experienced management team," "strong performance," and "appropriate use of leverage." At the same time, CRM identified Archegos's weaknesses as "key man reliance," "volatile performance," "mediocre operational management practices/fraud risk," and "poor risk management practices and procedures." With respect to the risk management criticism, the credit reviews observed that "Archegos does not operate with a formalized set of risk management policies and procedures, operates off informal concentration guidelines, and does not use stop loss limits." These deficiencies notwithstanding, CRM's internal credit rating for Archegos improved several rungs between 2012 and 2016, from B- to BB-, in part due to its increasing NAV.

3. Changes in the Relationship Between Archegos and CS

Archegos's Prime Brokerage portfolio was margined under CS's Standard Margin Procedure, with dynamic margining to factor in changes to its portfolio characteristics (volatility, concentration, bias, etc.). By contrast, Archegos's swaps with Prime Financing were statically margined. This meant that initial margins were calculated based on the notional value of the swap at inception and remained static in dollar terms over the life of the swap; thus, if the value of Archegos's position increased, the initial margin as a percentage of the position being financed eroded (and Archegos's leverage with CS increased). This margin erosion was exacerbated by the specific form of swaps that Archegos favored, so-called "bullet" swaps, which did not periodically reset to the current market value (with a corresponding increase in margin) and had an average tenor of 24 months.

CS's financing of Archegos's cash and swap positions significantly evolved over time. First, in 2017, changes in Archegos's Prime Brokerage portfolio triggered an automatic 10% directional bias add-on that would have required Archegos to post additional margin. Archegos asked to be excused from this requirement on the ground that its short swaps portfolio in Prime Financing offset its long-biased Prime Brokerage portfolio such that, if combined and netted, the portfolios would not have triggered the bias add-on. CS agreed to forgo the additional margin and remove the bias add-on entirely from Archegos's Prime Brokerage dynamic margining rules on the condition that Archegos's combined portfolio bias not exceed 75% either long or short. As a result, the business (PSR) instituted new, bespoke weekly monitoring of Archegos to track its portfolio bias. Over the next several years, Archegos would periodically exceed the 75% threshold. Each time, however, CS would grant Archegos a grace period—sometimes as long as five months—to try to get back below the 75% threshold. The business appears to have relied on Archegos's assurances that it would reduce the bias, and Archegos generally did, though this dynamic repeated several times over the next few years, reflecting the business's accommodative approach to Archegos.

The second and more notable change occurred in 2019, when Archegos asked CS to materially lower its swap margins. Up until this time, Archegos had posted 15-25% initial margins on its swap positions with Prime Financing, while its margins on its dynamically margined Prime Brokerage portfolio averaged between 15-18%. Archegos's swap positions, margined at an average of 20%, had never breached the PE limits set by the bank. To make its case, Archegos argued that another prime broker offered lower margin rates and allowed Archegos to cross-margin its swaps and cash equities

positions so they were covered by a single margin call—a service that CS did not offer to Archegos.

CS agreed to Archegos's request. At the time, Archegos had a short Prime Financing portfolio and a long Prime Brokerage portfolio, and CS viewed the positions as at least partially offsetting. Under the new arrangement, CS reduced Archegos's standard swap margin rate to 7.5%, and Archegos agreed that CS could increase margins above that rate if Archegos's holdings at CS in any given security ever exceeded a predetermined threshold of the security's average daily trading volume. CS acceded to the new arrangement after running analyses that showed that, as applied to Archegos's portfolio at the time (May 2019), the combined margin across Prime Brokerage and Prime Financing would be almost three times Archegos's exposure under a severe stress scenario. CS also drew comfort from the fact that it had the contractual right to terminate the swaps on a daily basis and to change initial margin amounts at its discretion (indeed, the new framework explicitly envisioned that the base margin would increase if a liquidity threshold was reached). This arrangement, however, inured to Archegos's substantial benefit: initially because the substantial decrease in Archegos's swap margins required CS to release substantial then-excess margin to Archegos, and ultimately because the business never invoked its contractual right to call additional margin when Archegos's positions in various stocks exceeded the predetermined liquidity thresholds, which occurred regularly.

CS's decision to materially reduce Archegos's swap margin led Archegos to significantly increase its swap exposure with CS. At the same time, the contractual protections CS had negotiated with Archegos were illusory, as the business appears to have had no intention of invoking them for fear of alienating the client.

4. Archegos's Risk Profile Increases

CRM's November 2019 annual credit review of Archegos recommended maintaining its BB- rating (despite a 40% NAV decline caused by poor performance), and more than doubling the fund's PE limit. By the end of 2019, Archegos's portfolio in aggregate was slightly short-biased, driven by a long cash equities portfolio and a marginally larger short swaps portfolio. Archegos's portfolio also had become significantly more concentrated: its top ten long Prime Brokerage positions constituted 75% of Archegos's Prime Brokerage gross market value ("GMV"), and its top four long positions alone constituted 50%. Archegos's concentrated portfolio was added to the list of the fund's key weaknesses.

In February 2020, the then-Head of PSR died unexpectedly and was replaced by a Managing Director who had covered Archegos in a sales and marketing role for several years. While another PSR employee technically covered Archegos, the new Head of PSR, with his preexisting Archegos relationship, became PSR's (indeed, Prime Services') main point of contact with Archegos going forward.

Over the course of 2020, Archegos's risk profile increased significantly. By the end of February, Archegos's overall slight short bias had been eliminated and it had become net long by more than 35%. At this point, the reason for removing the bias add-on from Archegos's Prime Brokerage portfolio no longer existed; the swaps portfolio was no longer balancing out the Prime Brokerage portfolio. Yet CS never re-imposed the bias add-ons. At the same time, Archegos began regularly breaching its stress scenario limits. Rather than call additional margin, as was its contractual right, CS attempted to re-balance Archegos's portfolio by requiring that it add market shorts (for instance, index shorts

referencing the S&P 500 or NASDAQ 100). Archegos did add some index shorts, but the long-bias in its swaps portfolio persisted. Archegos's portfolio fluctuated between 63% and 95% long nearly every single week until its eventual default in March 2021.

Archegos's long bias was driven by the evolution of its swaps portfolio. Given the substantially reduced swap margin, Archegos began putting on long swaps (at the new lower margin) with CS, whereas it had historically held its long positions in Prime Brokerage (at a higher margin rate). The lower swap margins—which Archegos assured CS were “pretty good” compared to what its other prime brokers required—no doubt led Archegos to trade more swaps with CS, and Archegos's holdings at CS increased markedly. By September 1, 2020, Archegos's overall holdings at CS had ballooned to \$9.5 billion, more than 75% of which was long. Likewise, \$7.1 billion—or 74%—of the gross portfolio value was now driven by Archegos's Prime Financing swap book, margined at just 5.9% on average compared to the 15% margin rate for its shrinking Prime Brokerage book. And Archegos's portfolio had become substantially more concentrated and less liquid. Indeed, four positions represented between 2 and 4 days' daily trading volume (“DTV”), and another nine positions represented between 1 and 1.9 days' DTV.

5. Persistent Risk Limit Breaches

Archegos began regularly breaching its PE limit in the spring of 2020. By April 2020, Archegos's PE was more than ten times its \$20 million limit. At the same time, the fund's poor performance had caused its NAV to decline so precipitously (from approximately \$3.5 billion in February to \$2 billion in April) that it triggered an optional termination event under the relevant swap agreement. Prime Services opted not to terminate the swaps portfolio, but CRM did ask the business to confirm its comfort with

Archegos's existing margin levels. The business responded that it "remain[ed] comfortable with the existing margin framework across" Prime Brokerage and Prime Financing.

By August 2020, Archegos's PE had increased significantly, to just under \$530 million (against a \$20 million limit). Because PE limit breaches are intended to be rare and consequential events, Archegos was included on a list of PE offenders sent to the Credit Control Group (a division of CRM). Archegos was in material breach of its PE limit, and included on those lists, for much of 2020. While PSR and CRM were obligated to monitor and ensure compliance with the PE limit, both had come to develop concerns with the validity of the PE numbers (for all clients) after CS's PE calculation methodology was changed in January 2020. That skepticism led PSR and CRM to discount the reliability and meaningfulness of PE as a risk diagnostic during this period.

Still, Archegos's scenario exposure breaches were also sounding alarms. By July 16, 2020, Archegos had over \$600 million in net scenario exposure—more than 240% of the \$250 million scenario limit. Within a week, on July 22, 2020, Archegos's net scenario exposure had jumped to \$828 million (330% of the limit). From that point on, Archegos remained in breach of its scenario limits virtually every week until its March 2021 default. In response, the business and Risk discussed various risk mitigation measures, such as a new, tiered margining model in which the aggregate bias of the portfolio would dictate the base margin rate and add-ons. Those discussions, however, trailed off and the new margining model was never implemented.

Archegos's scenario exposure remained elevated, in the \$800 million range, in August 2020, exacerbated by new long positions that Archegos put on with CS that month. By the end of August, Risk insisted that Archegos not expand its "already outsized"

long positions at existing margin levels, particularly given the PE and scenario limit breaches. With PE more than 25 times the \$20 million limit and the severe scenario exposure nearly three and a half times the limit, the business urged that Archegos not be evaluated on the “Severe Equity Crash” scenario that CS historically had employed, but rather on a more forgiving “Bad Week” scenario. The business contended this adjustment made sense because Archegos’s portfolio was comprised of large-cap stocks in liquid names and CS had a daily termination right. Risk ultimately agreed, and Archegos was monitored under the more lax scenario from September 2020 to February 2021. Despite this change, Archegos remained in breach even under the more lax regime. On September 1, 2020, after monitoring under the Bad Week scenario was first initiated, Archegos’s scenario exposure was nearly two times the \$250 million limit.

Around this time, the CRM analyst covering Archegos raised concerns to his supervisor about PSR’s overall management of counterparty risk, including, specifically, with respect to Archegos. He observed that the PSR team in New York (covering Archegos) was not “adequately staffed to be reliable”; experienced PSR employees who had left CS had not been replaced; everyone he would “trust to have a backbone and push back on a coverage person asking for zero margin on a heaping pile” was gone; “the team is run by a salesperson learning the role from people” he did not trust to have a backbone; and PSR was not “the best first line of defense function anymore.” The CRM analyst and his supervisor agreed that PSR was not adequately managing Archegos portfolio risk. But when they followed up again with PSR, they were told that progress was being made.

Archegos did add some short-index positions over the following weeks and moved \$500 million of illiquid long positions from its Prime Brokerage portfolio, and the swap desk repeatedly refused to trade certain names with Archegos at the existing margin levels. At the same time, however, Archegos continued to add significant long positions *and* its existing long positions continued to appreciate. Despite PSR's assurances that it would insist on higher margins, the business allowed Archegos to renew long swap positions for 24-month tenors at the same 7.5% rate.

6. Archegos Is Discussed at the September 2020 CPOC Meeting

During this same period, CS was in the process of evaluating the root causes of the \$214 million loss it incurred following the March 2020 default of a different hedge fund—Malachite Capital Management LLC (“Malachite”). Malachite was a client of CS's Equity Derivatives business, not Prime Services, and it deployed a more complex trading strategy than Archegos. Still, like Archegos, Malachite's transactions were statically (not dynamically) margined; the same CRM analyst covered both accounts; the Malachite losses far exceeded its scenario and PE limits; and Malachite brought in a comparatively low amount of revenue, given the risk being run, of just \$6.9 million over the life of the client relationship. Following Malachite's collapse, the Board demanded an investigation and prompt remedial action, which led Internal Audit (“IA”) to conduct a review of the Malachite incident to identify root causes and lessons learned. CS also took a number of steps to ensure that the Equity Derivatives business did not have other clients with profiles similar to Malachite (the business concluded none existed), broadened the universe of audits to be performed by IA (including an audit on counterparty credit risk), and regularly updated the Board on remedial measures relating to the Malachite incident.

Following the IA review, CS embarked on “Project Copper,” an initiative to “improve [CS’s] ability to identify early warning signs of a default event,” and “enhance [CS’s] controls and escalation framework across functions during periods of stress,” with a primary focus on over-the-counter derivatives. Many of the remediation suggestions generated by Project Copper were, and remained, relevant to CS’s handling of Archegos. The Project Copper team also created a new committee, the IB Counterparty Oversight Committee (“CPOC”), co-chaired by the IB’s Chief Risk Officer (“CRO”) and Chief Operating Officer (“COO”), and whose membership included a number of IB senior executives, such as the Global Head of Equities (“Head of Equities”). The purpose of CPOC was to analyze and evaluate counterparty relationships with significant exposure relative to their revenue generation and to direct remedial measures where appropriate. CPOC was designed as a monthly meeting; the committee first met at the end of September 2020.

At the request of CRM, Archegos was one of a handful of counterparties covered at the inaugural September 2020 CPOC meeting. Despite the discussion of Prime Services clients at CPOC, neither of the Co-Heads of Prime Services was invited to attend the meeting (and neither of them was a CPOC member). The meeting materials observed that Archegos “makes substantial use of leverage relative to peer [long/short] equity funds and exhibits a highly volatile performance pattern”; that Archegos “has generated some of the largest scenario exposures in global [hedge fund] portfolio”; and that Archegos had “[c]hunky single-name stock exposures (a number of positions > \$750 mm and > 10% GMV) albeit in liquid names.” At the meeting, participants recall that members of CRM and the Head of PSR co-presented Archegos. The Head of PSR noted that the business

and Risk had already agreed on actions to address Archegos's limit breaches and observed that Archegos had never missed a margin call, even in the tumultuous markets earlier in the year. While the minutes reflect general discussion of Archegos's concentrated positions and the "desirab[ility]" of an automated margin add-on for concentration, we have seen no evidence that anyone called for urgent action. Indeed, the "**Action/Decision**" for Archegos was for CRM to "notify of any changes with the counterparty and revisit the counterparty at a future meeting." CPOC did not set a deadline for remediating Archegos's limit breaches, for moving Archegos to dynamic margining with add-ons, or even for reporting back or revisiting the status of Archegos at a future meeting. CPOC did not discuss Archegos again for nearly six months, until March 8, 2021, at which point Archegos's risk exposure had increased dramatically.

7. Risk Limit Breaches Continue

Following the September CPOC meeting, CS made very little progress in reducing Archegos's counterparty risk, and what little progress it did make was quickly undone by market movements and Archegos's additional trading. In the fall of 2020, the business and Risk were focused on migrating Archegos's swaps from one CS U.K. entity (Credit Suisse Securities (Europe) Ltd. or "CSSEL") to another (Credit Suisse International or "CSi"). This was part of a broader effort to wind down CSSEL, but also moved Archegos to an entity (CSi) that had a higher stress scenario appetite at a time when Archegos was substantially in breach of the scenario limit. While the migration was underway, the business and CRM twice advocated for a temporary bespoke increase in CSSEL's scenario appetite to accommodate Archegos. As purported justification for being accommodative, CRM touted Archegos's historic "willingness to work with CS to reduce

exposure” and CS’s contractual daily rights to change margin and terminate the swaps portfolio. CRM also noted that Archegos was a “significant relationship for Prime Services” and the business was “keenly aware” that Archegos was also doing business with other prime brokers across the Street and that a “sudden” margin increase could “result in irreversible damage to the client relationship.” The senior Risk officer in the U.K. approved the temporary scenario appetite increase without comment.

Archegos was ultimately migrated to CSI in December 2020. Despite CSI’s higher stress scenario appetite, and Archegos adding almost \$1 billion of broad index shorts that acted to reduce the directionality of its portfolio, Archegos’s concentration and liquidity risks remained. Immediately following the migration, Archegos was in breach of CSI’s \$800 million scenario appetite (and substantially in breach of Archegos’s \$250 million scenario limit, even under the Bad Week scenario). By mid-December, Archegos’s NAV had appreciated to \$9.8 billion. Archegos was still in breach of both PE and scenario limits, but over the course of that month both numbers began to creep downward. Nevertheless, Archegos’s swap margins remained depressed (an average of 6.9%) because PSR made no effort to renegotiate the static margin on old trades. Further, because Archegos’s positions had appreciated in value, CS actually had to post nearly \$1.13 billion in variation margin to Archegos between October and December 2020. And while Prime Services had formed a working group to build out an automated dynamic margining system for swaps, which went live in September 2020, Archegos was not identified as a “high priority” for the switch until late February 2021. By the end of December, the concentration and liquidity risk of Archegos’s portfolio had substantially increased. In December 2020, Archegos reported to CRM that its top five long positions represented

175% of its NAV; moreover, Archegos held two positions that represented between 5 and 10 days' DTV, six positions that represented between 2.5 and 4.99 days' DTV, and another nine positions that represented between 1 and 2.49 days' DTV in those respective stocks.

In January 2021, in connection with its 2020 annual credit review, CRM downgraded Archegos's credit rating from BB- to B+, which put Archegos in the bottom-third of CS's hedge fund counterparties by rating. CRM noted that, while in prior years Archegos had estimated that its portfolio could be liquidated within a few days, Archegos now estimated that it would take "between two weeks and one month" to liquidate its full portfolio. The CRM review also noted that implementing dynamic margining for Archegos was a "major focus area" of the business and Risk in 2021. Significantly, even while it downgraded Archegos's credit rating (based on its concentrated portfolio, increased leverage and performance volatility), CRM simultaneously recommended *increasing* Archegos's PE limit from \$20 million to \$50 million, which required an exception to the bank's guidance that funds rated B+ have a maximum PE of \$10 million as well as signoff from the IB CRO, which was received in February 2021. CRM also increased Archegos's scenario limit from \$250 million to \$500 million.

8. CS Takes Steps to Address Archegos Risk

Archegos's PE and scenario limit breaches continued to grow. During February 2021, the business and Risk discussed a number of proposals to address the situation. For instance, the business proposed that Archegos maintain a defined percentage—targeted at 5%—of its gross notional exposure to CS as earmarked, undrawn variation margin (around \$809 million of "excess" margin at the time it was proposed). As proposed, however, CS would have no legal right to withhold such excess margin if

Archegos sought to withdraw it. By contrast, CRM suggested that the business develop a precise timeline for transitioning Archegos to dynamic margining, that it return to monitoring Archegos under the more punitive Severe Equity Crash scenario, and that Archegos be required to post \$1 billion of additional initial margin with CS. The business forcefully rejected the idea of requiring Archegos to post \$1 billion of additional margin, saying it was “pretty much asking them to move their business.”

Ultimately, the business asked Archegos for \$750 million in additional initial margin. While Archegos refused to post the amount requested, it did agree to post \$500 million in additional margin, largely by converting excess margin it currently held at CS. The next day, CRM held a due diligence call with Archegos, during which Archegos told CRM that it had unencumbered cash (in a cash account at another bank) as well as margin excess at its prime brokers totaling \$6.6 billion. While this provided CRM some comfort, the CRM analyst for Archegos was becoming increasingly concerned that Archegos held the same positions with other prime brokers and that if other banks also increased margins, that might force a liquidation. The analyst shared this concern with PSR and up his reporting chain in CRM, and CRM recommended that Archegos be addressed at the next CPOC meeting. Around this time, PSR and CRM also alerted the margin services group that no payments should be made to Archegos without explicit approval from both the business and Risk.

Also in February 2021, the business finally began taking steps to scope out a dynamic margining proposal for Archegos. The dynamic margining software engineering team reported to the Head of PSR that if Archegos’s swaps portfolio was brought under Archegos’s existing Prime Brokerage dynamic margining rules (which no

longer included bias add-ons), Archegos would be required to post an additional \$3 billion of margin to increase the total margin for swaps to \$4 billion. We have seen no evidence that the business—specifically the Head of PSR—shared this number with Risk. Instead, he directed the PSR analyst covering Archegos to develop a separate dynamic margining proposal for Archegos’s swaps portfolio using a more forgiving set of rules that would generate lower average margins. The PSR analyst responded the next week by recommending rules that, on the current portfolio, would lead to an average margin of 16.7%, which would require a day-one step up of approximately \$1.3 billion in additional margin—less than half of what Archegos’s existing dynamic margining rules in Prime Brokerage would require. On February 23, 2021, PSR reached out to Archegos to discuss the dynamic margining proposal. The written proposal was sent to Archegos the next day but Archegos ignored it despite repeated follow ups from CS.

9. Archegos Is Discussed at the March 2021 CPOC Meeting

On March 8, 2021, the business and Risk again presented Archegos at CPOC. Risk emphasized that Archegos was an outlier in the Prime Financing swap book: with GMV exposures of \$20 billion as compared to the next-largest client at \$5 billion, and a net-long bias of over \$7 billion, as compared to the next-largest long-biased client at \$1.5 billion. The CPOC discussion also highlighted Archegos’s “[s]ingle issuer concentration,” including a \$3.3 billion position representing “more than 8% outstanding float (next five largest are in the range of USD 1.2bn to USD 1.5bn).” CPOC discussed the difficulty of potential liquidation given the size of these positions. Notwithstanding the red flags relating to the size, concentration, and liquidity of Archegos’s portfolio, CPOC concluded: **“Action/Decision:** Move client to dynamic margining with add-ons for concentration and

liquidity within the next couple of weeks. If no traction perceived by the middle of week of March 15, request an additional USD 250mn margin from the counterparty.” The Head of PSR was designated the “owner” of the action item and given a target completion date of April 2021. Notably, that \$250 million request was less than one fifth of the amount that would have been required as a day-one step up under the dynamic margining proposal PSR sent Archegos just two weeks earlier (and one twelfth of the day-one step up that would have been required if Archegos’s dynamic margining rules for Prime Brokerage had been applied).

The business continued to chase Archegos on the dynamic margining proposal to no avail; indeed, the business scheduled three follow-up calls in the five business days before Archegos’s default, all of which Archegos cancelled at the last minute. Moreover, during the several weeks that Archegos was “considering” this dynamic margining proposal, it began calling the excess variation margin it had historically maintained with CS. Between March 11 and March 19, and despite the fact that the dynamic margining proposal sent to Archegos was being ignored, CS paid Archegos a total of \$2.4 billion—all of which was approved by PSR and CRM. Moreover, from March 12 through March 26, the date of Archegos’s default, Prime Financing permitted Archegos to execute \$1.48 billion of additional net long positions, though margined at an average rate of 21.2%. What is more, on March 12, CS renewed \$13 billion in net long positions with Archegos for two more years (most at the existing 7.5% margin). While this action did not itself impact the ultimate outcome, there is evidence that this renewal was agreed as a result of a mistake, indicating an additional need to review operational risk controls around the business.

10. Archegos Defaults

Archegos's concentrated positions had dramatically appreciated in value in the months leading up to its default. During the week of March 22nd, the value of these positions began to fall precipitously. Archegos's single largest position, ViacomCBS, dropped 6.7% on March 22 and continued to fall in the days that followed. On March 23, Archegos had over \$600 million of excess margin remaining at CS but, by the next day, that excess margin was wiped out by market movements and Archegos owed CS more than \$175 million of additional variation margin, which CS called, and Archegos paid. That same day, March 24, while the ViacomCBS stock price continued to fall, another of Archegos's significant long positions, Tencent Music Entertainment Group, plummeted 20%. CS determined that it would be making a \$2.7 billion call for variation margin the next day. Given the size of that call, the matter was escalated to the Co-Heads of Prime Services and the Head of Equities, who scheduled a call with Archegos for that evening to inform it of the upcoming margin call. Archegos's COO informed CS that Archegos no longer had the liquidity to meet either CS's or any of its other prime brokers' margin calls on the following day. That evening, CS's IB CEO and Group CRO were informed about the Archegos situation; it was the first time that either recalled hearing about Archegos.

On the morning of March 25, 2021, CS issued two margin calls—one for Prime Brokerage and one for Prime Financing—that together totaled over \$2.8 billion. That day, Archegos reiterated that its cash reserves had been exhausted by margin calls from other prime brokers earlier in the week. While Archegos claimed it was committed to making its counterparties whole, it explained that it was only slowly liquidating its positions so as not to disrupt the market. That evening, Archegos held a call with its prime

brokers, including CS. On the call, Archegos informed its brokers that it had \$120 billion in gross exposure and just \$9-\$10 billion in remaining equity. Archegos asked its prime brokers to enter into a standstill agreement, whereby the brokers would agree not to default Archegos while it liquidated its positions. The prime brokers declined. On the morning of March 26, CS delivered an Event of Default notice to Archegos and began unwinding its Archegos positions. CS lost approximately \$5.5 billion as a result of Archegos's default and the resulting unwind.

B. Key Observations

1. Failure to Act on Known Information

It seems likely that Archegos deceived CS and obfuscated the true extent of its positions, which Archegos amassed in the midst of an unprecedented global pandemic.⁵ That said, the business and Risk had ample information well before the events of the week of March 22, 2021 that should have prompted them to take steps to at least partially mitigate the significant risks Archegos posed to CS.

(a) The Business

The Prime Services business mismanaged the Archegos situation at multiple levels, across multiple dimensions. At senior levels, the business had access to information showing that Archegos's risks were mounting. This information was included in regular reports distributed to the business, including the Co-Heads of Prime Services and the Head of Equities, and was discussed in detail at CPOC. Yet the business either ignored these risks or lacked the competence to appreciate their significance; either way, reducing Archegos risk was not a priority. Instead, the business was focused on increasing

⁵ We understand that CS is considering all options for potential recovery against Archegos and other related entities and individuals.

Archegos's revenues with CS, even at the expense of increasing the risk to CS far in excess of applicable limits. The leadership of Prime Services exacerbated the problem, with neither Co-Head believing he "owned" the Prime Financing U.S. swaps business from a management perspective and neither actively managing the business and its attendant risks. Both Co-Heads were double-hatted with numerous responsibilities, and inundated with management information, underscoring the overall mismanagement of the business. The Head of PSR, a former sales manager who covered Archegos, was ill-equipped to take on a senior in-business risk role and appeared to have little guidance or instruction from the Co-Heads. Indeed, meetings of the Prime Services Risk Committee had been discontinued and there was no formal, business-wide meeting devoted to risk where the Head of PSR might be expected to brief the Co-Heads on the risk profile of the business's largest clients, on limit breaches, or on other significant risk issues. The traders, too, disclaimed any responsibility for credit risk, failed to perform pre-trade credit checks and, instead, relied entirely on PSR. The only committee that considered Archegos in depth (CPOC) did not include the Co-Heads of Prime Services, operated in silos where each member addressed only counterparties relevant to his or her business, there was insufficient challenge and professional skepticism of the risk mitigation measures advocated by the business, and the committee's decisions were often vague, tentative, and not pursued.

The business's mismanagement of the Archegos situation was manifest, from start to finish:

First, the business should not have allowed itself to take on such large, concentrated, illiquid exposure to Archegos as a counterparty—particularly given Archegos's own large, concentrated underlying market risk.

Second, given that CS was taking on such significant risk, it was incumbent on the business to ensure that Archegos was posting appropriate margin to safeguard CS in the event of a default. The business failed to do so; instead, it provided Archegos with very low swap margins that did not protect CS against the significant and increasing counterparty risk it was assuming.

Third, the business refused to engage in difficult conversations with Archegos or to exercise its contractual rights—for example, the right to call additional margin as necessary on three-days' notice. Throughout 2020 and 2021, the business was focused on pursuing only those terms it believed Archegos would accept to avoid losing Archegos's business, and not on securing terms CS should demand from a contractual counterparty posing the type of elevated risk presented by Archegos.

Finally, in analyzing, assessing, and accepting limit breaches, the business tended to take Archegos's side, not CS's. For example, in 2019, the business argued on Archegos's behalf that its standard margin level on swaps should be lowered to 7.5% (from an average of 20%) because the swaps portfolio was then significantly short-biased, which offset the long-bias of Archegos's Prime Brokerage portfolio. However, when less than a year later Archegos's swaps portfolio became long-biased, and thus PSR's justification for such low margins no longer applied, the business failed to take steps to restore Archegos's margins to their 15-25% levels. Indeed, by September 2020, the average margin rate on Archegos's now long-biased swaps portfolio was just 5.9%. Similarly, PSR emphasized the potential for additional market short positions to address Archegos's persistent and significant limit breaches, while these shorts failed to effectively hedge the concentrated

long positions and, perversely, provided a basis to grow Archegos's overall positions with CS.

(b) Risk

For its part, Risk failed to push back on the business or to impose deadlines for the business to eliminate limit breaches and to right-size the risk posed by Archegos. While loss responsibility ultimately lies with the business, Risk enabled the business's indulgent orientation toward Archegos, and adopted the business's justifications for Archegos's breaches and margin accommodations. As one example, CRM advocated for a temporary exception to the scenario appetite in CSSEL by arguing that a precipitous increase in margins to remediate the limit breach might lead Archegos to move its business to its other prime brokers. Further, despite the fact CRM employees sounded the alarm as to the inadequacy of Archegos's swap margins given CS's PE and scenario exposure, more senior Risk employees did not support their more junior colleagues' efforts with any urgency and instead allowed the business (particularly PSR) to pursue an accommodative approach of partial and inadequate remediation without deadlines. And while CRM had access to non-public information from Archegos that revealed that Archegos had additional concentrated exposure to the same single-name positions across the Street as it did at CS—thus substantially increasing Archegos's counterparty risk—CRM failed to insist on additional disclosure from Archegos to assess the extent of this risk or to escalate the information it did have, including at the March 2021 CPOC meeting. Ultimately, Risk acceded to the business's preferred approach in attempting to address individual limit breaches in an ad-hoc fashion and never took a holistic view either of CS's risk of loss or how to address or mitigate it. Moreover, in doing so, Risk ignored the limitations of its

standard suite of scenario exposures in assessing this risk, since these applied consistent shocks across the market and did not address the substantial concentration risk idiosyncratic to Archegos's portfolio and the consequent basis risk between its long and short positions.

2. Failure of IB Senior Management to Engage, Challenge, Oversee, or Escalate

By February 2021, Archegos, a family office with no formal risk controls, (i) had the largest notional exposure of any CS Prime Financing client; (ii) generated among the largest scenario exposures of all global hedge fund portfolios (with the largest limit breaches); and (iii) had a portfolio that was among the most concentrated, leveraged, and volatile of all CS hedge fund clients. Despite CS's substantial, mounting, and undermargined counterparty risk exposure to Archegos, CS senior business and Risk managers failed to discuss the overarching CS-Archegos client relationship, except at the September 2020 and March 2021 CPOC meetings. We have seen no evidence that any senior executive in attendance at CPOC escalated any of the alarming information shared with the committee, including the fact that, in March 2021, Archegos's gross portfolio value had skyrocketed to *\$21 billion* and was highly concentrated, illiquid, and grossly undermargined. Although the Head of Equities and the IB CRO, as well as his Co-Chair, the IB COO, attended CPOC meetings and were aware of Archegos's persistent exposure limit breaches and inadequate margining, they did not impose deadlines for remediation or even request regular progress reports. And they did not escalate the mounting Archegos risk to more senior executives or the Board.

3. Failure to Adequately Invest in Risk Culture, Experience, Training, Personnel, and Technology

At all levels within Prime Services and CRM, and increasingly over time, there was inadequate staffing to sufficiently manage and address the risks posed by Archegos (and other hedge fund clients). When the Head of PSR died unexpectedly in 2020, the business heads appointed a long-time Prime Services marketing executive—with no background or training in leading an in-business risk function, and with a decade-long orientation towards client services—to replace him. Other senior employees reported wearing so many hats, receiving so many reports and being inundated with so much data that it was difficult for them to digest all of the information and discharge their responsibilities effectively. Below them, and in conjunction with material reductions in headcount across the IB, over time each and every PSR and CRM analyst became responsible for an ever-increasing number of clients. As employees left PSR, they were replaced with less experienced personnel, a process that one witness referred to as the “juniorization” of PSR. Prime Services was thus hollowed out, both in terms of the experience of its personnel as well as the attention they could devote to their duties.

Likewise, the business failed to invest in necessary risk technology. For example, there was a relatively inexpensive technology fix that had been proposed to correct for bullet swap margin erosion, but the business never executed on it. Additionally, and more importantly, the business failed to prioritize and fund the technological investment necessary to bring dynamic margining capability to swaps held by all clients—an investment that not only would have prevented bullet swap erosion, but also would have

allowed add-ons for concentration, bias, and volatility in a client's portfolio.⁶ Although this capability existed for certain CS European and Asian clients, and could have been built out to cover all swaps portfolios (including those held by U.S. clients), the business did not move with alacrity to make it happen.

Moreover, the business, Risk, and CPOC failed to leverage existing expertise within the bank to critically assess and manage the risks posed by Archegos. CS has a dedicated team (the X-Value Adjustment, or XVA group) that actively manages certain components of the bank's counterparty risk. XVA is a business function with significant expertise in precisely the type of risks posed by Archegos, and yet its expertise was not engaged by either Prime Services or CPOC to holistically assess and remediate the risk of Archegos (or other counterparties).

4. Failure of Risk Systems

Challenges in CS systems and infrastructure also impeded the business's and Risk's ability to quickly and accurately assess risk at any given time. For example, after the bank's PE calculation methodology changed in January 2020, both PSR and CRM developed concerns about the validity of the PE numbers and underlying methodology, which caused risk managers to generally discount PE limit breaches—including Archegos's persistent breaches—as accurate or meaningful reflections of risk. Further, the various Risk Committees only had access to data that were four to six weeks old. As a consequence, Risk was unaware of, and unable to fully appreciate in real time, the magnitude and pace of the exponential growth in Archegos's positions and the attendant

⁶ Of course, CS's investment in technology alone would not have resolved the Archegos margining issues: CS would have needed Archegos's agreement to implement either a margining methodology that prevented bullet swap erosion or a dynamic margining regime. Both would have required Archegos to post more initial margin.

risks to CS. That said, the risk tools and data available to the business and Risk (whatever their weaknesses) were unquestionably sufficient to put them on notice of the outsized risk to the bank from Archegos and the urgent need to reduce that risk by orders of magnitude.

5. Failure to Learn from the Past

Over the course of 2020, as CS's exposure to Archegos grew and as Archegos consistently breached its PE and scenario limits, CS was engaged in remediation efforts with respect to the March 2020 Malachite default. While the Malachite incident was distinct from Archegos in many ways, certain of the issues and deficiencies ultimately identified there appear to have recurred with Archegos, including:

- Insufficient monitoring of client trading strategy and holistic assessment of counterparty risk;
- Insufficient consideration of warning signs, including PE breaches and scenario exposure reaching full capacity;
- Ineffective assessment of tail risk based on use of standard scenarios that did not capture the idiosyncratic risk in the client's trading strategy;
- Insufficient margin as a result of static, as opposed to dynamic, margining; and
- Ineffective exercise of contractual rights to protect CS, including right to call for additional initial margin on three-days' notice.

Although a number of the remedial actions recommended in response to Malachite had been accomplished in 2020-2021, there were several intractable issues that CS had not effectively addressed, and these basic deficiencies reemerged with Archegos. Fundamentally, CS failed to effectively address a culture that encouraged aggressive risk-taking and injudicious cost-cutting, as well as a complex and silo-ed organizational structure that impeded the swift identification, understanding, and escalation of risk.

C. Recommended Remedial Measures

Both prior to the events of March 2021, and certainly thereafter, CS had begun the process of implementing extensive remedial measures that would address many of the issues identified in this Report. Accordingly, certain of the Special Committee's remedial recommendations, set forth in Section IV at pages 154-165, have already been implemented, in part or in whole.

Section IV of the Report notes those areas where CS already has taken remedial action and the additional remedial measures we recommend the bank implement. In particular, CS has already significantly reduced leverage in the Prime Services business, capped gross notional counterparty exposures, instituted mandatory minimum margin requirements, conducted a focused review of every counterparty, imposed strict time limits for remediating limit breaches, terminated numerous employees (from both the business and Risk) involved in the Archegos matter, and imposed significant monetary penalties on several of them.

Specifically, the Special Committee recommends the following categories of remedial measures, many of which are in the process of being implemented or have been implemented during the last quarter:

- Change Investment Bank business and risk leadership;
- Invest additional resources in risk management;
- Clearly define roles and responsibilities;
- Emphasize first line of defense risk responsibilities;
- Reassess reputational risk review triggers and processes;
- Improve risk discipline and treat limits as limits;

- Transition to dynamic margining;
- Reexamine CS's risk appetite and controls;
- Develop a more holistic view of counterparty risk management and reconsider how it is structured and governed;
- Expand the remit of the XVA group to include broader assessment and management of counterparty risk;
- Improve CRM access to data and technology;
- Improve management information for effective monitoring of exposures;
- Conduct a read across of other risk issues; and
- Instill a culture of accountability, compliance, and respect for controls.

II. KEY FACTS

A. Overview of CS Prime Services

CS (or the “bank”) is a leading global wealth manager and investment bank. Headquartered in Zurich, Switzerland, CS has operations in about 50 countries, with approximately 49,000 employees. Of particular relevance here, the IB delivers client-centric sales and trading products, services, and solutions across all asset classes and regions, as well as advisory, underwriting, and financing services. Within the IB, there are several business lines, including the Global Markets business, which houses the IB's equity sales and trading unit (the “Equities” business).⁷

⁷ The other business units inside the Global Markets division of the IB include the Credit business (which provides expert coverage in credit and securitized products trading, sales, structuring, and capital markets), the International Trading Solutions business (which blends CS's wealth management and global markets expertise to provide a broad range of services and solutions to private clients, institutions, corporates, and sovereigns in the public and private markets) and the “Client and Content” business (which provides research and analytics services). *Id.*

Prime Services sits within CS's Equities business and provides financing, custody, clearing, and advisory services to hedge funds and institutional clients. There are several sub-business units within Prime Services, including Prime Brokerage and Prime Financing, which were the sub-units principally involved with Archegos.⁸

1. Prime Brokerage

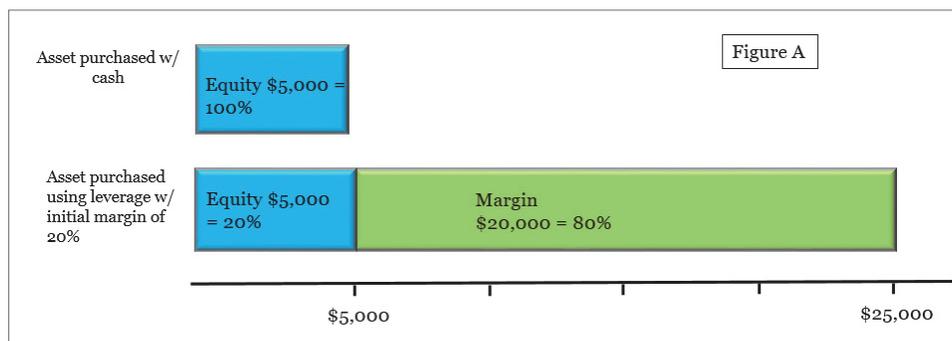
Prime Brokerage provides multi-currency financing, clearing, settlement, and custody of securities transactions, and assists clients in managing the transaction lifecycle through trade matching and settlement services. Financing through Prime Brokerage is traditional margin lending: CS lends clients capital to buy shares of a stock or asset, which CS then holds in custody for the client as collateral. Alternatively, CS may lend clients shares of a stock or asset so the client can sell the shares short and raise cash, which the client may then deposit with CS. Prime Brokerage primarily generates revenue through these financing activities—*i.e.*, by taking the spread on a client's net margin debit/credit balance and, for shorts, by taking the spread on the difference between the fee charged and the fee paid to borrow the security.

Prime Brokerage lends a client up to a certain amount of the total security or asset investment, and the client is responsible for funding the remainder. The amount

⁸ Prime Services also includes the following sub-business units: Prime Derivatives Services, Prime Resource Management and Securities Lending, Capital Services, Prime Consulting, and Risk Advisory Services. Prime Derivatives Services provides clients with global clearing and execution services. The business does not hold positions and acts purely on an agency basis. The Prime Resource Management and Securities Lending desk provides stock borrow requirements for its hedge fund client base and the bank's desks, as well as any ad hoc broker demands through its access to securities across more than 70 markets globally. It also manages collateral requirements across the Equities business. Capital Services helps Prime Services prepare for pitches, targeting key global investors, managing the diligence process, and evaluating the conversion and retention rates. The Prime Consulting team helps established and start-up managers across the hedge fund lifecycle from prelaunch and early growth through maturity. Risk Advisory provides clients with portfolio and risk consulting services guided by relevant market, industry, and regulatory trends, delivering data and analysis across sectors, positioning, and exposures.

or percentage of the security/asset purchase price that must be covered by the client is referred to as margin.⁹ Margin is calculated, in part, based on the notional value of the transaction at the time it is entered into and is often expressed as a percentage of that value. The purpose of margin is to cover potential losses associated with market and credit risks, including swings in market value and delays in calling for and/or receiving collateral from the client to cover such swings.

The client will buy the stock or asset with its own capital and the proceeds of the margin loan obtained from Prime Brokerage. To take a simple example, if a client has \$5,000 to invest in a particular stock and the margin set by Prime Brokerage is 20%, the client can obtain financing for 80% of its investment. Accordingly, the client can actually invest \$25,000 in the stock, \$20,000 of which is essentially loaned by the Prime Broker, as illustrated below. See Figure A. In this example, Prime Brokerage holds a lien on the total stock position as collateral while the position is open.

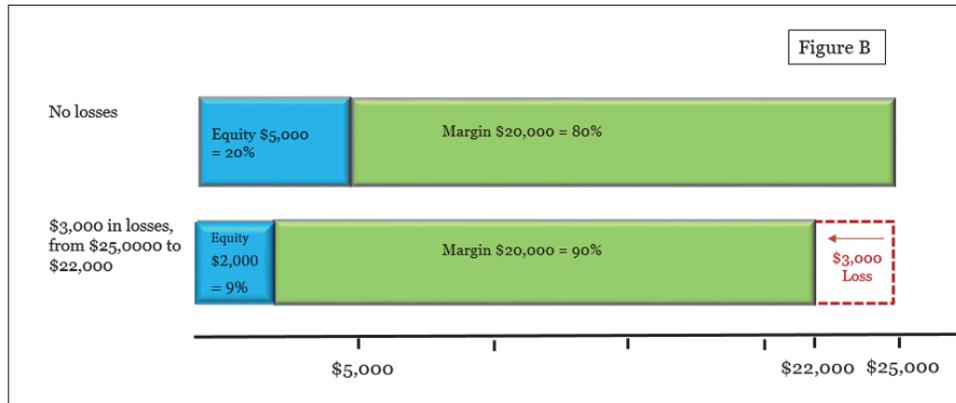


At CS, Prime Brokerage uses a dynamic margin model to set and adjust the margin due over the life of the trade based on subsequent developments.

⁹ Initial margin requirements are prescribed by Prime Services risk personnel, as discussed in greater detail *infra* Section II.A.3.

Prime Brokerage's Prime Margin system allows users to establish and modify dynamic margin rules as agreed with a particular client, with the goal of margining overall portfolio risk. These rules typically set a base margin rate that varies based on the country of origin of the asset (with assets tied to emerging markets having a higher base-rate margin percentage than those tied to developed markets) and provides for various add-ons that are responsive to different inputs related to the client's credit profile, the client's portfolio, and the market (*e.g.*, liquidity, volatility, concentration, directional bias). As these risk factors change over time, the dynamic margining model may require more (or less) margin to be posted by the client. Prime Brokerage margins some portfolios using a Standard Margin Process ("SMP"), a benchmark of tiered margin requirements with predetermined add-on levels for various risk factors. But some clients negotiate bespoke dynamic margining rules to govern their Prime Brokerage portfolios.

Recall the previous example, where a client purchased \$25,000 of shares in a stock using \$5,000 cash and \$20,000 financing that it must ultimately repay (*i.e.*, the required margin was set at 20% of the value of the asset). Now, imagine that the stock price drops such that the market value of the client's position falls from \$25,000 to \$22,000: the client's equity would now be worth \$2,000 (\$5,000 minus \$3,000), significantly below the margin rate of 20% (which, based on the new market value, would require margin of \$4,400).



In the absence of dynamic margining, Prime Brokerage’s required margin of 20% would have eroded to 9%. If, instead, dynamic margining applied, Prime Brokerage would require the client to post \$2,400 in additional margin to bring the client’s margin level up to 20% of the new market value of the account.¹⁰

This example is simplistic, as it considers only market price movements in a static portfolio comprised of a single stock position. However, the dynamic margin rules might be triggered based on numerous other developments in a more realistic client portfolio, and require the client to post more (or less) margin. For example, a client might be required to post more margin if additional trades cause the client’s position in a particular stock to surpass a concentration threshold, triggering a concentration add-on under the governing rules, or if additional transactions or market price movements result in the client’s portfolio becoming more directionally biased and triggering a bias add-on.¹¹

¹⁰ If the stock in this example had instead appreciated to \$27,000, the margin of \$5,000 would no longer equal 20% and another \$400 of margin would be due to reach the 20% level.

¹¹ Certain regulatory bodies prescribe minimum levels of margin that must be posted by clients. For example, FINRA Rule 4210 establishes margin requirements for FINRA-regulated entities. Under Rule 4210(g)(2), any equity security-based eligible product in a portfolio margining account that is not a broad-based market index product receives a +/- 15% valuation point range. This effectively establishes a floor of 15% margin for Prime Brokerage clients trading on FINRA-regulated portfolio margining platforms. Thus, CS Prime Brokerage requires that its clients, like Archegos, trading on Credit Suisse Securities (USA) LLC (“CSSU”), a FINRA-regulated entity, post margin at *the higher of* 15% or the level required under the Prime Brokerage dynamic margining rules agreed with the client. Accordingly,

Prime Brokerage is intended to be a low-risk business. While Prime Brokerage clients own their underlying positions, these are pledged as collateral to their Prime Broker. But margin provides protection against market movements that might reduce the value of the collateral below the amount due to the Prime Broker. To manage this risk, it is critical that the Prime Broker calculates and receives adequate margin—taking into account the client’s creditworthiness and the potential risk factors of the client’s portfolio.

2. Prime Financing

CS’s Prime Financing offers clients access to certain derivative products, such as swaps, that reference single stocks, stock indices, and custom baskets of stocks.¹² These swaps allow clients to obtain “synthetic” leveraged exposure to the underlying stocks without actually owning them. As in Prime Brokerage, CS earns revenue in Prime Financing from its financing activities as well as trade execution.¹³

To illustrate how synthetic financing works, consider the following example, in which a client with \$5,000 wants to gain exposure to \$25,000 of a particular stock.

The client could pursue traditional, “cash” securities financing from its Prime Broker. Assuming a 20% margin requirement, the client could borrow \$20,000 on margin from CS and purchase \$25,000 of the stock. The client would be responsible for

during the relevant period, Archegos’s margin in its Prime Brokerage portfolio never fell below 15% of the mark-to-market value of the portfolio.

¹² Prime Financing offers clients synthetic exposure to other products as well, including futures and exchange-traded funds (“ETFs”).

¹³ CS receives commissions on trades based on an agreed-upon dollar amount per share executed in the trade (*e.g.*, 4 cents per share).

paying back the \$20,000, plus interest. The Prime Broker would have no direct exposure to the stock purchased by the client, but would hold it as collateral.

Alternatively, the client could obtain synthetic exposure to the same stock without actually purchasing it. As just one example of how such synthetic financing might work, the client would enter into a derivative known as a total return swap (“TRS”) with its Prime Broker. Again, assuming a margin requirement of 20%, the client could put up \$5,000 in margin¹⁴ and the Prime Broker would agree to pay the client the amount of the increase in the price of the asset over \$25,000 over a given period of time. In return, the client would agree to pay the amount of any decrease in the value of the stock below \$25,000, as well as an agreed upon interest rate over the life of the swap, regardless of how the underlying stock performed.

In the case of CS, the Prime Brokerage unit provided traditional cash financing, while Prime Financing provided synthetic financing. Specifically, traders on the Delta One desk¹⁵ in Prime Financing would execute the swaps trades. Because the objective of the Delta One desk was to be market-risk neutral, typically, upon entering into a TRS, the trader would immediately hedge CS’s market exposure in the transaction by purchasing \$25,000 of the stock in question.¹⁶ Ultimately, the trader might seek to enter a TRS in the opposite direction (*i.e.*, with a client who wants exposure to any decrease in the value of the stock). Such offsetting TRS would also hedge Prime Financing’s market risk

¹⁴ As discussed *infra*, this amount of collateral required at the execution of a swap in Prime Financing is referred to as “initial margin.”

¹⁵ The name of the Delta One desk is derived from the financial term “Delta,” which refers to the change, or sensitivity, of the price of a derivative to a change in the value of the underlying asset. A Delta of one implies a one-for-one change in relation to the value of the underlying asset. Thus, a Delta One desk, as the term implies, trades linear (sometimes referred to a “vanilla”) derivative instruments, including, for example, TRS, where the value of the trade is a linear function of changes in value to the referenced asset.

¹⁶ The price of hedging the swap would dictate, in part, how much CS would charge the client for the swap.

in the initial transaction, leaving it market-risk neutral, and allowing Prime Financing to sell the stock hedge. Using an offsetting TRS would mean that the synthetic client position would now be offset with a synthetic hedge position, which is more efficient from a balance sheet and/or funding perspective.

The economics of cash and synthetic financing look largely the same, as depicted in Table 1, which uses the same example with two different price movement outcomes to show what happens at the end of the transaction, when the position is unwound:

Table 1		
Outcome	Cash Financing	Synthetic Financing
Value of stock increases from \$25,000 to \$28,000	<ul style="list-style-type: none"> - Stock is sold for \$28,000 - Client repays CS \$20,000 plus interest - Client earns \$3,000 profit (less interest) on \$5,000 investment - CS earns agreed-upon interest 	<ul style="list-style-type: none"> - CS pays client \$3,000 (less interest)¹⁷ and returns \$5,000 investment - CS sells stock hedge for \$28,000 - Client earns \$3,000 profit (less interest) on \$5,000 investment - CS loss on client-facing TRS is offset by gain on market-facing stock hedge - CS earns agreed-upon interest
Value of stock decreases from \$25,000 to \$22,000	<ul style="list-style-type: none"> - Stock is sold for \$22,000 - Client repays CS \$20,000 plus interest - Client loses \$3,000 plus interest on \$5,000 investment - CS earns agreed-upon interest 	<ul style="list-style-type: none"> - Client pays CS \$3,000 (plus interest)¹⁸ and returns \$5,000 investment - CS sells stock for \$22,000 - Client loses \$3,000 plus interest on \$5,000 investment and CS returns \$5,000 investment - CS gain on client-facing TRS is offset by loss on market-facing stock hedge - CS earns agreed-upon interest

¹⁷ Interest is calculated based on the initial value of the position (\$25,000).

¹⁸ As noted *supra*, interest is calculated based on the initial value of the position (\$25,000).

Swaps require both initial and variation margin. Initial margin refers to the collateral a counterparty is required to post when a trade is executed. Variation margin refers to collateral posted to cover a party's exposure to its counterparty based on movements in the value of the parties' positions during the life of the trade. CS calculates mark-to-market movements in the parties' trading positions on a daily basis to determine the level of exposure, which determines whether collateral (*i.e.*, variation margin) must be transferred between the parties to cover this exposure.

In our example, the client posted \$5,000 in initial margin and, in return, CS agreed to pay the client the amount of increase in the price of the asset above \$25,000 over a given period of time, while the client agreed to pay the amount of any decrease in the value of the stock below \$25,000. If the stock price declines tomorrow, such that the position is now worth \$20,000, the client will be obligated to post \$5,000 in variation margin based on this change in exposure.¹⁹ If, instead, the stock price appreciates the next day and the position is now valued at \$30,000, CS will be required to post \$5,000 in variation margin.²⁰

While daily price movements over the life of the swap will directly impact variation margin, their effect on initial margin will depend on whether the swaps are subject to static or dynamic initial margining. With dynamic margining, as discussed above in the context of Prime Brokerage, the initial margin will be re-calculated based on changes in the market value of the position, among other factors. Thus, if the stock price appreciates

¹⁹ In practice, a call for variation margin will typically be forwarded the following morning with payment due that same day.

²⁰ CS is only obligated to pay this variation margin if the client calls it. To the extent the client chooses not to do so, the uncalled variation margin is considered "excess margin" that is held by CS, but which the client is entitled to call at any time.

from \$25,000 to \$30,000, CS will be required to post \$5,000 in variation margin, as discussed above, but the initial margin of \$5,000 will need to be increased by \$1,000 to bring it up to 20% of the current value of the position; thus, on a net basis, CS will only pay the client \$4,000.

By contrast, with static initial margin, the dollar value of the initial margin set at the trade's inception based on the then-current market value of the position does not change over time, regardless of future changes in the position's market value (or other factors). Thus, if static initial margin applies to our example, CS will be required to post \$5,000 in variation margin to cover the price movement, but the initial margin of \$5,000 will remain unchanged even though it no longer constitutes 20% of the current market value of the position (\$30,000). Under a static initial margin regime, CS will post \$5,000 in variation margin to cover the price appreciation, and its initial margin level will erode to 16.7% of the position's current value—this is called “margin erosion.” The erosion of margin effectively increased the leverage offered by CS to the client, from 5x to 6x.



Prime Financing historically used a static margining regime; its systems infrastructure did not support dynamic margining. However, dynamic margining was

available for those CS clients whose Prime Financing swaps portfolio and Prime Brokerage cash portfolio were booked through the same legal entity. In those cases, it was possible (if the client agreed) for CS to achieve dynamic margining of a client’s swaps portfolio through a cross-margining process for both swap and cash portfolios. Both portfolios would be combined and run through Prime Brokerage’s Prime Margin system each day. The Prime Margin system would apply the client’s Prime Brokerage dynamic margining rules (typically a base margin rate plus add-ons based on market or portfolio characteristics) across the combined portfolios and generate a single margin requirement each day. While dynamic swap margining was achievable for certain Prime Financing clients, this option was not available for U.S. clients. Under SEC rules, CS was required to book the Prime Brokerage portfolios of U.S. clients in a U.S. entity—here, Credit Suisse Securities (USA) LLC (“CSSU”), but CSSU does not trade OTC derivatives and thus U.S. clients’ Prime Financing portfolios could not be booked in the same entity or cross-marginated with their Prime Brokerage portfolios. As discussed *infra* Section II.D.2, a working group was formed at CS in 2020 to build out dynamic margining capability more generally for Prime Financing swaps portfolios, but only a few clients had been moved to the newly developed platforms before Archegos’s default in March 2021.

Because the initial margin for U.S. Prime Financing clients was static in dollar terms (rather than dynamic), the initial margin as a percentage of the position being financed could erode over time as the value of the portfolio appreciated.²¹ When the initial

²¹ While it would have been possible for CS to manually calculate the daily mark-to-market values of any Prime Financing client’s swap positions and to update the client’s margin requirements each day to prevent any margin erosion, this time-consuming, manual process was only pursued for one or two clients that specifically requested it. It was never considered for Archegos notwithstanding the fact that, in 2019 (see *infra* Section II.C.3), CS reached an agreement with Archegos to lower the standard margins on swap positions that specifically envisioned a form of dynamic margining—that is, margins would

margin eroded, the effective leverage CS offered the client on the position increased, thereby increasing the risk to CS.

Static margin erosion was exacerbated by so-called “bullet swaps,” the form of TRS typically executed by Archegos with Prime Financing. Bullet swaps, as that term was used at CS, are swaps with a term greater than one year that do not reset periodically based on current market values.²² Some Prime Services clients wanted to enter into bullet swaps ostensibly for tax purposes: they believed bullet swaps do not trigger intermediate tax events (as most resetting swaps do), thus allowing clients to benefit from long-term capital gains treatment at the termination of the swap. However, the same combination of factors—static margin, no reset, relatively long holding periods—exposed CS to the risk of substantial margin erosion over the life (>12 months)²³ of the bullet swap given the lengthy period of time over which the client’s position might appreciate without any contractual mechanism to reset the dollar value of initial margin posted based on the appreciated value of the position.²⁴

Prime Financing, like Prime Brokerage, is *supposed* to be a relatively low-risk business. As with Prime Brokerage, Prime Financing hedges its market risk (either by purchasing the underlying stock or by entering into an offsetting swap) and Prime Financing relies on initial margin to protect against credit risk: in the case of a client

increase based on changes in the portfolio—when tiered liquidity thresholds for particular stocks were breached.

²² This is distinct from other equity swaps that regularly “reset” over time—often on a monthly basis—to essentially re-strike the trade at the current market value and pay out the difference between the position value at the beginning of the reset period and the end of the reset period, which also leads to resetting initial margin in light of the then-current market value of the position.

²³ Indeed, the typical tenor of Archegos’s bullet swaps was 24 months.

²⁴ In light of the additional risk posed by bullet swaps, CS imposed a five basis point upcharge to the financing cost if a client wanted to enter a bullet swap. However, as CS employees acknowledged, this was an insignificant charge, given the risk introduced by bullet swaps.

default, initial margin is designed to cover potential adverse market movements from the point of default until Prime Financing is able to sell the stock or re-hedge. The key, however, is ensuring a client's swaps portfolio is margined adequately over time, taking into account the client's credit quality and the potential risk factors of the client's portfolio.

3. Risk Management for Prime Services

Prime Services risk is monitored and managed on a daily basis by both the first and second lines of defense. The business is the first line of defense and is charged with safeguarding CS from loss. Prime Services also has a dedicated, in-business risk function, PSR (Prime Services Risk). PSR must approve the margin rates set by traders for client trades, and is responsible for monitoring client activity to ensure that it stays within risk limits (prescribed by the second line of defense, as discussed below), as well as running and reviewing analytics and portfolio-level stress loss scenarios designed to flag concerning client exposures. PSR also assists in managing the risk presented by a client's portfolio, including communicating directly with the client about portfolio characteristics, such as directionality and concentration, and/or the need to increase margin. A dedicated PSR analyst is assigned to each Prime Services client. The Head of PSR reports directly to the head of Prime Services.

Risk is the second line of defense, and is independent from the business. In particular here, CRM (Credit Risk Management) is responsible for all aspects of credit risk across CS businesses. CRM has a Counterparty Credit Risk unit and, within it, a sub-unit that specializes in Hedge Funds. As with PSR, a dedicated CRM Hedge Fund analyst is assigned to each Prime Services client.

For each hedge fund client, a CRM analyst performs an annual credit review, during which she or he assigns the counterparty an internal CS credit rating and recommends risk-related limits on trading—including PE (potential exposure) limits and scenario limits—within which Prime Services must operate. This internal rating is generated in part from information provided by the fund, including, at a minimum: (1) yearly audited financial statements, (2) monthly NAV, and (3) fund performance. The disclosure requirements for each fund are independently negotiated between the fund and CS.

CRM generally has limited visibility into the overall portfolios, trading activities, and practices of its hedge fund counterparties—and, in particular, family offices like Archegos—beyond what is visible from the counterparty’s activities with CS. While hedge fund counterparties (including family offices) must provide CRM with certain basic information, applicable regulatory regimes do not require hedge funds to publicly report other information typically required for many institutional corporate clients that can be helpful in assessing the client’s overall creditworthiness. Additionally, TRSs are exempt from public reporting requirements, further reducing the amount of information available about counterparties’ portfolios. Family offices are even more opaque as they are exempt from many of the regulatory reporting rules applicable to hedge funds (and other financial institutions)—for example, family offices are not required to disclose credit exposure to their largest counterparties. *See, e.g.,* 17 C.F.R. § 279.9 Form PF, § 23.3.²⁵

²⁵ In practice, hedge fund clients differ in the amount of additional information they are willing to provide to CRM and some provide only the minimum required information. Former and current CS employees described Archegos’s level of disclosure as “average” compared to other hedge funds, as it disclosed, among other data, its ratio of unencumbered cash, other prime brokers, the concentration of its top positions relative to its NAV, leverage, and asset liquidity, *see infra*.

CRM's counterparty credit rating system is referred to as the Hedge Fund Rating Model ("HFRM"). The HFRM is a scorecard that incorporates both quantitative factors—*e.g.*, total capital of the fund (NAV), unencumbered cash ratio,²⁶ and long-term volatility²⁷—as well as qualitative factors—*e.g.*, asset liquidity, portfolio diversification, stability of funding structure, transparency and reporting, and redemption terms. The model weights the quantitative and qualitative assessments equally, though within each category various factors have different weights. The resulting combined rating is then adjusted, or "notched," based on CS's pre-determined risk levels associated with various hedge fund trading strategies.²⁸

CRM can also add additional, optional inputs for stability of management team (average tenure of managers in the hedge fund), the length of the fund's redemption and lock-up periods, the quality of the fund's investor base, and the fund's risk controls and infrastructure. Finally, CRM can "override" the model as necessary, where, for example, data inputs are misleading or outdated, relevant information is not covered in the model, or there is a mismatch between a fund's NAV and its implied risk.

In connection with its due diligence, CRM is privy to non-public information that Prime Services (including PSR) is walled off from receiving, including a client's NAV, unencumbered cash reserves, and any information the client shares about its portfolio held outside of CS.²⁹ Additionally, PSR is walled off from receiving CRM's

²⁶ The percentage of NAV held in cash or near-cash assets or excess borrowing power at Prime Brokers.

²⁷ The standard deviation of monthly returns over the most recent 60-month period or since inception if shorter, converted to annual equivalent figure.

²⁸ For example, a fund may be "notched" for having an unbalanced or "tilted" long/short strategy. A low imbalance (less than 3x) does not result in notching, but a more unbalanced fund (3-5x, 5-7x, or >7x) will be notched down (-1, -2, or -3).

²⁹ However, clients may choose to share such information with PSR, and Archegos appears to have done so, at least to some extent.

specific assessments, including the annual counterparty credit reviews, and the client's CRM-assigned internal credit rating. PSR is only told a client's NAV level within a range³⁰ and whether a client's credit rating is generally high, medium, or low. PSR is walled off from this type of information because it is non-public, competitively sensitive, and could affect trading decisions (*e.g.*, PSR could theoretically communicate this information to Prime Service traders who could theoretically use knowledge of a client's other positions or liquidity concerns to trade).

However, the specific risk limits that CRM sets for a client—including PE and scenario limits—are shared with PSR, and both PSR and Prime Services more generally are expected to supervise and manage the client relationship to ensure that the risk exposures stay within the prescribed limits.

PE is the primary risk measure for monitoring counterparty credit exposure, *i.e.*, “[t]he risk that a counterparty will default on its obligation to CS before settlement.” The PE of a counterparty's portfolio of transactions “refers to an exposure profile measured with regard to a certain confidence level.” For counterparty credit risk exposures that, like Archegos, “arise in the context of trading financial instruments,” CS calculates PE to the 95% confidence level.

Scenario analysis is the process of estimating the expected value of a portfolio after a given period of time, assuming specific changes in the values of the portfolio's securities or certain events taking place, for example a change in the interest rate or a 20% across-the-board decline in securities markets. Scenario limits are “the

³⁰ According to CRM witnesses, CRM only communicates client NAV to Prime Services employees in broad buckets (*e.g.*, <\$1 billion, > \$1 billion, etc.).

maximum exposure [CS] and individual CS legal entities are willing to accept in a stress situation using Primary Severe Event Scenarios.”³¹ Within PSR and CRM, scenario exposure is considered a more helpful risk analysis tool than PE in assessing the risk of Prime Services counterparties, not only because, as discussed *infra*, CS had concerns with the reliability of PE numbers calculated in 2020 and 2021, but also because scenario exposures look at large instantaneous market moves that offer different and more easily understood metrics of particular lower probability events. PE metrics, by contrast, are not instantaneous, but instead are calculated across the life of the exposure and, while they factor in a range of parameters missing from scenario analyses, PE measures these only to a 95% confidence level, thus ignoring the lowest probability tail exposures in the distribution.

While there are restrictions on the information CRM can share with PSR, there are no such limits on what PSR can share with CRM, and PSR shares considerable information, including the results of analytics run by PSR and the substance of conversations with the clients.

³¹ CRM monitors counterparties according to a standard set of 10 Primary Severe Event Scenarios. These scenarios are based on stand-alone increases or decreases in five asset classes (equities, interest rates, foreign exchange, credit spreads, and commodities). CRM calculates scenario exposures for each counterparty, generating an exposure report that compares the maximum exposure across the scenarios to the scenario limit set by CRM to determine whether a breach has occurred. The most pertinent Severe Event Scenario for Archegos during the relevant period, a **Severe Equity Crash** scenario, simulates a 30% decrease in equity prices in developed markets and a 45% shock in emerging markets and Japan.

CRM also uses other standard scenarios in evaluating client portfolios, including, as relevant to Archegos, a less punitive **Bad Week Equity Crash** scenario, which simulates a 20% decrease in equity prices in developed markets and a 30% shock in emerging markets and Japan. However, the official scenario limits are based on the Severe Event Scenarios.

4. Resources and Responsibilities in Prime Services and CRM

In recent years, CS has cut costs throughout the IB.³² Current and former employees in Prime Services shared their belief that these cost reductions led to significant headcount reductions, and a less senior, less experienced workforce. They reported that, coupled with their perception of a push to expand revenues, Prime Services (including PSR) was resource constrained. Risk was not immune from the cost-cutting measures; we understand that from 2019 through Archegos's default, roughly 40% of managing directors in Risk departed CS (the majority of these departures were involuntary) and were replaced in large measure by existing CS directors who were promoted to managing director,³³ resulting in a significant reduction in Risk officer experience bank-wide. At the same time, resources at less senior levels of the Risk organization, including in the U.S. Hedge Fund group, were particularly stretched.

(a) Senior management responsibility and under-resourcing in the Prime Services business

From 2015 to 2020, the managing director and director head count within the Prime Services business decreased substantially. Many roles and responsibilities within Prime Services were consolidated and CS filled senior roles that had been vacated

³² Credit Suisse, Earnings Call Transcript, Q3 2017, at 25–26 (2017); Credit Suisse, Revised Earnings Release Q42016, at 25–26 (2015); Paul Clarke, *Credit Suisse Unveils Sweeping Overhaul and Cost-Cut Plan as New CEO Makes Mark*, FINANCIAL NEWS (July 30, 2020), <https://www.fnlonon.com/articles/credit-suisse-unveils-sweeping-changes-to-struggling-investment-bank-20200730>; Michael Shields, *Credit Suisse steps up cost and job cuts in investment banking*, BUSINESS INSIDER (Mar. 23, 2016) available at <https://www.businessinsider.com/r-credit-suisse-steps-up-cost-and-job-cuts-in-investment-banking-2016-3>; Chad Bray & Liz Moyer, *Credit Suisse Chief says risky bets were a 'surprise'*, N.Y. TIMES (Mar. 23, 2016) available at <https://www.nytimes.com/2016/03/24/business/dealbook/credit-suisse-cost-cutting.html>; Chad Bray, *Credit Suisse to Eliminate 5,500 Jobs in Latest Cost-Cutting Drive*, N.Y. TIMES (Feb. 14, 2017) available at <https://www.nytimes.com/2017/02/14/business/dealbook/credit-suisse-jobs-loss.html>.

³³ In 2019, CS had 94 managing directors in the Risk function; by the end of March 2021, 37 of these managing directors had departed CS. Although CS replenished its managing director ranks during this time period, approximately 80% of new managing directors in Risk were the result of internal CS promotions, rather than external hiring.

by elevating junior members of the Prime Services team. While undoubtedly an effective cost-savings measure, these cuts appear to have resulted in an overall decline in the level of relevant expertise and experience among Prime Services' personnel. Specifically, in Prime Services Americas, the total headcount decreased 44%, with managing director and director head counts decreasing by 54% and 33%, respectively, over this time period. In Prime Services EMEA,³⁴ the total headcount decrease was 39%, with managing director and director head counts decreasing by 23% and 43%, respectively. In addition, and with particular relevance to Archegos, the number of traders on the U.S. Delta One flow trading desk was reduced from six to three in 2019.

At the same time, CS did not reduce the size and breadth of the Prime Services business: indeed, senior management was focused on increasing revenue. As a result, the significantly smaller Prime Services team struggled to handle more work with less resources and less experience.

Additionally, there was an apparent misunderstanding within Prime Services leadership about the division of responsibilities for overseeing the business during the time period at issue. Beginning in June 2019, the Prime Services business was led by two Co-Heads, one of whom had previously overseen Prime Brokerage (the "Prime Brokerage Head") and one of whom had previously overseen Prime Financing (the "Prime Financing Head"). After becoming Co-Heads of Prime Services, they remained responsible for these respective areas of the business. Additionally, at the beginning of 2020, they received additional duties, with the Prime Brokerage Head (who was based in

³⁴ EMEA covers Europe, Middle East, and Africa.

New York) being named the Head of Americas Cash Equities Sales, and the Prime Financing Head (who was based in London) becoming the Head of EMEA Equities.

The U.S.-based Co-Head stated that he had responsibility for Prime Brokerage and did not supervise or have responsibilities for Prime Financing in the United States or elsewhere. The U.K.-based Co-Head asserted that the division of labor between the two Co-Heads became more regional during the COVID-19 pandemic and that he was in charge of all EMEA businesses, while the U.S.-based Co-Head was in charge of all businesses in the United States.³⁵ In all events, neither of the Co-Heads of Prime Services believed he was specifically responsible for supervising CS's relationship with Prime Financing clients in the United States—including Archegos.³⁶ Indeed, neither claimed any particular familiarity with Archegos (including its persistent limit breaches) before the default, notwithstanding that Archegos was among Prime Services' top 10 clients throughout the period, ultimately becoming its third largest hedge fund counterparty by gross exposure before its default. What is more, PSR sent both Co-Heads, together with the Head of Equities, a Consolidated Prime Services Weekly Client Update ("Weekly Client Update") that provided bespoke risk reporting on four to six counterparties identified by CRM and PSR as warranting specific attention from senior management for a variety of reasons (including because they were running large exposures, had a particularly aggressive margin framework, or otherwise presented significant risk), and Archegos was

³⁵ According to the U.K.-based Co-Head of Prime Services, there was an entirely separate Head of APAC Prime Services, who focused exclusively on the APAC (Asia Pacific) region.

³⁶ Notably, during the COVID-19 pandemic, certain U.S.-based personnel, including traders on the Delta One desk, were all working remotely and therefore were not interacting in the office with each other or with either of the Co-Heads of Prime Services.

included among the select group of counterparties on these Weekly Client Updates from November 2019 through March 2021.

(b) Resource and attrition issues in PSR

Like the rest of Prime Services, the PSR team in New York lost senior members of its team in the years leading up to 2020. For example, between 2017 and 2020, PSR lost three directors who either were not replaced or were replaced with junior employees with far less risk experience. In January 2017, PSR in the United States was comprised of two managing directors, four directors, and three vice presidents. By January 2021, PSR in the United States was comprised of one managing director, four directors, one vice president, and two associates—and most of the employees with senior titles did not have the kind of experience that only a few years earlier had been customary within PSR.

In February 2020, the Head of PSR died in an accident. To replace him, the Co-Heads of Prime Services, together with the Head of Equities, chose a managing director who had worked on the Delta One trading platform for 13 years in a sales and marketing role. While this new Head of PSR was a 20-year veteran of CS (and had worked in structuring on a trading desk early in his career), he had never before worked in a risk role at CS or elsewhere. By that time, the team of experienced risk personnel was already depleted—indeed, the new Head of PSR was the only managing director in PSR in the United States. In addition, the PSR team was generally stretched thin and overburdened. As an illustration, the analyst covering Archegos said that when he was in the Client Services division of Prime Services he covered approximately 15-20 clients (not including

Arhegos), but when he moved to PSR in 2015, he became responsible for covering approximately 100 counterparties.

On September 3, 2020, at least one member of CRM, speaking frankly in a contemporaneous email to another CRM employee, expressed doubt that PSR was still reliable as a first line of defense, given the loss of senior expertise and leadership.

(c) Resource issues in CRM

CRM in the United States was similarly under-resourced and overburdened. At least one Director of Hedge Fund Counterparty Risk in EMEA observed that his colleagues in the United States had insufficient personnel to perform their duties. This director stated that while he had complained that his CRM Hedge Funds team in EMEA was overburdened, he said that this paled in comparison to the overtaxing of the Hedge Fund team in the United States, which had fewer employees and was responsible for monitoring more counterparties. He described the U.S. CRM Hedge Fund team as putting out “flames with pales [sic] of water” rather than the “hose pipes” available to other CRM teams.

Senior members of CRM agreed; they said that the U.S. CRM Hedge Fund group was often “playing catch up” on its tasks—including annual counterparty credit reviews and the investigation of limit breaches—not because CRM personnel were shirking their responsibilities, but because they did not have the resources to complete their work in a timely manner.

These challenges were exacerbated by limitations in the counterparty information available to CRM. CRM and PSR access counterparty information on a day-to-day basis through separate data access systems/portals. CRM’s primary data portal,

“Insight,” allowed CRM to view a counterparty’s aggregated holdings, but did not display position-level information. Without this information, CRM could not understand the counterparty’s portfolio at a more granular level, and could not independently run standard scenarios or model bespoke scenarios.³⁷ Instead, CRM would be required to ask PSR for this information.³⁸

Indeed, following the Malachite default in March 2020 (*see infra*), IA conducted a review of CRM’s oversight of counterparty credit risk within IB trading products. IA’s report (released on October 29, 2020) gave CRM a “C-” rating, reflecting that the overall counterparty credit risk control environment required “improvement.” The report noted that the new S-EF PE model implemented in January 2020 and extreme market volatility in March 2020 “impacted the size and volatility of the PE measures, exposing control weaknesses in how management timely address limit breaches.” The IA report specifically found that limit excesses were not timely remediated, noting that there were 180 active (*i.e.*, caused by new trading or collateral activity) open limit excesses with an average age of 47 days, and 824 passive (*i.e.*, breach due to market events) open limit excesses with an average age of 100 days. IA concluded that the lack of established timelines for excess remediation contributed to delays, that the limit excess monitoring process was too reliant on credit officers’ judgment and required additional controls, and

³⁷ Historically, CRM only received official reports of scenario breaches—in which the scenario exposure data have been vetted and “scrubbed” for reliability—once a month, at month’s end. Accordingly, the scenario breach data CRM received was generally weeks old. Beginning in 2020, CRM was able to access un-scrubbed, unverified scenario exposure numbers twice a week on Insight. These data became available as a result of remedial measures put in place following IA’s review of CS as a result of the Malachite hedge fund default. That review, which is discussed *infra* Part D.3., identified the consistent time lag on scenario data as a problem that had contributed to the Malachite losses and required remediation.

³⁸ As discussed *infra* Section II.C.2, beginning in 2017, PSR produced and provided to CRM weekly bespoke risk reporting on Archegos’s Prime Services portfolios.

that the data controls used were not effective and were not providing accurate exposure calculations. Among numerous other contributing factors, inadequate headcount would appear to be a significant factor in the delay in timely remediating limit breaches.

B. CS's Early Relationship with Archegos (2003–2016)

1. Beginning of CS's Relationship with Archegos

CS's involvement with Archegos began in 2003, when a predecessor fund, Tiger Asia Management, LLC ("Tiger Asia"), became a client of CS. Tiger Asia was founded in 2001 by Sung Kook "Bill" Hwang, who had previously worked at Julian Robertson's Tiger Management Corp., one of the largest hedge funds of the 1990s. Hwang's Tiger Asia was one of the so-called "Tiger Cubs," a group of hedge funds started by alumni of Robertson's Tiger Management Corp. and seeded with start-up capital by Robertson.

In the beginning, Tiger Asia's activity was limited to cash equities trading with CS's Asian equities desk. Tiger Asia became a client of Prime Services in 2005, when it began trading equity swaps. As Tiger Asia expanded its relationship with CS, its trading continued to focus on equities in Korea, Japan, and Greater China. By 2010, Tiger Asia generated approximately \$13 million of revenue annually for CS, and CS understood that Morgan Stanley, Goldman Sachs, and Deutsche Bank were Tiger Asia's other prime brokers. Because Tiger Asia was based in the United States, it was covered by Prime Services out of New York, notwithstanding the Asian focus of Tiger Asia's investments at that time.³⁹ The PSR and CRM analysts assigned to the client were also based in New York.

³⁹ This was not unique to Tiger Asia: CS generally covers clients based on the client's location rather than the location (or orientation) of the client's investments.

During its relationship with CS, Tiger Asia’s capital base declined dramatically as a result of poor performance. In July 2008, Tiger Asia had a capital base of \$9.25 billion. Its capital base had shrunk to \$4.1 billion by July 2009; \$3.14 billion by July 2010; and \$1.02 billion by July 2011. As its NAV declined, CRM downgraded the fund’s rating, dropping it by one grade in 2009 from BB- to B+, holding the rating steady in 2010, and downgrading it again in 2011 from B+ to B.⁴⁰

2. Regulatory Issues and Transition to a Family Office

On December 12, 2012, Tiger Asia,⁴¹ Hwang, and Hwang’s “head trader,” Raymond Park (together, the “Tiger Asia Defendants”) entered into a settlement with the SEC concerning allegations that they “committed insider trading by short selling three Chinese bank stocks based on confidential information they had received in private placement offerings.”⁴² The SEC settlement also resolved claims arising from the attempt to “manipulate the prices of publicly traded Chinese bank stocks in which Hwang’s hedge funds had substantial short positions by placing losing trades in an attempt to lower the price of the stocks and increase the value of the short positions,”⁴³ thus “enabl[ing] Hwang and Tiger Asia Management to illicitly collect higher management fees from investors.”⁴⁴

⁴⁰ The rating system is organized in eight tiers, ranging from companies that pose very little credit risk to companies that pose significant risk. The eight tiers, from top to bottom, are as follows: AAA; AA+ to AA-; A+ to A-; BBB+ to BBB-; BB+ to BB-; B+ to B-; CCC+ to CCC-; and CC+ and below.

⁴¹ The Tiger Asia parties that settled with the SEC included Tiger Asia Management, LLC and Tiger Asia Partners, LLC. Press Release, SEC, *Hedge Fund Manager to Pay \$44 Million for Illegal Trading in Chinese Bank Stocks* (Dec. 12, 2012). Tiger Asia Management LLC was an unregistered investment adviser and investment manager to Tiger Asia Overseas Fund, Ltd., and was responsible for administrative matters relating to the Tiger Asia Fund, L.P. Tiger Asia Partners, LLC served as the unregistered investment adviser and general partner of Tiger Asia Fund L.P. Hwang owned and controlled Tiger Asia Partners. See Complaint at ¶¶ 7-8, *S.E.C. v. Tiger Asia Management, LLC, et al.*, No. 12-cv-7601 (Dec. 12, 2012).

⁴² Press Release, SEC, *Hedge Fund Manager to Pay \$44 Million for Illegal Trading in Chinese Bank Stocks* (Dec. 12, 2012).

⁴³ CS determined that none of the illegal trades were booked with or through CS.

⁴⁴ Press Release, SEC, *Hedge Fund Manager to Pay \$44 Million for Illegal Trading in Chinese Bank Stocks* (Dec. 12, 2012).

Hwang also pled guilty on behalf of Tiger Asia Management LLC to criminal wire fraud charges.⁴⁵ The SEC and U.S. Attorney's Office each issued press releases in connection with these resolutions,⁴⁶ which imposed both disgorgement of profits and penalty payments totaling \$44 million.

In 2012, in connection with, but prior to, settling the insider trading claims, Tiger Asia returned outside capital to investors and became a family investment office with approximately \$500 million of capital, approximately half the capital it previously held.⁴⁷ Tiger Asia was re-branded as Archegos Capital Management LLC and officially changed its name in February 2013.

In December 2013, Hwang was ordered to pay a penalty of HK \$45 million (approximately USD \$5.8 million) to 1,800 local and overseas investors affected by Tiger Asia's insider trading. In October 2014, a Hong Kong tribunal banned Hwang and Archegos from trading securities in Hong Kong for four years. As a result, Archegos shifted its equities trading strategy to focus on U.S. issuers as well as the ADRs of Asian issuers. The Hong Kong ban was lifted in 2018.

⁴⁵ Press Release, U.S. Attorney's Office for the District of New Jersey, *International Hedge Fund Pleads Guilty to Wire Fraud Scheme and Agrees to Forfeit More Than \$16 Million in Illegal Profits* (Dec. 12, 2012); Ltr. From U.S. DOJ to counsel for Tiger Asia re: Tiger Asia Management, LLC (Aug. 27, 2012) (setting forth the plea agreement between Tiger Asia and the U.S. Attorney's Office for the District of New Jersey).

⁴⁶ Press Release, SEC, *Hedge Fund Manager to Pay \$44 Million for Illegal Trading in Chinese Bank Stocks* (Dec. 12, 2012); Press Release, U.S. Attorney's Office for the District of New Jersey, *International Hedge Fund Pleads Guilty to Wire Fraud Scheme and Agrees to Forfeit More Than \$16 Million in Illegal Profits* (Dec. 12, 2012).

⁴⁷ Hedge Fund Tiger Asia to Return Investor Money, Reuters (Aug. 13, 2012)(<https://www.reuters.com/article/togerasia-hedgefund/update-1-hedge-fund-tiger-asia-to-return-investor-money-idUKL4E8JE2XP20120814>).

3. Risk Review of Insider Trading Claims

CS employees in Sales and Trading, Risk, and Compliance were well aware of the insider trading allegations against Tiger Asia and the fact that Hwang and Tiger Asia were settling with U.S. and Hong Kong authorities. For example:

- CRM’s annual credit reviews of Tiger Asia from as early as 2009 reference the fact that the Hong Kong Securities and Futures Commission (“SFC”) was investigating potential insider trading charges against Hwang and Tiger Asia. And each subsequent review details developments in the Hong Kong enforcement litigation.
- On December 4, 2012—more than a week before the SEC and DOJ press releases—the senior account manager for Tiger Asia informed the then-Global Head of Prime Services and Co-Head of Global Securities, as well as the then-CRM Director of Hedge Funds and others that he had breakfast with Hwang and that Hwang asked him to pass along the fact that he would be resolving his SEC action and accepting an industry ban, and that he would continue to face legal action in Hong Kong. The senior account manager further reported that Hwang would continue to manage \$600M of his personal net worth, that his performance was up as much as 20% for the year, and that the “bottom line” is Hwang “still believes there are significant investment opportunities in Asia equities and expect[s] to take his gross leverage up from 110% to 200% as he is no longer concerned about investor liquidity needs” and “hopes to be a significant account for CS in the years to come.”
- On November 28, 2014, following the Hong Kong tribunal’s imposition of the trading ban, an employee in Prime Services/Equity Compliance in Hong Kong emailed a group of CS employees a series of detailed “[r]estrictions in dealing with Tiger Asia (renamed as ‘Archegos Capital Management LLC’).”
- In December 2014, CS’s U.S. Anti-Money Laundering (“AML”) team undertook a “Know Your Customer” (“KYC”) review of Hwang and his funds. The AML team ultimately cleared the client, determining that no further AML review or escalation was required.

Nonetheless, we have seen no evidence that Tiger Asia’s account received additional scrutiny by CS prior to—or even immediately following—the U.S. settlements or the Hong Kong ban. There is no indication that any additional steps were taken by CRM

to scrutinize potential credit risk arising from either the conduct addressed in the settlement, guilty plea, or trading ban. Indeed, CRM recommended upgrading Archegos's rating from B- in 2012 to B in 2013, and from B to B+ in 2014, despite simultaneously acknowledging the resolutions in the fund's August 2013 Annual Credit Review—and despite describing Archegos's "mediocre operational management practices/fraud risk" as a "weakness" of the fund and a detracting factor in CRM's ratings analysis. The report did not describe any supplemental informational requests made to Archegos in the wake of the settlement regarding its risk management policies and procedures. Nor did it describe any other steps taken to investigate the issue.

Under CS's Global Policy on Reputational Risk and the Chief Risk Office's Procedures for the Reputational Risk Review Process ("RRRP"), CS employees have an obligation to begin the RRRP when they identify "an action or transaction that may put the bank's reputation at risk." Under CS's Reputational Risk policies, it is the responsibility of the business to initiate the RRRP; the Reputational Risk group will review a Reputational Risk Review ("RRR") submission *after* it has been originated by the business and approved by a senior business employee who must "review the submission and consider whether the business is comfortable with any associated reputational risks related to the submission."

There is no indication that an RRRP was initiated by the business notwithstanding the highly publicized allegations, litigation, regulatory and criminal resolutions, and the Hong Kong ban. There is evidence that the question of submitting an RRRP was discussed on several occasions among CS employees from 2012 through

2014—including with the Americas Head of Reputational Risk, with whom such RRRP would need to be filed—but the business did not file a submission until 2015:

- In December 2012, APAC Compliance and Risk personnel discussed whether Tiger Asia should be submitted to Reputational Risk Review, but we have been unable to locate any suggestion that such a review actually occurred at that time.
- In or around November 2013, nearly a year after Hwang’s and Tiger Asia’s 2012 SEC and DOJ resolutions, the then-CRM Director of Hedge Funds emailed the Reputational Risk division in the United States and asked “whether there was ever a [Reputational Risk] submission for Archegos Capital Management.” His email included information about the Tiger Asia settlement. A Reputational Risk employee in the United States stated that she could not “find anything in the [Reputational Risk] database with that name.” We have found no additional written communications between the Reputational Risk employee and the CRO for the Americas on the subject.
- In January 2014, the then-CRM Director of Hedge Funds for the Americas emailed the same Reputational Risk employee (the “RR employee”) a summary of the Tiger Asia/Archegos insider trading and market manipulation charges and asked whether the issue had “ever come across [her] desk for risk review.” The RR employee referenced her earlier November 2013 exchange with the then-CRM Director of Hedge Funds, saying that was the “first and only time” she had heard about the issue. Again, we have found no evidence that the RR employee or then-CRM Director of Hedge Funds followed up on the subject.
- Around November 2014, the APAC Reputational Risk office and Hong Kong AML office were consulted following the Hong Kong trading ban and advised that “any US client relationship [should] be escalated to US Rep Risk for consideration,” noting that APAC offices were “not involved in th[at] process.” Nonetheless, we have found no evidence that anyone escalated the matter to the Americas Reputational Risk office at that time.

It was not until February 2015—years after the SEC and DOJ resolutions and months after the Hong Kong trading ban was imposed—that CS’s AML team in EMEA conducted a review of negative news and raised Archegos with the Americas Reputational

Risk group. EMEA urged the individual who covered Archegos in Prime Services in the United States to initiate an RRRP on Archegos, but he failed to do so. Americas Reputational Risk and the EMEA AML team chased this individual for months, and in April 2015, Americas Reputational Risk informed him that, if he failed to initiate the RRRP for Archegos, Reputational Risk would consider either closing the account or asking compliance to send him a “letter of education.” Only then did he make a formal submission on behalf of the business to Americas Reputational Risk to commence the RRRP.

That 2015 submission described Archegos as a long/short equity fund whose investing strategy has “evolved a bit” and was “less focused on Asia.” The CS revenues attributable to Archegos across Global Securities in 2014 were \$6.6 million, of which \$6.2 million was attributed to Global Prime Services. The business submission described the litigation, settlements, guilty plea, and trading ban and went on to state:

Credit Suisse is comfortable continuing its prime services relationship with Archegos Capital at this time as this was a one-time incident over a 20 yr plus career. Tiger Asia has been a significant prime services relationship to CS since 2008. We believe this is an isolated, one-time event. Mr. Hwang has accepted the verdict and subsequently paid the fine.

The business also submitted a three-page document from Archegos that summarized “the steps Archegos ha[d] taken post the January 2010 incident.” The document emphasized that Archegos had instituted “major changes . . . intended to make Archegos ‘best in class’ in terms of infrastructure and compliance as well as, of course, performance.” The business also informed the Americas and EMEA Reputational Risk offices for the Americas and EMEA that, notwithstanding its past legal troubles, Archegos continued to have relationships with two other prime brokers: J.P. Morgan and Morgan Stanley.

Reputational Risk approved the continuation of CS's business relationship with Archegos, concluding:

Based on the long standing and positive relationship with this client, absent this insider trading incident, the response the company has taken to improve their compliance process, the strong business support for this name, and the remediation of the wrong-doing, Rep Risk is comfortable with this name.

The RRR did not attach conditions to or limitations on future trading with Archegos.⁴⁸

However, EMEA Reputational Risk's comments in the RRR stated: "EMEA is okay to offer no objections to the submission on the basis that CSSEL [a U.K. entity] is not the primary trading entity and is only used for portfolio margining purposes. . . ." In fact, it appears that CSSEL was the "primary trading entity" in which Archegos's equity swaps were booked both before and after the RRR.⁴⁹

The business again submitted Archegos to the Reputational Risk group in 2018 to obtain permission to resume trading with Archegos in Hong Kong following the lifting of the trading ban. The 2018 RRR submission was in large measure identical to the 2015 version, although revenue attributable to Archegos had grown to \$14 million in 2017, of which \$13.5 million was attributed to Prime Services. Reputational Risk again concluded it was "comfortable continuing the [IB] relationship" for the reasons cited in 2015, and decided to permit trading in Hong Kong since the ban had been lifted, and Archegos had "implemented heightened compliance procedures." The compliance

⁴⁸ RRRs can be terminated, rejected, escalated to the regional CEO, approved, or approved with conditions. If an RRR submission is approved with conditions with respect to the on-going trading relationship, the business must certify that it will monitor the condition "on an ongoing basis."

⁴⁹ Because OTC derivatives trades could not be booked on CSSU, U.S. traders often booked swap trades on CSSEL (and later CSi), despite the fact that it was a U.K. entity. This process is referred to as "remote booking."

information attached to the 2018 submission was identical to that submitted in connection with the 2015 RRRP.

Notably, however, as part of the 2018 RRRP, U.S. and U.K. Financial Crimes Compliance (“FCC”) initially decided, on October 11, 2018, to “suspend [the Archegos] client relationship, with a view to off-board/terminate the relationship.” According to a member of U.K. FCC, this decision was made because there had been significant negative news about Tiger Asia and Hwang between 2012 and 2014, and there had not been an FCC review of the client following the transformation of Tiger Asia into Archegos. The FCC had told the U.K. Financial Conduct Authority (“FCA”) that it would conduct a review. In fact, the FCA had selected the Archegos KYC file for review in or around May 2018, and “some concerns were identified as to its completeness.” However, following pushback from the business, U.S. and U.K. FCC unanimously agreed to hold off on suspending the relationship and conducted diligence into whether there were any financial crimes concerns associated with Archegos and its transition from Tiger Asia. On October 15, 2018, U.S. FCC determined that it was comfortable maintaining the Archegos relationship and trading with Archegos in the Hong Kong market. On October 18, 2018, U.K. FCC followed suit.⁵⁰

⁵⁰ U.K. FCC filed a two-page memo with the 2018 RRR submission, concluding that it was comfortable continuing the relationship with Archegos because disgorgement and fines had been paid, which “mitigates the risk of Credit Suisse handling the proceeds of crime”; the alleged insider trading activity occurred a decade earlier; the Hong Kong cold shoulder order had expired; and “a number of peer tier-banks have maintained relationships with Hwang and his business entities.” That said, at least one Reputational Risk Approver on the EMEA Reputational Risk team was concerned about U.K. FCC’s change in position, noting that EMEA Reputational Risk “will need a strong rationale for why [the business is] comfortable trading with a client with such egregious insider trading incidents. It’s not a case of one bad employee who has subsequently been fired, but the firm’s principal in a small office being the offender and still being in situ.” Ultimately, however, EMEA and Americas Reputational Risk became comfortable and approved the 2018 RRR submission.

4. Archegos's Trading Profile After Its 2012 Rebranding

After rebranding in 2012, Archegos shifted its trading with CS away from Asian equities. By 2016, trades involving U.S. equities made up the majority of Archegos's portfolio at CS (although it maintained a significant interest in Korean, Japanese, and Chinese equities and ADRs). Archegos's investment strategy otherwise remained the same: like Tiger Asia, Archegos utilized a "fundamental research-driven long/short equity strategy focused on long-term (18 months to 3 years) value investing," with concentrations in "financial services, telecommunications and internet/media."

From the 2012 rebranding through 2016, Archegos's NAV grew steadily: \$500 million in 2012; \$955 million in 2013; \$1.905 billion in 2014; \$2.058 billion in 2015; and \$3.865 billion in 2016. At the same time, Archegos's PE limits—put in place by CRM during annual credit reviews—grew from \$2 million to \$8 million, and CRM's rating for Archegos increased several notches, from B- to BB-. CRM's annual credit reviews through 2016 do not indicate any incidents in which Archegos breached its prescribed risk limits, failed to meet any margin calls, or otherwise raised significant credit risk issues, and we likewise have uncovered no such incidents.

Over this time period, the credit reviews consistently characterize the fund's strengths as a "solid capital base," "experienced management team," "strong performance," and "appropriate use of leverage," while listing its weaknesses as "key man reliance," "volatile performance," "poor risk management practices and procedures," and "mediocre operational management practices/fraud risk." With respect to "poor risk management," the reports note (largely in identical language) that "Archegos does not operate with a formalized set of risk management policies and procedures, operates off informal

concentration guidelines, and does not use stop loss limits.” With respect to operational management and fraud risk, the reports (again, in largely identical language) focus on the fact that: “In December 2012, Tiger Asia Management admitted illegally using inside information to trade Chinese bank stocks and agreed to criminal and civil settlements of more than USD 60 million. Currently, CRM has no immediate concerns on the funds’ credit/risk profile when related to this litigation unless further action is taken against Archegos.”

C. Changes to Archegos’s Trading Profile (2017–2019)

1. Archegos’s Portfolio in 2017

In 2017, Archegos’s NAV dropped significantly, from \$3.865 billion to \$1.818 billion. CRM’s annual credit review does not examine this dramatic decline, presumably because it was connected to the liquidation of one of Archegos’s two funds, the assets of which Archegos intended to transfer into the remaining fund in the near future.⁵¹ In any event, CRM’s rating held steady at a “BB-”⁵² and its PE ceiling for Archegos remained at \$8 million.

As discussed *supra*, Archegos’s Prime Brokerage portfolio followed Standard Margin Procedure: it was margined using a base margin rate based on the country of origin of the asset with add-ons related to the market and portfolio characteristics (*e.g.*, liquidity, volatility, concentration, directionality). In May 2017, after changes in

⁵¹ As described in CRM’s 2017 annual credit review, the Archegos Overseas Fund Ltd. had “nearly fully liquidated” as of August 2017, and its assets would be consolidated with the Archegos Fund, LP, the only fund that was examined in the annual review.

⁵² CRM’s annual credit reviews for 2017 did not indicate any incidents in which Archegos breached its prescribed trading limits, failed to meet margin calls, or otherwise raised significant credit risk issues. The annual credit review characterized the fund consistently with the annual credit reviews submitted in 2012-2016, as described *supra*.

Archegos's portfolio triggered a 10% directional bias add-on, Archegos asked CS to excuse Archegos from paying the add-on because Archegos's short swaps portfolio offset its long-biased Prime Brokerage portfolio and, if combined, the portfolios would not trigger the bias add-on.

PSR and CRM agreed to remove the bias add-on from Archegos's Prime Brokerage portfolio on the condition that Archegos would be subject to weekly bespoke monitoring that tracked the bias of Archegos's combined portfolios across Prime Brokerage and Prime Financing.⁵³ As long as the bias of Archegos's combined portfolio did not exceed 75%—that is, as long as it was neither 75% short or 75% long on an aggregate basis—Archegos would not be obligated to pay additional initial margin based on directional bias.⁵⁴

In November 2017, however, Archegos's portfolio crossed the 75% threshold with a 77% long bias. PSR raised this issue with the broader Prime Services group, reporting that the team had asked Archegos to add \$100 million in additional short positions to combat the long-tilt of its portfolio. Archegos told PSR that, due to tax consequences, it was unable to add short positions at the time, but that Archegos would give CS the "first look" on future short positions. PSR agreed to waive the limit breach and continued to monitor the account without reinstating bias add-ons although the breach persisted through the end of 2017.⁵⁵

⁵³ Prior to agreeing, CRM and PSR also confirmed that, as a contractual matter, the collateral in each of Prime Brokerage and Prime Financing would be available to address a default by Archegos on obligations owed with respect to only one of these sub-units.

⁵⁴ 75% is the same bias threshold at which add-ons would apply under Prime Brokerage's Standard Margin Process.

⁵⁵ CS gave Archegos extensive grace periods during which it did not reinstate bias add-ons despite Archegos's bias exceeding the 75% limit. Indeed, Archegos was in breach of this limit consistently between November 2017 and the spring of 2018, with the bias at one point reaching as high as 82%. However, Archegos eventually took actions that remediated its breach (at least temporarily), including

2. Archegos's Portfolio in 2018

By 2018, Archegos's portfolio at CS was focused primarily on U.S. issuers in the technology sector with market capitalizations of over \$10 billion. The fund's NAV had grown to \$4.697 billion, posting a "strong 5 year average annualized return of 47.72%, considerably outperforming the Dow Jones/CS Long Short Equity Index's (the "L/S index's") returns of 5.79% through the same time period." Archegos's volatility of returns, as measured by the annualized standard deviation of monthly returns, also significantly outpaced the L/S index, with Archegos at 28.4% and the L/S index at 4.6%. On June 30, 2018, the fund reported gains of 40.7%, year over year.

Throughout 2018, Archegos's aggregate portfolio continued to be largely long-biased, although its swaps remained predominately short. CRM noted in its annual credit review that Archegos's Prime Brokerage portfolio continued to be margined without bias add-ons, but that Prime Services "requires [Archegos] to post additional margin based on holistic portfolio view to ensure collateral coverage is sufficient." At the time of the August 2018 annual credit review, PSR had required Archegos to post an additional \$20 million of collateral based on this "holistic" view of directional bias.

CRM recommended maintaining the fund's BB- rating in 2018. However, CRM also observed that the fund's portfolio had become "quite concentrated," particularly in the so-called "FAANG" stocks (*i.e.*, Facebook (FB), Amazon (AMZN), Apple (AAPL), Netflix (NFLX), and Alphabet (GOOG) (formerly known as Google)), which together

adding new positions to neutralize a portion of the bias as well as posting more initial margin. Accordingly, by June 2018, Archegos had reduced the bias of its combined portfolios to below the 75% threshold. This pattern—persistent breach, followed eventually by remediation—continued throughout Archegos's relationship with CS.

represented 58.5% of the fund’s \$4.697 billion NAV.⁵⁶ Moreover, other tech names—such as Microsoft and First Data—added to the tech concentration. CRM listed this concentration as an additional “weakness” of the fund, stating that a significant downturn in the tech sector would “severely impac[t]” fund performance.⁵⁷

Also, for the first time since Tiger Asia/Archegos began trading with CS, Archegos’s largest scenario exposure exceeded the \$250 million maximum scenario threshold prescribed by CRM for the fund. Specifically, as of June 30, 2018, Archegos’s Prime Brokerage portfolio at CS generated \$520.9 million of exposure under the Severe Equity Crash scenario⁵⁸—more than double Archegos’s scenario limit. CRM noted that this breach did not present an “accurate picture” of the client’s risk because the scenario exposure did not take account of the client’s offsetting short equity swap positions in Prime Financing.

PSR’s bespoke weekly monitoring of Archegos continued into 2018, and expanded to cover additional metrics, beyond directional bias, including scenario exposure on both a net and gross basis. This additional information provided CRM and PSR greater visibility of the risks associated with Archegos’s combined portfolios.

By the time of the August 2018 credit review, this weekly bespoke monitoring did not reflect a scenario breach on a net basis, but did reflect \$650 million of scenario exposure on a gross basis (as of August 10, 2018) against a \$500 million gross

⁵⁶ Amazon alone comprised 24% of Archegos’s NAV.

⁵⁷ Consistent with past reports, CRM also identified as weaknesses volatile performance, poor risk management practices and procedures, mediocre operational management practices and fraud risk, and key man reliance.

⁵⁸ As noted *supra* Section II.A.3, the Equity Crash Scenario (which is often referred to informally as “Equity Down”) simulates a 30% decrease in equity prices in developed markets and a 45% decrease in emerging markets and Japan.

limit. As a result of this limit breach, the 2018 credit review noted that “CRM initiated discussions with PS Risk regarding reducing risk and/or increasing margins to offset the large absolute scenario exposures when excluding offsets.”

Also in 2018, CRM asked PSR to place Archegos on PSR’s internal “watch list,” comprised of hedge fund clients that CRM and/or PSR believe should have closer monitoring, such as funds with non-standard risk profiles or large positions.⁵⁹ Although clients can be removed from the watch list once added, Archegos remained on the watch list throughout the remainder of its relationship with CS.⁶⁰

Underscoring the volatility of Archegos’s returns, Archegos reported being up 40.7%, year-over-year, as of June 30, 2018, but ended the year *down* 36%.

3. Archegos’s Portfolio in 2019 and Changes to Swap Margins

In May 2019, Archegos requested that its swap margins in Prime Financing be lowered materially to reflect the fact that its short-biased swap positions in Prime Financing served as an offset to its long-biased cash positions in Prime Brokerage. Up until this time, as reflected in CRM’s annual credit reviews, the margin rates for Archegos’s swaps in Prime Financing typically ranged from 15-25% and resulted in no PE under the

⁵⁹ CRM employees believed that being on the PSR watch list required that payments to the fund by CS’s margin service team would need to be approved by PSR/CRM. CRM, however, belatedly came to understand that this was only the case with respect to payments out of Prime Brokerage, but did not cover payments of variation or “excess” margin made with respect to the Prime Financing swaps portfolio, which were handled by a different margin system. As a result, and as described *infra* Section II.E.1.(b), in mid-February 2021, CRM and PSR instructed the Prime Financing margining team that no payments should be made to Archegos without the express approval of CRM and PSR.

⁶⁰ CRM has its own watch list for counterparties at risk of near term default but, according to CRM, Archegos was never added to this list.

historical simulation methodology⁶¹ employed by CS at the time. Similarly, the average margin in Prime Brokerage under dynamic margining ranged from 15-18%.⁶²

In its negotiations with CS, Archegos told members of the PSR team that one of Archegos's other prime brokers had more favorable margin rates and cross-margined swaps and cash equities so that it could issue a single margin call that covered both portfolios. In an effort to offer a competitive rate and avoid losing the short swap positions—which CS believed reduced the market directionality of the long-biased Prime Brokerage portfolio—CS agreed to a significant change to the standard initial margin charged on Archegos's Prime Financing swaps: CS agreed to reduce the default margin rate on swaps to 7.5%, subject to certain conditions and constraints. Specifically, margin rates would increase for positions that had lower liquidity based on the size of Archegos's holdings compared to the average DTV (daily trading volume) in those stocks: an add-on of 5% would apply to the incremental portion of a position above 2 days' DTV and a further add-on of 8.5% would apply to any incremental portion above 5 days' DTV.⁶³ This substantial reduction in the base margin rate on Archegos's swap positions was approved by PSR and by CRM after analysis demonstrated that, as applied to Archegos's current portfolio, the combined margin across Prime Brokerage and Prime Financing would be

⁶¹ CS calculates PE by measuring the expected potential loss if a counterparty were to default. This is calculated by subtracting the expected Equity Available Upon Default ("EAUD") from the Value at Risk ("VaR") of a fund. The "Historical Simulation" model was used to calculate VaR; it takes into account a counterparty's historical market performance data and certain "risk sensitivity" metrics to predict how the fund will perform in the future and the level of risk it poses.

⁶² As of 2018, in particular, Prime Brokerage was reported to be calculating margin based on "SMP except there are no bias add-ons," and the average initial margin in Prime Financing was reported to be 20%. In addition, as noted, an additional \$20 million in margin was required based on a combined view of the bias across the two portfolios.

⁶³ In fact, PSR had initially proposed stricter constraints relating to volatility, liquidity, and concentration, but Archegos pushed back and insisted on removing any volatility triggers and reducing the liquidity and concentration constraints. On June 13, 2019, CS and Archegos agreed to this new framework.

almost three times Archegos's Severe Stress Exposure when applied to the combined portfolios as well as the fact that the new 7.5% margin framework contemplated an automatic multiple of base margin rate if a liquidity threshold was reached. CS also gained the contractual right to change initial margin amounts in its discretion shortly after the reduced default margin rate was agreed.⁶⁴ Notably, the reduction in the initial margin rate was applied to all existing swaps and not simply to new swaps executed by Archegos, and therefore, resulted in a return of margin from CS to Archegos. However, the overall arrangement, including the liquidity constraints, was never memorialized in any formal contract (although it was specifically agreed in email by Archegos), and it appears that these constraints were never invoked or implemented by Prime Services as particular Archegos swap positions grew to exceed 2 days' (and even 5 days') DTV over the years. Indeed, it does not appear that any steps were taken by Prime Financing to implement processes and procedures to specifically track the liquidity thresholds and to apply the increase on a dynamic (albeit manual) basis as Archegos's portfolio evolved and its risk increased exponentially, even though the liquidity thresholds had been fundamental to the arrangement and to PSR's and CRM's approvals.

At around the same period, Prime Financing asked Archegos to execute an SCMA (Swap Collateral and Margin Agreement), in place of the existing PSA (Portfolio Swap Annex) governing their relationship. It appears that the sole motivation for seeking

⁶⁴ Under the CSSEL Credit Support Annex ("CSA") with Archegos, CS did not have a right to call additional initial margin. The right to call additional initial margin the same day was, however, incorporated into the Swap Collateral and Margin Agreement ("SCMA"), discussed *infra* Section II.C.3, that Archegos signed with CS a few months later, on September 27, 2019, in place of the prior agreement. Notably, when Archegos was migrated from CSSEL to CSi in December 2020, CS negotiated a new International Swaps and Derivatives Association Master Agreement ("ISDA"), CSA, and Portfolio Swap Annex ("PSA") with Archegos to govern the CSi relationship. That PSA did not maintain this same-day right to call additional initial margin, instead requiring a three-day notice period.

to replace Archegos's PSA with an SCMA was to provide "capital relief" to CS. CS calculated PE on both Prime Brokerage and swaps using a historical simulation model. Based on the use of this swap model, CS would be given no credit for initial margin posted by clients in calculating the RWA (risk weighted assets) attributable to its client exposure. The lack of credit for initial margin would substantially increase the RWA and, consequently, the amount of regulatory capital that CS would need to hold against the exposure. In contrast, the historical simulation PE model in Prime Brokerage permitted the recognition of initial margin. CS therefore believed that execution of an SCMA with a client (in place of a PSA) would permit the client's initial margin posted on swaps to be counted under the Prime Brokerage PE model, and thus substantially reduce RWA.⁶⁵

Without the benefit of initial margin, the RWA attributable to Archegos's swap positions was calculated by Prime Services to be approximately \$70 million in June 2019, and reached \$180 million in September 2019. Senior management of the business, including the Co-Heads of Prime Services, as well as the Head of Equities, viewed the situation as urgent and exerted substantial pressure on the Archegos coverage team (specifically the individual elevated to Head of PSR in February 2020) to arrange for Archegos to sign an SCMA in time for third-quarter reporting.⁶⁶ Archegos signed an SCMA with CS at the very end of September 2019, subject to further good faith negotiation; according to the November 2019 annual credit review: "This was done in order to provide capital relief for the desk for 3Q19 reporting."

⁶⁵ In fact, Prime Financing had first requested that Archegos sign an SCMA in 2018 to address RWA issues, but CS did not pursue the request at that time because it did not have a legal opinion with respect to U.S. clients.

⁶⁶ It appears that the Head of Equities specifically thanked Archegos for urgently signing the SCMA at the end of September, in time for CS's third-quarter reporting.

In the November 2019 annual credit review of Archegos, CRM recommended maintaining Archegos's BB- rating but also increasing the fund's PE limit from \$8 million to \$20 million. Notably, the fund's NAV had dropped from \$4.697 billion in 2018 to \$2.650 billion in 2019, likely as a result of the fund's negative returns in 2018 (-36%). As of November 2019, the fund was reported to be up by 28% (based on September 30 YTD). In 2019, Archegos continued to trade a portfolio of long cash equities with Prime Brokerage and a portfolio of short swaps with Prime Financing; across Prime Services, Archegos's portfolio was, in aggregate, slightly short-biased.

The annual credit review continued to note the same weaknesses previously identified, including volatile performance, a concentrated portfolio, poor risk management practices and procedures, and mediocre operational management practices/fraud risk in light of Archegos's insider trading troubles. In fact, the fund's positions had become even more concentrated since 2018: the top ten long positions in Prime Brokerage were 75% of Archegos's gross market value ("GMV") with Prime Brokerage, and the top four long positions represented 50% of Archegos's Prime Brokerage GMV.

D. Mounting Red Flags (2020)

In February 2020, as discussed *supra*, the former Head of PSR died in an accident and was replaced by a managing director who had worked in sales and marketing on the Delta One trading platform for many years. Notably, the new Head of PSR had specifically served as the sales coverage manager for Archegos and therefore had a preexisting relationship with Archegos when he transitioned to PSR. In his new role, he became the central touchpoint for PSR's relationship with Archegos, despite the fact that a different PSR employee was assigned to cover Archegos.

Throughout 2020, as discussed below, Archegos's trading bias inverted and the fund became substantially long-biased; it persistently breached its PE and scenario limits; its leverage increased substantially (from 3-4x to 6x); its concentration increased; and it confirmed to CRM (as it had represented over the years) that its positions with its other prime brokers largely mirrored the positions it held with CS—which compounded the concentration risk of Archegos's portfolio with CS.

1. Archegos's Portfolio Becomes Significantly Long-Biased

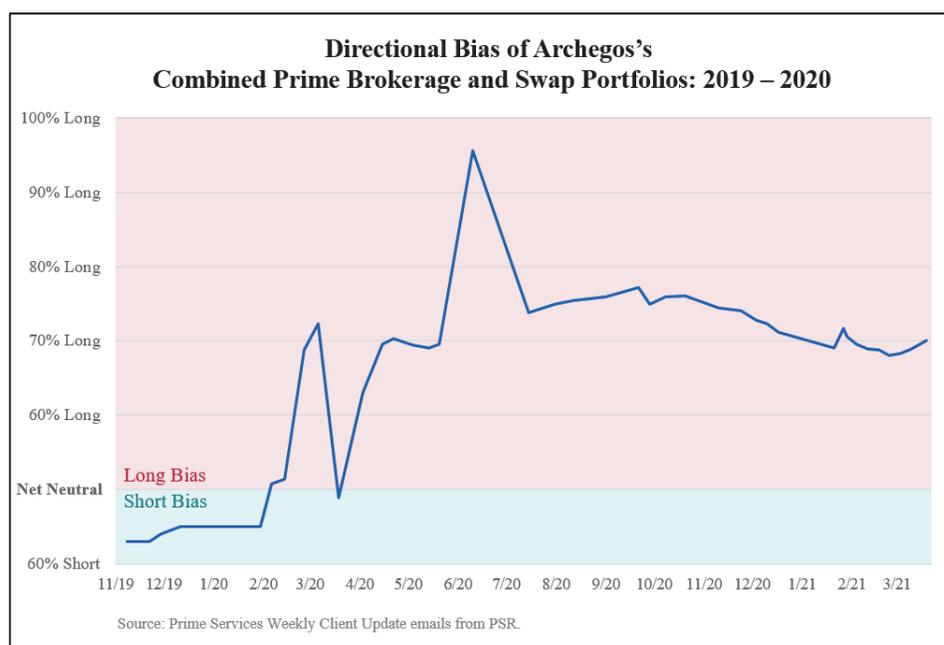
In the first quarter of 2020, the unprecedented turmoil caused by the COVID-19 pandemic caused significant global market disruption.⁶⁷ Archegos did not miss any margin calls over that period; however, its trading portfolio with CS changed considerably. As discussed *supra* Section II.C.3, in the prior year, Archegos's combined portfolio across Prime Brokerage and Prime Financing had been slightly short-biased. Beginning in early February 2020, however, Archegos's trading pivoted toward long positions and its overall portfolio at CS became long-biased.

On February 7, 2020, PSR's Weekly Client Update reported that Archegos's combined Prime Services portfolio was "slightly long directional[ly]," with 50.68% long positions and 49.32% short positions. On February 26, 2020, the Weekly Client Update reported that the long-bias had increased substantially with 68.85% long positions and 31.15% short positions across Prime Services, and Archegos's Severe Equity Crash scenario limit was breached (stress loss at 194% of the limit). The weekly update also stated that CRM and PSR had discussed the shift in directionality, and that PSR

⁶⁷ This market turmoil resulted in significant losses to CS based on the default of a different hedge fund counterparty, Malachite. The Malachite default—and the review performed and remediation steps adopted as a result—is discussed in greater detail *infra* Section II.D.3.

planned to advise Archegos to add short positions in SPY (an ETF tracking the S&P 500) and QQQ (an ETF tracking the NASDAQ 100) to its portfolio to address the scenario limit breach. On March 5, 2020, CRM followed up, asking about the “outcome” of PSR’s conversation with Archegos and specifically whether Archegos “put on any shorts.” PSR reported that it was “still very much an inflight discussion.”

Notwithstanding these conversations, the Weekly Client Update as of March 6, 2020, showed that Archegos’s long-bias had increased, and long positions comprised 72.35% of the combined portfolio. This bias remained consistent over time: Archegos’s portfolio fluctuated between 63% and 95% long for nearly every week until its default.⁶⁸ Indeed, there was only one week—the week ending March 20, 2020—right after Archegos added significant short positions—in which Archegos’s portfolio was not long-leaning, as illustrated in the chart below. The long-bias of Archegos’s portfolio increased the counterparty risk associated with Archegos.



⁶⁸ The bias was typically somewhere between 63% and 77%.

The long-bias of Archegos's portfolio appears to be largely attributable to the growth and directional change of its swaps portfolio. By March 18, 2019, Archegos's swaps portfolio was larger than its Prime Brokerage portfolio, and by September 2019, Archegos's combined portfolio was dominated by swaps⁶⁹—a fact that is unsurprising, given CS's agreement to lower the default margin rate on swaps.⁷⁰ Moreover, while Archegos's swaps portfolio was significantly short-biased at the beginning of 2020, by May 2020 it was slightly long-biased. Accordingly, by May 2020, Archegos's swaps were adding to the portfolio's long-bias, not offsetting it.

By September 1, 2020, the gross value of Archegos's positions across Prime Brokerage and Prime Financing was \$9.45 billion, with \$7.18 billion of long positions and \$2.27 billion of short positions. Approximately \$7 billion—or 74%—of the gross value of the portfolio was in Prime Financing. Of the total \$7.18 billion in long positions, \$4.72 billion—or 66%—were swap positions in Prime Financing while only \$2.46 billion were in Prime Brokerage. Also on September 1, 2020, PSR's Weekly Client Update reported that the average margin rate of Archegos's Prime Financing portfolio was 5.9%, while the average margin rate of its Prime Brokerage portfolio was 15%. The average margin rate for swaps was only 5.9%, even though the standard swap rate was changed to 7.5% in 2019, for two principal reasons: first, Prime Financing agreed to execute certain short index swap positions with Archegos at lower margins (sometimes 4% or 5%) in circumstances where the business believed that the shorts would be helpful in specifically hedging other elements of Delta One's overall book, and, second, because all swap margins

⁶⁹ By September 2, 2019, Archegos's swaps portfolio was twice as big as its Prime Brokerage portfolio.

⁷⁰ PSR current and former employees also noted their understanding that Archegos preferred swap positions for their "anonymity," given the relative lack of regulatory reporting requirements for derivative positions.

(whether 7.5% or lower) were static and thus susceptible to erosion as the value of Archegos's positions appreciated.

2. Archegos Continually Breaches PE and Scenario Limits

As discussed *supra*, CRM and PSR used two different limits to manage risk in connection with Archegos's trading: PE limits and scenarios exposure limits. While Archegos had breached its PE and scenario limits a number of times before 2020, such breaches became persistent—and of significant magnitude—beginning in 2020 and continuing through 2021.

(a) PE Limit Breaches

As discussed *supra*, the PE of a counterparty's portfolio of transactions refers to potential exposure measured at a 95% confidence level. CS's traders and risk personnel are obligated to comply with PE limits. Accordingly, under CS's governing policies, any trade that would result in Archegos surpassing its PE limit requires approval from CRM. Additionally, the Credit Control group⁷¹ issues and circulates to CRM a list of open PE limit breaches, which tracks how many days each breach has been open and unresolved. Breaches that remain unresolved are escalated to CRM senior management.

Beginning in the spring of 2020, Archegos began regularly breaching its PE limit. In April 2020, CRM notified PSR that Archegos had breached its PE limit, then \$20 million, and that Archegos's PE had grown from \$0 on March 20, 2020 to \$202.92 million on April 10, 2020—more than ten times the limit.

In the same email, CRM pointed out that Archegos's "poor performance in February and March" had caused its NAV to decline so precipitously (from approximately

⁷¹ The Credit Control Group is a division of CRM dedicated to supporting the credit risk approval and monitoring process.

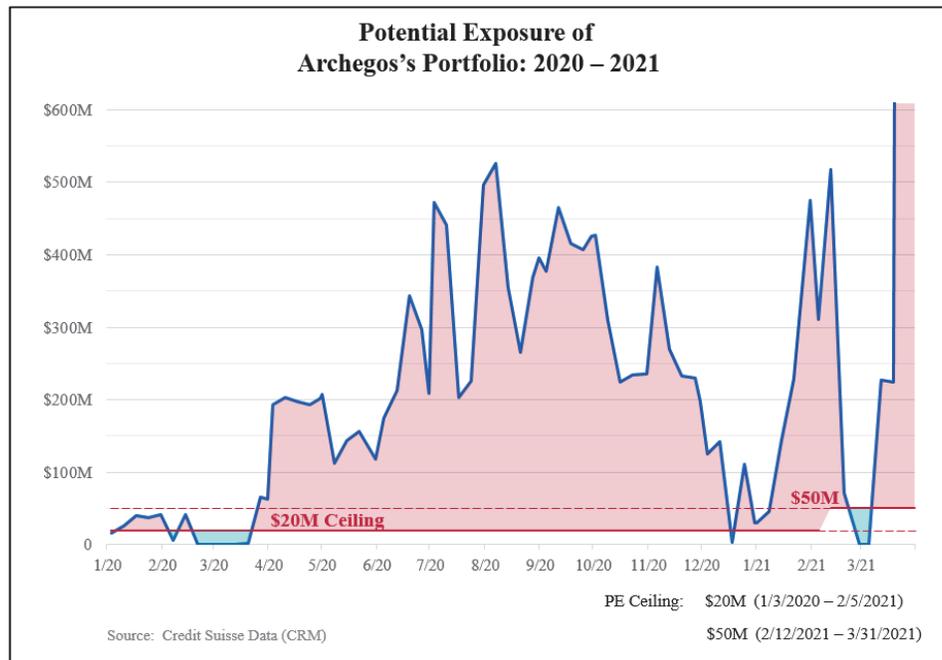
\$3.5 billion in February to \$2 billion in April) that it triggered an Additional Termination Event (“ATE”) under the governing ISDA (International Swaps and Derivatives Association Master Agreement), which gave CS the right to terminate the swap positions with Archegos. CRM asked PSR to “please confirm the comfort level with the existing margin levels for the [Prime Brokerage] and swaps portfolio,”⁷² inquiring whether there was a “notice period to change margin in PB.”⁷³ PSR responded that it “remain[ed] comfortable with the existing margin framework across” Prime Brokerage and swaps.

Archegos continued to violate its \$20 million PE limit. In May 2020, CRM again reported to PSR that, as of May 28, 2020, the PE was at \$154 million. And by August 24, 2020, the PE had risen to \$528 million. According to CRM personnel, Archegos breached its PE limit so frequently in 2020 and 2021 that the CRM analyst who covered Archegos had regular calls with the Credit Control team to discuss the issue.

As illustrated in the below chart, which was generated using weekly PE data from 2020-2021 compiled by CS, Archegos was in material breach of its PE limit for much of 2020. Indeed, CS records reflect that Archegos’s PE limit breach was flagged as an “excess” requiring remediation for 169 days, until early March 2021, when it temporarily dipped below the limit (at a time when CS secured some additional margin), before breaching the PE limit again shortly thereafter.

⁷² The day before it sent this email, CRM was told by Archegos that CS’s margin rates were “pretty good” relative to Archegos’s other prime brokers (*i.e.*, that CS’s swap margins were more favorable to Archegos). CRM did not include that information in its email to PSR.

⁷³ CRM also told PSR that Archegos had disclosed that its long positions with CS were “representative” of the positions Archegos held with its six other prime brokers at the time (namely Morgan Stanley, Jefferies, Nomura, Wells Fargo, Deutsche Bank, and UBS). CRM further stated that it was considering asking for an amendment of the Archegos ISDA to reduce the cure periods upon a failure to pay or to transfer margin when due. Efforts to reduce the cure period for a failure to pay or deliver from three days to one day were part of the remedial measures recommended as part of Project Copper, a remediation effort initiated following IA’s review of losses arising from the Malachite default. Project Copper is discussed in greater detail *infra* Part D.3.



Although in persistent breach of PE limits, the Delta One traders continued to execute trades for Archehos. Based on our review, we understand that while the traders conduct certain pre-trade checks (including ensuring that the underlying security is not on a restricted list and that there is sufficient “capacity” to trade the relevant security⁷⁴) they do not conduct pre-trade checks relating to a counterparty’s PE levels or to determine whether a prospective trade would lead to or exacerbate a breach of the counterparty’s PE limits. Instead, the traders rely entirely on PSR to manage all aspects of counterparty credit risk, including any potential breach of PE limits. While the traders report having a “robust ongoing dialogue” with PSR with respect to counterparties, they do not consult with PSR on every trade or report being aware of whether a counterparty is in breach of PE limits.⁷⁵

⁷⁴ Specific approval is required where the Delta One desk would hold a beneficial interest in more than 2% of a company’s outstanding shares.

⁷⁵ It is unclear whether Prime Financing’s standard trading practices comply with CS’s Credit Monitoring Standards, which provide that “[i]t is the 1LoD’s responsibility to ensure limit / threshold capacity exists before increasing risk to an obligor / obligation. When unsure of capacity, the 1LoD must seek pre-clearance from CRM.”

While PSR and CRM were obligated to monitor and ensure compliance with the PE limit, both risk divisions had developed concerns with the validity of the PE numbers (for all clients) after the PE calculation methodology was changed in January 2020. CS discontinued use of its historical-simulation PE model and, in January 2020, transitioned to a new, more sophisticated Monte Carlo-based model for PE, called the Strategic Enhanced Potential Exposure model (S-EPE). While CS transitioned to S-EPE models for many products, its S-EPE model for equity swaps had not been implemented at that time.⁷⁶ Until it had an implemented S-EPE model, we understand CS adopted the Strategic Enhanced Factor (S-EF)⁷⁷ model to calculate PE for equity swaps.⁷⁸ There was a general expectation at the time it was implemented that S-EF would lead to more conservative results (*i.e.*, higher PE) than S-EPE.

The transition to S-EF resulted in many increased PE exposures for equity swaps. Upon investigation, some large adjustments were found to be caused by data quality and calculation issues that undermined confidence in the PE numbers being generated. As a result, it appears the typical response to a large PE number was either to

⁷⁶ We understand that CS ultimately developed a new S-EPE model for equity swaps during 2020, and implemented it in December 2020, as discussed *infra*.

⁷⁷ The S-EPE and S-EF models are both designed to express the same general concept of the maximum potential exposure of the bank (typically expressed at the 95th percentile of the range of exposures generated by the model) assuming a default by its counterparty. However, there are differences in the design and operation of the two models. One of the principal differences is how each model derives the range of potential exposure associated with the underlying positions. The S-EPE model is a granular and time-intensive estimation of potential exposure derived from a Monte Carlo simulation of the netted underlying positions. In contrast, the S-EF model is a simplified, fallback model for those trade or counterparty types not supported by the S-EPE model. S-EF calculates exposure associated with the netted positions in the same underlying reference security by reference to pre-calculated proxy trade factors—*i.e.*, it simulates the exposure of the real portfolio over time, based on a potential exposure path derived from the historical performance of similar instruments.

⁷⁸ At this time, regulators required banks to use an S-EPE model, an S-EF model, or a Standardized Approach (SA-CCR) for purposes of computing capital requirements.

investigate the validity of the number, which took some time⁷⁹ and delayed any remediation efforts where the number was found to be valid, or to discount it as unreliable.⁸⁰

Notwithstanding these difficulties, CS continued to use—and traders were still bound by—PE limits. However, given the general concern with the reliability of the numbers, both CRM and PSR relied primarily on scenario exposure in evaluating counterparty risk and accordingly may have disregarded or downplayed persistent PE limit breaches. CS designated PE remediation as a “high priority” in early 2020. We understand that CS has devoted significant attention to this issue, and its work is continuing. In the case of Archegos, however, even if PE measures were ignored, Archegos’s scenario exposure revealed the same picture of outsized risk.

(b) Scenario Limit Breaches

As discussed *supra*, scenario limits show the maximum exposure CS is willing to accept in stress situations using Primary Severe Event Scenarios. A breach occurs when the maximum exposure on any of these scenarios exceeds the prescribed scenario limit. On a monthly basis, Credit Control sends any scenario limit breaches to the responsible CRM analyst who is required to sign-off on them and supply an

⁷⁹ The CRM analyst who covered Archegos referred to the PE investigation process as “frustratingly long.”

⁸⁰ Lengthy, un-remediated limit breaches were not unique to Archegos. In 2020, as a consequence of the Malachite default, the CS Board directed IA to conduct additional audits, including an audit of CRM’s oversight of counterparty credit risk within IB trading products. IA’s report, which was released on October 29, 2020, gave CRM a “C-” rating, reflecting that the overall CCR control environment required “improvement.” The report noted that the new S-EF PE model implemented in January 2020 and extreme market volatility in March 2020 together “impacted the size and volatility of the PE measures, exposing control weaknesses in how management timely address limit breaches.” The IA report specifically found that limit excesses were not timely remediated, noting that there were 180 active (*i.e.*, caused by new trading or collateral activity) open limit excesses with an average age of 47 days and 824 passive (*i.e.*, breach due to market events) open limit excesses with an average age of 100 days. IA concluded that the lack of established timelines for excess remediation contributed to delays, that the limit excess monitoring process was too reliant on credit officer’s judgment and required additional controls, and that the data controls used were not effective and were not providing accurate exposure calculations. Following the audit, CRM was directed to take prompt remedial action; however, that did not occur before Archegos defaulted.

explanation/plan for remediation. Breaches above \$125 million must be escalated to (and signed off by) the IB CRO. Breaches above \$1 billion must be escalated to (and signed off by) the Global Chief Credit Officer (“CCO”).

In 2020, Archegos had a net scenario limit (calculated by netting Archegos’s long and short positions with CS in Prime Brokerage and Prime Financing against each other) of \$250 million and a gross scenario limit (calculated without netting long and short positions) of \$750 million.

Archegos repeatedly breached its scenario limits in 2020, and Archegos’s persistent scenario limit breaches were a cause of considerable internal concern and discussion within CRM. On July 15, 2020, Archegos had \$604 million in net scenario exposure—241.6% of the \$250 million limit.⁸¹ From that point on, Archegos remained in breach of its net scenario limits virtually every single week for the remainder of its relationship with CS.

On July 22, 2020, the CRM Exposure Monitor⁸² reflected Archegos’s net scenario exposure as \$828 million (over 330% of the \$250 million limit). In response, the CRM analyst covering Archegos emailed his PSR counterpart, asking how the scenario exposure could be remediated and whether PSR was comfortable with the exposure. PSR responded that the stress exposure was “primarily driven from the pure directional footprint,” and that PSR was contemplating approaching Archegos with a new margining model that would scale “Tier 1 base swap [margin] and adjust to control for Bias should the book materially deviate from neutrality.” In other words, PSR wanted to propose to

⁸¹ Net scenario exposure or “utilization” is calculated by subtracting margin from scenario exposure.

⁸² The CRM Exposure Monitor is a weekly report generated by the PSR team and circulated to the CRM and PSR teams. It identifies, among other things, any funds with utilization over 100% of its scenario limits (*i.e.*, funds in breach of scenario limits).

Archegos a tiered margining model where the aggregate bias threshold would dictate a base margin rate and add-ons.

CRM did not respond until August 10, 2020. CRM stated that the PSR proposal was “sensible” and would yield “more margin” for CS, and asked if the proposal could be put in place. PSR does not appear to have responded, and the proposed tiered margining model was never implemented.

Meanwhile, Archegos’s scenario exposure continued to grow. By August 12, 2020, the net scenario exposure had grown to \$846.6 million. On August 18, CRM emailed PSR to discuss a remediation plan that would reduce exposure. PSR confirmed that the new margin framework it had proposed in July had not yet been implemented, but explained that PSR had scheduled a call with Archegos to discuss the issue.

A week later, the new margin framework was still not in place—and it is unclear whether PSR actually discussed it with Archegos. In the meantime, Prime Financing continued to permit Archegos to add to its “already outsized” long positions. On August 25, 2020, CRM insisted that PSR inform the Delta One desk that, given the PE and scenario limit breaches, Archegos could not expand its long positions at existing margin levels. CRM further noted that Archegos’s PE was \$518 million—more than 25 times the \$20 million PE limit—and Archegos had not provided its 2019 audited financials, which was problematic given that “potential fraud risk is higher” for a family office like Archegos than for a “commingled fund managed by an SEC-registered Investment Adviser.”⁸³

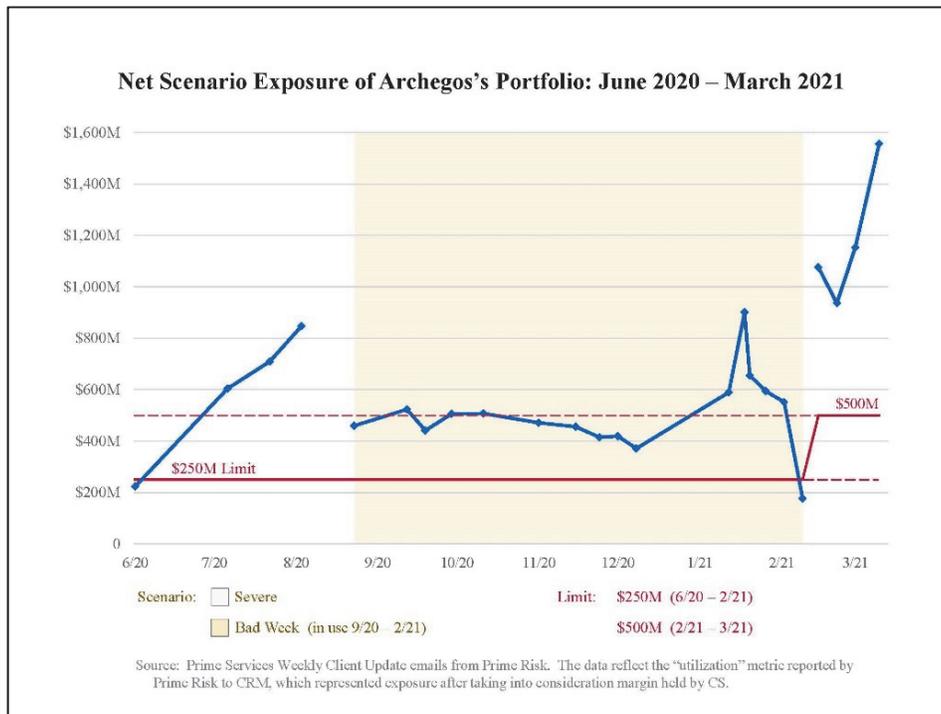
⁸³ As discussed *supra*, CS has limited visibility with respect to hedge fund counterparties and family offices, but hedge funds are subject to greater regulation, oversight, and disclosure requirements than family offices. Moreover, hedge funds typically must answer to their investors (and often send periodic investor letters) and in that way are subject to additional scrutiny.

Historically, Archegos's scenario exposure had been monitored by reference to a Severe Equity Crash scenario, which simulated a 30% shock in developed markets and 45% shock in emerging markets. However, at the end of August 2020, in response to CRM's concerns, the Head of PSR for the first time asked that Archegos be monitored under a more forgiving Bad Week scenario, which simulated a 20% shock in developed markets and 30% shock in emerging markets. PSR explained that it believed that the "fund's characteristics"—its portfolio of large cap stocks in liquid names and CS's daily right to terminate⁸⁴—"would imply a shorter period of stress makes sense" and that the switch would help resolve the scenario limit breaches.

CRM agreed that it was "comfortable monitoring the Archegos portfolio on a Bad Week basis," which it did from September 2020 until late February 2021. However, as shown in the chart⁸⁵ below, which tracks the dollar amount of Archegos's scenario exposure from June 2020 through March 2021, regardless of the scenario used by PSR to determine exposure over time (*i.e.*, Bad Week for 9/20–2/21 and Severe Equity Down for the rest of the time), Archegos was still well in excess of the prescribed limit.

⁸⁴ CS had daily termination rights at all times.

⁸⁵ This chart was compiled using the weekly utilization number reported by PSR in the Weekly Client Update for Archegos.



On September 1, 2020 the Head of PSR confirmed that he had instructed the Delta One desk not to execute new trades on the “handful of long positions” CRM had flagged in August, and added that he had an initial conversation with Archegos’s head trader to discuss the tiered margining framework with respect to bias add-ons, and would be having a follow-up conversation. CRM responded that the messaging to the Delta One desk and to Archegos needed to be much more direct; it was not a matter of a “handful” of particularly concentrated long positions:

CRM is beyond full with aggregate long market bias at existing margin levels. If the client wants to add new longs or add to smaller-sized new longs[,] margin needs to be higher.

The CRM analyst also pointed to the significant size of Archegos’s positions in certain companies and asked if these positions had been pre-approved by CRM or the Prime Services Risk Committee (“PSRC”). The PSRC, which included the Co-Heads of Prime Services, the Head of PSR, and various global and regional business heads,

had existed since 2010 and met on a quarterly basis, although meetings of the PSRC appear to have been discontinued in 2020. According to a PSRC guideline published in 2018, large, single-name swap trades with a single counterparty over \$250 million required PSRC approval.⁸⁶ While the Co-Heads of Prime Services and Head of PSR explained that the approval of large trades was time sensitive and was handled by email since it could not await a quarterly meeting, we have uncovered no explanation for why the PSRC meetings had been discontinued or why there was no other meeting attended by the Co-Heads of Prime Services and the Head of PSR devoted to risk in the Prime Services business.

The Head of PSR told the CRM analyst that he was unaware of whether the Archegos trades had been pre-approved by PSRC and indicated he would check. The Head of PSR later acknowledged, however, that, based on his inquiry, he believes the traders sought approval for some, but not all, of the large trades executed for Archegos, and that he thereafter held a global call with the Delta One desk to remind the traders of their obligation to seek pre-approval for such trades.

Two days later, on September 3, 2020, the CRM analyst covering Archegos escalated to his supervisor his mounting concerns about PSR's management of the Archegos portfolio. He advised that PSR in New York (the team covering Archegos) was not "adequately staffed to be reliable," noting that "nearly all of the most influential PSR contacts" were no longer at CS, and they had not been adequately replaced. He concluded:

Where am I going with this? All of the people that I would trust to have a backbone and push back on a coverage person asking for zero margin on a heaping pile are gone. The team is run by a salesperson learning the role

⁸⁶ The Head of PSR stated that the threshold amount had been increased to \$500 million, while CRM and a PSR analyst believed it stayed at \$250 million. It is unclear whether this approval requirement would apply to a series of smaller trades that, in aggregate, exceeded the threshold.

from people that do not include the folks I listed above. I don't consider PS Risk the best first line of defense function anymore.

The CRM analyst and his supervisor discussed these issues and agreed that PSR was not taking sufficiently aggressive steps to manage the increasing risk in the Archegos portfolio.

The next day, having still not heard back from PSR, CRM again followed up, asking: “has there been any progress made this week that we should recognize as risk-reducing (ex. increased position margin and/or portfolio margin, client putting on offsetting shorts, having the client move a portion of its long balances away, etc.)” PSR stated that progress had been made and suggested that PSR and CRM have a call to discuss the matter.

Over the following few weeks, Archegos added short index positions, and it moved out \$500M of illiquid longs in its Prime Brokerage portfolio. Additionally, the Delta One desk repeatedly declined to trade certain names with Archegos at existing margin levels. At the same time, however, Archegos continued to add significant long positions, including in Chinese ADRs,⁸⁷ and its existing long positions continued to appreciate in value. Moreover, on September 9, 2020—after PSR had already been instructed by CRM that it was “full” on Archegos’s long swap positions “at existing margins,” and had represented that it was having conversations with Archegos about “resetting their margin framework”—Prime Financing nonetheless permitted Archegos to renew six long swaps, with an aggregate value of \$78 million, for 24 months at 7.5% margin.⁸⁸

To mitigate Archegos’s long Chinese ADR exposure, the trading desk worked with Archegos to create custom equity basket swaps that Archegos shorted. While

⁸⁷ This included Chinese ADRs: Tencent Music (TME), Vipshop (VIPS), GSX, Baidu (BIDU), and iQIYI (IQ), as well as Viacom (VIAC).

⁸⁸ We have seen no evidence that these renewals at 7.5% were raised with or approved by CRM.

these baskets, like the index shorts, may have helped address scenario limit breaches (since these scenarios shocked the entire market equally so shorts would offset longs), they were not effective hedges of the significant, idiosyncratic (that is, company-specific) risk in Archegos's small number of large, concentrated long positions in a small number of industry sectors.

Although the PSR analyst for Archegos pushed for a new margin framework that would incorporate market bias add-ons, the Head of PSR, who had the principal relationship with Archegos, did not push Archegos to implement the framework, and market bias add-ons were never implemented before Archegos's default.

Around the same time, CS also failed to implement a technology proposal that would have addressed the issue of margin erosion on bullet swaps. In August 2020, the Head of PSR and the Prime Financing IT team discussed potential technological updates that would have allowed CS to calculate the initial margin on bullet swaps based on the mark-to-market notional of a trade rather than the trade's cost notional. The IT team conveyed options to implement this technology to the Head of PSR on September 3, 2020, including a proposal to enhance the Prime data system that was estimated to cost \$150,000. That data system enhancement was included in drafts of the Prime Finance 2021 IT "book of work" from the fall of 2020, but was not funded by the time of Archegos's default. In fact, emails indicate that the Head of PSR did not follow up with the IT team on the status of the proposal until March 16, 2021. The technological fix was never implemented.

We note that CS's XVA group charges the businesses to hedge risk to counterparties in order to reduce the business's RWA. These hedges are put on and reviewed quarterly, and Archegos was part of this hedging exercise since 2017. However,

there was a limit (generally around \$20 million) on the amount of credit default protection for any single counterparty involved in any one hedging program. During the relevant period, XVA had put in place hedges related to Archegos in two different hedging programs for a total of approximately \$43 million in notional value. These hedges were in place through Archegos's default.

3. Similarities with Past Risk Failures

While Archegos was consistently breaching its PE and scenario limits in 2020, CS was in the process of reviewing the root causes of its significant losses due to the March 2020 default of the Malachite hedge fund.

Malachite was a client of CS's Equity Derivatives business (not Prime Services). Malachite's trading strategy was more complicated than Archegos's strategy: it had an arbitrage strategy intended to capture short-term volatility risk premiums in the global equities markets. Its portfolio with CS consisted primarily of short equity index variance products booked in Q4 of 2019 and maturing in April, June, and December 2020. Like Archegos's swaps, Malachite's transactions had static initial margin.

At the end of February 2020, as news of the spread of the COVID-19 virus intensified, extreme market volatility resulted in dramatic declines in the value of Malachite's positions (*i.e.*, the mark-to-market valuations swung in favor of CS). In response, CS issued several calls for variation margin between March 10 and March 16, 2020, most of which Malachite disputed in whole or part. On March 17, 2020, Malachite announced it would be dissolving, citing adverse market conditions arising from the COVID-19 pandemic. CS defaulted Malachite and closed out its positions, losing an estimated \$214 million, having earned only \$6.85 million in total revenue from the client

relationship, which began in 2014. Prior to its dissolution, Malachite had a scenario limit of \$129 million and a PE limit of \$7 million.

Following Malachite's collapse, CS's Board (and the boards of CS's U.K. and U.S. subsidiaries) demanded an investigation and prompt remediation. Among other things, the IB CEO asked IA to perform a "high-level review" of the incident "to identify root causes of the incident and potential lessons learned." Through its review, IA came to several conclusions about CS's handling of Malachite, many of which appear relevant to Archegos,⁸⁹ including that:

- CS did not sufficiently consider "early warnings of potential distress," including "scenario exposure reaching full capacity" and "PE limit breaches."
- CS's risk monitoring was inadequate, particularly because: (a) PE limits were based on a 95% confidence level and were not designed to capture tail risk events like extreme market moves (and therefore PE was not representative of stress scenario risks); and (b) CS's scenario exposure analysis was run only once a week (which was insufficient to adequately capture and address market stress scenarios on a timely basis) and relied on pre-defined scenarios for specific asset classes that were "too generic to adequately capture idiosyncratic risk of hedge fund portfolios."
- The static initial margin was insufficient for the extreme market conditions that arose in early 2020. Dynamic margining would have provided more protection.
- While the Malachite ISDA afforded CS the standard right to change initial margin at any time on just three business days' notice, CS personnel failed to exercise this right during the time of stress. Exercising this right in a timely manner "might have provided higher margin, triggered hedging or led to faster termination" and thus resulted in lower losses.

⁸⁹ Notably, the CRM analyst for Malachite was also the CRM analyst for Archegos. His senior chain of reporting was also the same for Malachite as for Archegos.

Following IA's review and assessment, and in addition to other remediation efforts, CS assembled a team to design a "sustainable solution" that would mitigate future potential losses similar to Malachite. This effort was known as "Project Copper." Project Copper's objectives were to "improve [CS's] ability to identify early warning signs of a default event," and "enhance [CS's] controls and escalation framework across functions during periods of stress," with a primary focus on OTC derivatives. CS's strategic remediation plan focused on several key action items, including: updating the ISDA Master Agreement to reduce the cure period for a failure to pay or deliver to one day (when it was previously three days), and expanding the use of ISDA's standard initial margin model ("SIMM") (a form of dynamic margining), which was piloted on 30 counterparties (not including Archegos). In addition, Project Copper recommended that market risk oversight be incorporated into counterparty credit review.⁹⁰ As a result, members of CS's Equity Market Risk team worked with CRM to identify concentrated positions held by Equity Derivative clients. However, Market Risk and CRM did not review or seek to identify concentrated swap positions held by Prime Financing clients because these positions were regarded as less complex or risky.⁹¹

The Project Copper team also created a new committee, CPOC (the IB Counterparty Oversight Committee), to review and make decisions with respect to the IB's

⁹⁰ Market Risk Management is divided across several groups at CS. Each of the bank's five principal divisions has an appointed CRO, with a Head of Market Risk and Head of Global Market Risk Management (GMRM). GMRM acts as a second line of defense to the business, facilitates the front office's commercial needs in accordance with the risk appetite of the bank, and independently assesses the market risk profile of the bank. The Market Risk division of CRO IB is subdivided into Credit, Equity, and Fixed Income Wealth Management ("FIWM"); CRO IB also has a Head of GMRM. Like the other divisions of CRO IB, Market Risk supports developing and implementing department strategy and policy, and managing the departmental risk governance framework.

⁹¹ Members of CRM acknowledged that, in retrospect, it would have been helpful to consult with the Market Risk team to discuss and evaluate Archegos's portfolio.

counterparty relationships. As discussed in greater detail below, CPOC would serve as a designated forum for senior business and Risk personnel to review counterparty relationships with significant exposure. In particular, given that the Malachite relationship resulted in a \$214 million loss against \$6.85 million in total lifetime revenues, CPOC was charged with evaluating the counterparty risk/reward relationship to better ensure that CS was not taking on unwarranted risk.

4. Archegos Is Reviewed at the September 2020 CPOC Meeting

(a) CPOC's Mandate and Operation

CPOC's mandate includes reviewing "individual IB trading counterparties" and making "decisions on strategy with [the] client"—specifically decisions about "risk mitigation." CPOC was co-chaired by the IB CRO and IB COO. Its members included the business heads and senior risk officers in the IB, including, specifically, the Head of Equities, the Head of Credit Risk for the IB, CRM Head of Counterparty Risk, and the Head of PSR.⁹² In addition to its specified members, CRM's Director of Hedge Funds was a standing attendee at these meetings.

CPOC held its first meeting on September 29, 2020 and typically met about once a month. Meetings last approximately 90 minutes. At each meeting, CPOC reviews

⁹² Other members included the Global Head of Credit Products, Global Head of Global Trading Solutions ("GTS"), CS Brazil CEO, Securitized Products COO, Global Credit Products COO, Global Equities COO, GTS COO, GTS Risk COO, Deputy Head of Client Onboarding and Lifecycle Management, Head of IB Business Services & Change, Global Head of Liquidity Risk Management, Managing Director of U.K. & Equity Market Risk, COO Compliance and Managing Director, Equities Compliance. The Head of Global Markets, APAC and APAC CCO are also members, but join only when the committee discusses clients in APAC. Based on our review, we understand that the level of engagement by each member during CPOC meetings was largely dependent on whether the issue impacted or related to the member's business line or responsibilities. Where an issue did not directly impact their business or direct responsibilities, members generally stated that their expectation was that they would not have focused on that specific topic of discussion. This approach led to a silo-ing of expertise and deprived CPOC discussions of full engagement of various senior business and Risk members (including the perspective of Market Risk) whose participation in discussions might have led to better outcomes.

specific counterparties—typically four or five—that have been identified in advance as posing potential risk and/or business issues for CS.⁹³ These counterparty reviews examine the client’s profile, revenue/profitability, counterparty risk exposure, and other forms of risk (including reputational risk).

Counterparties identified for discussion (typically by CRM) are described at a high-level in an information packet that is distributed to CPOC members in advance of each meeting, typically within 24 hours of the meeting (the “CPOC Packet”). A page or two is devoted to each counterparty and includes an overview of the counterparty’s trading strategy and other key facts from either CRM or the responsible business team (or both), revenue generated by the counterparty, and key risk metrics (including PE and scenario exposure metrics).

(b) September 2020 CPOC meeting

Given Archegos’s persistent PE and scenario limit breaches—and its significant shift in portfolio bias since February 2020—CRM recommended that Archegos be included on the agenda for the inaugural CPOC meeting on September 29, 2020.

The CPOC Packet included a page devoted to Archegos, showing August month-end PE of \$395 million and scenario exposure of \$921 million. Revenues were \$15.6 million in 2018, \$8.5 million in 2019, and \$9.7 million in 2020 YTD. The written overview of the fund referred to the predecessor fund’s history with respect to insider trading, noted that Archegos “makes substantial use of leverage relative to peer [long/short] equity funds and exhibits a highly volatile performance pattern,” that Archegos “has

⁹³ In addition, CPOC sometimes reviews general initiatives and issues that are relevant across business divisions and counterparties (for example, proposed changes to the process of on-boarding a new counterparty).

generated some of the largest scenario exposures in global [hedge fund] portfolio,” and that it had “[c]hunky single-name stock exposures (a number of positions > \$750 mm and > 10% GMV) albeit in liquid names.” The ratio of Archegos’s “YTD Revenue to Max scenario MTM (August ‘20)” was calculated to be 1%.⁹⁴

At the meeting, participants recall that members of CRM and the Head of PSR presented with respect to Archegos. The Head of PSR noted that PSR and CRM had previously agreed on four actions to address Archegos’s limit excesses: (1) new trades would require higher margin; (2) \$500 million of illiquid securities had been moved away from CS; (3) bias add-ons were to be discussed with the client; and (4) the swap business was being moved from CSSEL (a U.K. legal entity with a lower risk appetite) to CSi (a different U.K. legal entity with higher risk appetite, as discussed *infra*).⁹⁵

CRM elaborated on some of the material in the CPOC Packet, noting that Archegos used 5-6x leverage while its peers used 2-3x; that transparency was limited; that a 25% up or down month was not uncommon for the portfolio, but the client never missed a margin call even in the tumultuous markets earlier in the year; and that the bias add-on had been relaxed for Archegos’s Prime Brokerage portfolio because the swap positions had historically been offsetting. The minutes reflect a discussion of Archegos’s concentrated positions and noted that “an automated concentration add-on would be desirable.” We have seen no evidence that anyone discussed the risk that Archegos’s concentrated

⁹⁴ The overview also notes that “[c]onservative MPOR [margin-period-of-risk] rules result in inflated PE” and that the client is “[c]losely monitored by PS Risk/CRM via robust weekly reporting.”

⁹⁵ As discussed *infra* Section II.D.5, Archegos’s swaps portfolio was booked in CSSEL, a U.K. legal entity. In 2020, there was a bank-wide effort to wind-down CSSEL and transition its business to CSi as part of CS’s effort to reduce and rationalize its number of legal entities. That said, the transition to CSi was considered particularly urgent for Archegos because, as of August 2020, it had been in breach of CSSEL’s risk appetite, subject to a 30-day cure period, while CSi had a higher risk appetite.

positions at CS might significantly understate the concentration risk because, as Archegos told CRM, its portfolio with CS was “indicative” of its portfolio across its several other prime brokers.

CPOC reached the following decision with respect to Archegos, as reflected in the meeting minutes:

“Action/Decision: CRM to notify of any changes with the counterparty and revisit the counterparty at a future meeting.”

CPOC set no deadline for remediating the limit breaches or for moving Archegos to dynamic swap margining that could provide an “automated concentration add-on.” CPOC did not set a deadline for reporting back or revisiting Archegos at a future meeting. Indeed, we have seen no evidence of any reporting back to CPOC with respect to Archegos until Archegos was again discussed at CPOC in March 2021, at which point the risk exposure had increased dramatically, *see infra* Section II.E.3.

The minutes also identified two Archegos “follow up” items: the business was to provide an RWA breakdown by credit line, and CRM was to show the “shortfall view” comparing actual margin held against the margin that would be held under the standard margin methodology in Prime Brokerage. None of these follow up items was performed and none of the CRM or PSR personnel involved with Archegos remembers these as action items. That said, on numerous occasions, CRM did ask PSR for this same “shortfall” number—that is, comparing Archegos’s actual initial margin posted against what would be required if the combined portfolio was run under the standard Prime Brokerage Margin Framework. CRM does not recall ever receiving an answer to that question.

Accordingly, while CPOC was intended to impose governance and oversight on the IB's most challenging counterparty relationships, it was not particularly effective. This view is supported by discussions with CPOC members, a number of whom noted that the various counterparty discussions at CPOC meetings, including the discussion of Archegos at the September 2020 meeting, were "collegial" discussions between the business and Risk with no sense of urgency and no perceived challenge to the business's proposed strategy for managing the client. One member described CPOC as having no "teeth," and indicated that it was not a mechanism for true governance and oversight.

5. After CPOC Review, CS Fails To Reduce Archegos's Counterparty Risk

Following the September CPOC meeting, CS made little progress towards reducing Archegos's counterparty risk, and what little progress it made was overwhelmed by market movements and Archegos's trading.

Temporary Limit Increase Request: On October 2, 2020, the CRM analyst covering Archegos⁹⁶ sent a request to the CCO of CSi/CSSEL to temporarily increase the "SFTQ [Severe Flight to Quality] RMC [Risk Management Committee] appetite" (the CSSEL legal entity risk appetite) for Archegos to \$900 million until November 11, 2020.⁹⁷ The reason for the request was that Archegos's exposure under the SFTQ scenario (a multi-factor, severe-event stress scenario) had increased in recent weeks and was \$799 million as of September 25, in breach of CSSEL's scenario appetite of \$400

⁹⁶ The email was written on behalf of the CRM team, which included the analyst's supervisor, the CRM Director of Hedge Funds, and his supervisor's supervisor, the CRM Head of Counterparty Risk, both of whom were copied on the email.

⁹⁷ As noted *supra*, Archegos's swaps portfolio was booked in CSSEL, a U.K. legal entity. In 2020, in an effort to rationalize its legal entity structure, CS had embarked on winding down CSSEL and migrating all swaps to CSi, another U.K. legal entity with a larger risk appetite than CSSEL.

million for funds with Archegos's internal credit rating. If not remediated before October 6, the limit breach would be reported to the CSi/CSSEL Risk Management Committee. CRM proposed a temporary bespoke risk appetite increase for Archegos of \$900 million, which would provide "a buffer" of \$100 million to the current SFTQ amount to accommodate volatility from mark-to-market movements.

CRM justified its request for the temporary SFTQ RMC limit increase by emphasizing that Archegos was a reliable counterparty and that the increase was low risk. Specifically, CRM stated that it had no concerns with the fund's ability to meet margin calls, that it was monitoring the client closely and that, notwithstanding its volatile performance, the fund "held up well during the crisis and always met margin calls." CRM also noted that Archegos had been discussed at CPOC that week, and that while margin terms "are quite aggressive," CRM and PSR had told the traders that the initial margin for any additional long positions must be at least 15%, and "therefore [CRM did] not expect any material increase in stressed exposure." CRM noted that, because Archegos "ha[d] demonstrated a willingness to work with CS to reduce exposure," and CS has daily rights to change the margin and daily termination rights on the swaps portfolio, "we have been accommodative of PS Risk's gradual risk reduction approach with the client."

Additionally, CRM suggested that CSSEL should take comfort from Archegos's Bad Week scenario exposure, expressing the view that the Bad Week scenario was a more appropriate metric to evaluate Archegos than the SFTQ scenario, because over 50% of the GMV of the fund was comprised of positions representing less than 0.5 day's average trading volume. CRM noted that, as of September 29, Archegos's exposure on a

Bad Week scenario was \$395 million—higher than the \$250 million limit against which PSR was charged with managing, but under the CSSEL \$400 million risk appetite.

CRM also noted its expectation that the bespoke limit would only be required through November 2020 while it worked with Archegos to reduce exposure, and that, in the coming months, Archegos would be migrated from CSSEL to CSi and that CSi's standard counterparty appetite of \$800 million "is expected to be sufficient" for Archegos.

In addition to explaining why it viewed the temporary limit increase as low risk, CRM cited business reasons to grant the request. CRM noted that Archegos was a "significant relationship for Prime Services" and "Business and PS Risk are also keenly aware that Archegos uses several prime brokers including Morgan Stanley, UBS, Deutsche Bank (BNP Paribas), Nomura, Wells Fargo, and Jefferies" and that a "sudden increase in the margin requirement may result in irreversible damage to the client relationship."

The CCO of CSi/CSSEL who received the request forwarded it to the CRO for CSi/CSSEL, who also served as the IB CRO and the Co-Chair of CPOC, seeking his approval.⁹⁸ In the forwarding email, he noted that the name was reviewed in CPOC earlier that week and he expressed his support for the temporary increase, emphasizing the liquid nature of Archegos's positions, the size of the fund (at that point \$4.1 billion) and the fact that it keeps 40% of its NAV in unencumbered cash that would "allow them to meet calls across their positions." That said, he noted that "[w]e consider the position full and will continue to work with the desk to reduce the bad week scenario to \$250 million." The

⁹⁸ Notably, the CRO of CSi/CSSEL had only joined the bank in May 2020; he also took on the role of IB CRO in August 2020, which meant serving as the Co-Chair of CPOC as well.

CSi/CSSEL CRO approved the temporary increase. But, the two-month extension proved to be insufficient.

Additional Temporary Limit Increase Request: On November 30, 2020, a CRM employee again reached out to the CCO of CSi/CSSEL, requesting a further one-month extension of the bespoke CSSEL appetite increase for Archegos because “there hasn’t been any material change to [Archegos’s] SFTQ [exposure].” CRM noted that PSR had approached Archegos about putting on sizeable short index hedges and/or posting more margin and expected this to occur in mid-December, and that Archegos’s migration to CSi was on track for December as well. CRM noted that “[t]he longer term plan is to negotiate and agree dynamic swap margin rules with Archegos that will auto-adjust based on portfolio complexion (*i.e.*, concentrations, liquidity, bias add-ons, etc).” The extension was again approved by the CCO of CSi/CSSEL and the CRO of CSi/CSSEL, after the latter spoke with the Head of Equities, who also supported granting the extension. Once again, no conditions or deadlines were imposed with respect to remediating Archegos’s persistent limit breaches.

Archegos ultimately executed a new ISDA and PSA with CSi on December 15, 2020. By December 22, 2020, Archegos had been fully migrated to CSi. CS was in such a rush to complete the migration before the end of the year, that the Head of PSR agreed to give up multiple then-standard contractual terms, including one that would require Archegos to represent, in connection with any trade, that it did not hold beneficial ownership (whether in stock or through swaps) amounting to 10% of the outstanding shares of an issuer. Instead, the CSi agreement carried over the term from the CSSEL agreement where the beneficial ownership representation was capped at 20%. Moreover, as noted

above, the CSi PSA gave CS the right to call additional, initial margin on three-days' notice and did not import the same-day right from the SCMA, which right had been important to CRM in accepting the 2019 reduction in the swap margin rate. However, despite the migration to an entity with a higher risk appetite, and despite Archegos bringing in almost \$1 billion in short positions, Archegos's scenario exposure was immediately in breach of CSi's \$800 million SFTQ scenario appetite.

Further Margin Erosion: Throughout this time, the gross value of Archegos's portfolio at CS continued to grow, from approximately \$7.64 billion on October 8, 2020, to approximately \$8.1 billion on November 24, 2020, and to \$9.8 billion on December 17, 2020. Archegos remained in breach of its PE limit over this period, although it appeared to be on a downward trajectory: Archegos's PE was \$235.8 million at the end of October, \$196.8 million at the end of November, and \$30.8 million at the end of December. While Archegos remained in breach of scenario limits, this too appeared to be improving: Archegos's exposure under the less stringent Bad Week scenario (applicable from September 2020 until February 2021) was 209% of the limit on September 21, 2020, and 166% of the limit on December 3, 2020.

Archegos's swap margins, however, were inching up slowly because higher margins were applied only to new trades; PSR made no effort to renegotiate the margin on old trades.⁹⁹ Thus, for example, in the week of December 17, average swap margins were

⁹⁹ The Head of PSR indicated that he did not seek to renegotiate the margin terms on existing trades because Archegos would view that as "re-trading" its deal; instead, he hoped to address the situation by increasing margin on new trades and negotiating a move to dynamic margining that would automatically reset the margin on old trades. The Head of PSR noted that liquidity add-ons, while agreed by Archegos over email in 2019, had never been memorialized in the formal legal documentation governing the parties' trading relationship. While conceding that the 7.5% margin level was also not in the formal legal documentation, the Head of PSR insisted that his incremental approach of increasing margin only on new trades and seeking to move to dynamic margining had been approved by CPOC.

only 6.9%, while Prime Brokerage margins were 17.7% and, due to the appreciation of Archegos's positions, CS had paid Archegos nearly \$1.13 billion in variation margin between October and the end of December 2020.

CS's 2020 revenues from Archegos were approximately \$16 million. Furthermore, by the end of 2020, CS had made virtually no progress moving Archegos onto dynamic margining.

6. Dynamic Margining in Prime Financing

In 2020, Prime Services formed a working group and funded an effort to build out an automated method to achieve dynamic margining of a client's Prime Services portfolios. By September 2020, the working group had developed a platform that achieved "cross margining" results—that is, the client's Prime Brokerage dynamic margining rules could be applied across a combined and netted portfolio of the client's Prime Brokerage and Prime Financing positions.¹⁰⁰ At the same time, the working group also developed technology to dynamically margin a Prime Financing client's swaps portfolio on a stand-alone basis, without regard to whether the client had a Prime Brokerage account at CS. Under this process, the swaps portfolio would be separately fed through the Prime Brokerage Margin Process under an agreed set of dynamic margining rules, without any need to aggregate the swaps portfolio with a Prime Brokerage portfolio. In addition to its utility for clients that only had Prime Financing accounts at CS, this alternate platform would also allow for different dynamic margining rules to be applied to a client's Prime Financing and Prime Brokerage portfolios.

¹⁰⁰ This new platform did not technically bring the Prime Financing portfolio into the Prime Brokerage system, thus bypassing potential regulatory complications.

The cross-margining offering was called “Margin Relief,”¹⁰¹ while the stand-alone offering for a client’s swaps portfolio was termed “Dynamic Margining.” Both platforms resulted in the dynamic margining of the Prime Financing swaps portfolio.

The working group produced weekly reports discussing the status of the build-out, the effort to transition clients, and the list of “high priority” and other clients identified by the business for possible transition to dynamic margining. The first client was transitioned in September 2020. After that, additional clients could be transitioned in a matter of a few weeks, once a client agreed and executed amended legal documentation. However, only three additional clients were brought onto the dynamic margining platforms before Archegos defaulted in March 2021.¹⁰²

By the end of December 2020, Archegos was not even listed among the clients to be transitioned to dynamic margining, even though dynamic margining was clearly understood to be the best approach to addressing Archegos’s persistent limit breaches. Notably, in October, the CRM analyst covering Archegos learned on a due diligence call with Archegos that CS was the only one of Archegos’s prime brokers “not dynamically margining the swaps or margining the combined [Prime Brokerage and] swaps portfolio.”¹⁰³ But this information did not prompt urgent action. Indeed, Archegos was not

¹⁰¹ Prime Services called this platform “Margin Relief” because it was marketed to clients as a way to potentially lower their initial margin requirements in circumstances where the client’s Prime Brokerage and Prime Financing positions were potentially off-setting. For example, where one portfolio was directionally long and the other directionally short, once combined the directional bias add-on in Prime Brokerage might not apply. Of course, cross-margining could also lead to higher initial margin requirements where, for example, the client’s swaps portfolio was not offsetting but, instead, additive with respect to, for example, directional bias or concentration such that add-ons might be triggered.

¹⁰² By contrast, we understand that, after the Archegos default, 195 Prime Services clients were transitioned to dynamic margining over a 90-day period.

¹⁰³ While it is not clear whether this information was specifically shared with PSR, PSR already knew as of 2019 that a significant prime broker to Archegos was dynamically margining Archegos’s swaps portfolio.

added to the pipeline for dynamic margining until February 12, 2021, and was not identified as a “high priority” until February 26. According to the Head of PSR, it would not have made sense to add Archegos to the list of clients to be transitioned to dynamic margining until after Archegos was transitioned to CSi in December 2020, because he believed that Archegos would not want to deal with more than one initiative at a time.¹⁰⁴ He had no explanation for why Archegos was not identified as a high priority, or even added to the list, immediately after the December 2020 transition to CSi.

E. Extreme Appreciation and then the Crash (2021)

1. Red Flags Continue to Mount

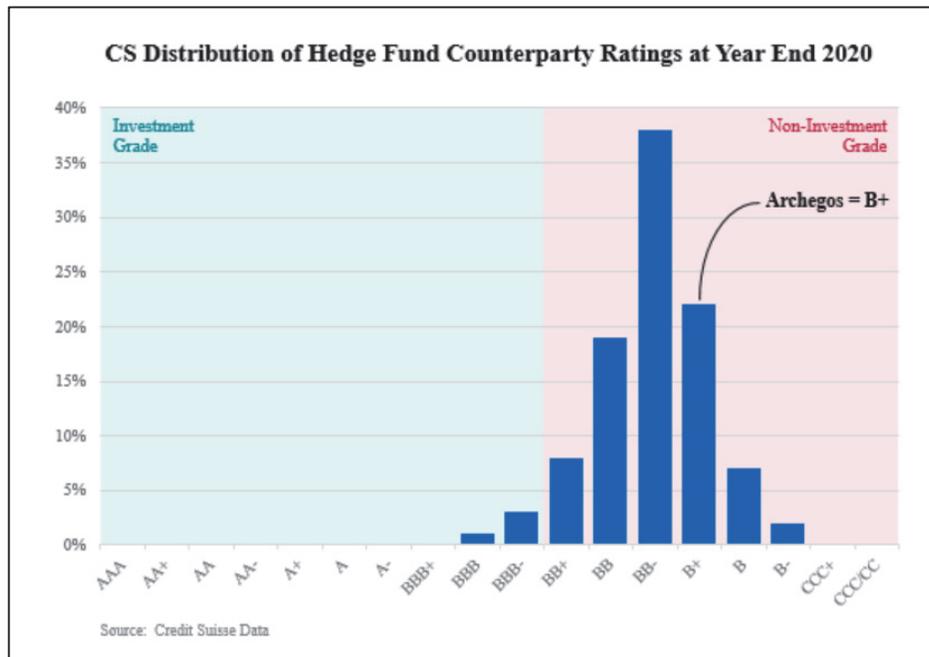
(a) Archegos’s internal credit rating is downgraded while its PE limit is increased

By the beginning of January 2021, Archegos’s largest scenario exposure¹⁰⁵ was \$352 million—well over its \$250 million scenario limit. Additionally, Archegos’s PE was \$30 million on January 1, 2021 and \$46 million by January 8, 2021—well over the \$20 million limit established in CRM’s 2019 annual credit review.

It was against this backdrop that CRM conducted its retrospective annual credit review of Archegos for 2020, and ultimately recommended downgrading Archegos’s internal credit rating from BB- to B+, which put Archegos in the bottom third of CS’s hedge fund counterparties by rating.

¹⁰⁴ When asked why Archegos was not transitioned to dynamic margining in connection with the migration to CSi in December 2020—since both required negotiating legal documentation and dynamic margining was then available on the CSi platform—the Head of PSR again said that Archegos preferred to do one thing at a time.

¹⁰⁵ While CRM and PSR agreed to use the Bad Week scenario to assess scenario exposure in PSR’s weekly report, and did so from September 2021 through February 2021, CS continued to run the Severe Equity Down scenario (and other scenarios) and to report the largest resulting scenario exposure in the CRM annual credit review.



This downgrade was a direct output of CRM’s Hedge Funds Rating Model, which had been revised since the last annual review of Archegos in November 2019. The revised model placed less weight on the size of a fund’s NAV, more severely penalized pronounced volatility of fund returns and lack of diversification, and penalized funds with high leverage.¹⁰⁶ Thus, Archegos’s “high performance volatility, concentrated portfolio, and increased use of leverage” led to its downgrade.¹⁰⁷

As in 2019, CRM’s 2020 annual review enumerated the same weaknesses, including volatile performance, a concentrated portfolio, poor risk management practices

¹⁰⁶ The quality of risk management was not a required input in either this new model, or in CS’s prior hedge fund rating model, based on the theory that NAV and risk management are correlated such that NAV constitutes a sufficient proxy.

¹⁰⁷ We understand that Archegos’s gross leverage was 6x at the time of this review, however the analyst who ran the model used a leverage input of 4-5x for Archegos, explaining that the fund’s short positions constituted high beta hedges such that a 6x leverage input was too punitive. Inputting Archegos’s 6x leverage into the model would have resulted in an additional one-notch downgrade in Archegos’s rating. We also understand that the analyst upgraded the transparency and reporting factor for Archegos from the last time Archegos’s rating had been calculated, despite no apparent change in the fund’s transparency and reporting. But for this change, the rating could have been slightly lower.

and procedures,¹⁰⁸ and mediocre operational management practices/fraud risk given the history of insider trading. The report reiterated Archegos's representation that "the equity portfolio we see at CS is indicative of their overall portfolio split across PBs" and listed Morgan Stanley, Deutsche Bank, Nomura, Jefferies, Wells Fargo, and UBS as Archegos's other prime brokers. CRM noted that, while in prior years Archegos had estimated that its portfolio could be liquidated within a few days, Archegos now estimated that it would take "between two weeks and one month" to liquidate its portfolio, "although more than 50% of the portfolio can be liquidated within days" under most circumstances. And while "[c]urrently, excess borrowing power at PBs represents between 30% and ~40% of NAV," Archegos did not have lockups in place with its prime brokers.¹⁰⁹ CRM listed Archegos's long equity swap positions in excess of \$1 billion as: ViacomCBS at \$1.7 billion; Baidu at \$1.5 billion; and Tencent at \$1.2 billion. It also noted that implementing dynamic margining for Archegos was a "major focus area" of CRM and PSR in 2021.

While recommending a downgrade of Archegos's rating, CRM simultaneously recommended *increasing* Archegos's PE limit from \$20 million to \$50 million. CRM said that a \$50 million limit for Archegos, given its \$8.1 billion NAV, would be "well within" CS's Counterparty Credit Risk Framework guidance that PE limits should not exceed 10% of NAV. CRM acknowledged that a \$50 million PE limit would

¹⁰⁸ With respect to Archegos's risk management, CRM elaborated that: "Risk is managed by Bill Hwang on a daily basis and is not segregated from his portfolio management responsibilities. The risk management process at Archegos is informal, with Bill monitoring the volatility and liquidity of the portfolio. There are no documented guidelines for individual position size, but informal limits are maximum long and short positions capped at 10% of capital (at cost). Stop loss measures are not used by the trading desk. There is no stress testing applied to the portfolio and in-house developed systems are used to manage risk."

¹⁰⁹ Margin lock-ups generally prevent brokers from changing margin and collateral requirements for a certain period of time (typically between 1 and 4 months). Without margin lock-up agreements, brokers can change margins at their discretion, which can be a drain on a fund's liquidity. Accordingly, lock-up agreements increase a fund's stability.

contravene other guidance providing that hedge funds rated B+ should have a maximum PE of \$10 million. The review stated: “We believe an exception to the guideline is warranted given the size of the fund and given the liquid products traded (cash equities and delta one equity swaps) that are financed on an overnight basis (daily termination rights on swap [with the] ability to raise margin on 3-days’ notice).”¹¹⁰ Notably, the PE at the time of the review was approximately \$46 million so an increase of the limit to \$50 million—five times the guideline for funds rated B+—resolved the current PE limit breach. CRM also increased the Archegos’s scenario limit from \$250 million to \$500 million.¹¹¹

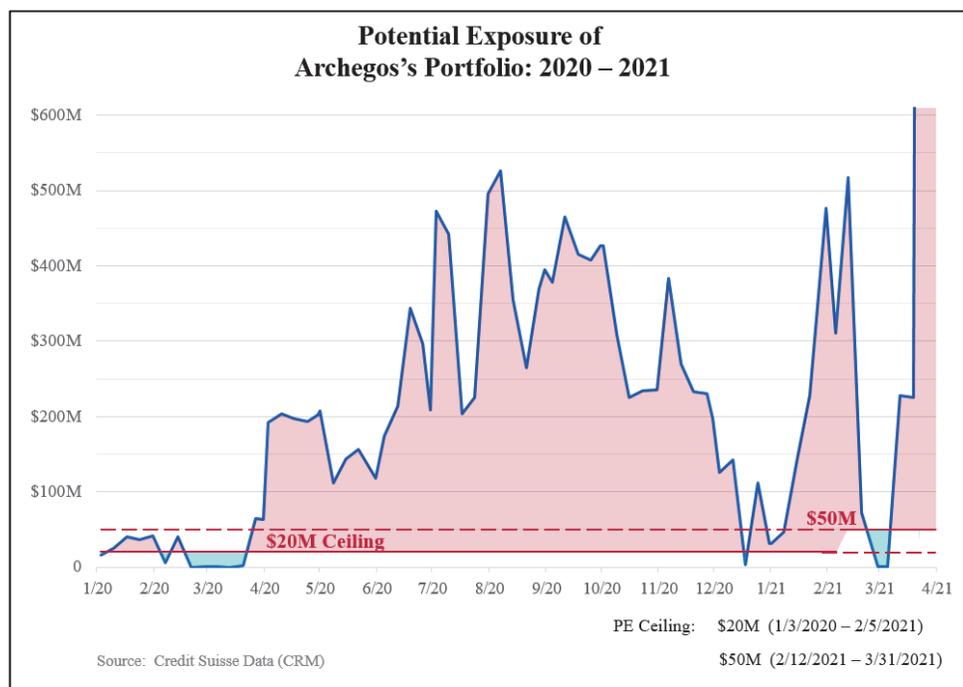
In accordance with the Counterparty Credit Risk Framework, CRM’s recommended \$50 million PE limit—far outside the guidance for B+ rated hedge fund counterparties—required additional signoffs. CRM sought and received Level 1 Credit Officer approval from the IB CRO (who also serves as the Co-Chair of CPOC and CRO of CSi/CESSL) on February 9, 2021.

(b) As risk warnings grow, CS attempts to collect additional initial margin

Archegos’s PE and scenario exposure numbers ballooned significantly at the beginning of 2021. While the annual credit review, prepared in January 2021, had referenced January 6, 2021 PE of \$46.2 million, by January 15, Archegos’s PE increased to \$143.6 million, and by January 21, the PE increased further to \$213 million, more than 400% of the newly-increased PE limit.

¹¹⁰ Although CS took comfort from its ability to raise margin on three-days’ notice, the business never seriously considered invoking this right, which it viewed as a “nuclear” option that could potentially end CS’s relationship with Archegos.

¹¹¹ The annual credit review did not provide separate justification for this increase.



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However, PSR and CRM did not immediately accept these PE numbers as reliable because the shift to the S-EPE model for equity swaps in December 2020 again resulted in volatile PE calculations that were consistently much higher than calculations under previous models. In late January, CRM queried the Credit Control group as to why Archegos's PE had climbed so dramatically, from approximately \$32.5 million on January 6, to \$331.3 million on January 26, to \$721.3 million on January 27. In response, CS's

¹¹² As noted *supra*, this chart was generated using weekly PE data compiled by CS. According to these data, Archegos's PE dropped sharply in mid-February and early March 2021: from approximately \$517 million on February 12, 2021; to approximately \$72 million on February 19, 2021; to approximately \$490,000 on February 28, 2021; and to approximately \$220,000 on March 5, 2021. Then, as of March 12, 2021, PE increased to approximately \$227 million. CS has confirmed that the data accurately reflects the output of the model. As discussed *infra*, on February 18, 2021, CS received an additional \$500 million of initial margin from Archegos, contributing to the initial decrease of PE to approximately \$72 million. However, the substantial fluctuation in PE over this period and, particularly, the fact that the model put Archegos's PE near zero less than three weeks before its default resulting in over \$5 billion in losses to CS is notable. It is also unclear that the PE model incorporated appropriate inputs relating to Archegos's substantial position in Chinese ADRs. Because the ADRs were traded on U.S. exchanges and denominated in USD, it appears that they may have been proxied to U.S. indices and U.S. default parameters. We trust this will be studied in the context of the substantial ongoing work at the bank on PE remediation.

Risk Data Management (“RDM”) and Quantitative Analysis and Technology (“QAT”) groups¹¹³ conducted a review to determine whether the PE calculations being generated by the new model were valid. On February 2, 2021, Credit Control confirmed that the numbers were valid—*i.e.*, that they were accurate under the S-EPE model—and reflected the extreme appreciation of Archegos’s swap positions. A week later, on February 9, 2021, Credit Control told CRM that Archegos’s excess PE needed “to be addressed.”

Over this time period, Archegos continued to be in breach of its scenario limits. Even when monitored under the less punitive Bad Week scenario, on February 4, 2021, Archegos was at 238% of the \$250 million scenario limit. On February 9, 2021, PSR wrote to CRM, noting that it had spoken to Archegos that morning and, to address the limit breaches, proposed that Archegos leave a defined percentage—targeted at 5%—of its gross notional exposure to CS, as “earmarked [variation margin] to be undrawn at CS.” Based on Archegos’s current gross exposure, PSR calculated that maintaining this 5% level would require Archegos to add \$629 million to the \$180 million in excess margin then held at CS.

That day, the CRM Director of Hedge Funds responded to PSR, specifically to the PSR analyst covering Archegos and the Head of PSR, noting that CRM had spoken to the IB CRO about Archegos and there were several action items that needed to be addressed.¹¹⁴ First, PSR needed to provide CRM with an “exact timeline on when dynamic

¹¹³ QAT teams are responsible for creating the models used at CS. RDM is focused on data and houses the Chief Data Officer (“CDO”) for the Risk function and acts as first line of defense for Risk Data Aggregation and Reporting compliance. Accordingly, CRM typically interacts with RDM for most data-related inquiries. However, CRM will sometimes interact directly with QAT on particularly complex questions relating to model outputs.

¹¹⁴ Based on our review, it does not appear that the IB CRO directed these demands, but his name was invoked for emphasis.

margin will be implemented and how much [additional] margin that would result in if implemented today.” Second, PSR should no longer be monitoring Archegos against the less punitive Bad Week scenario and instead the goal should be to maintain Archegos’s Severe Equity Crash scenario within the \$500 million limit. CRM noted that “[a]s of February 2, we see both severe EqCrash scenario and SFTQ in \$1.4 billion range, this also means they are substantially in breach of [the] \$800mm SFTQ limit for CSI, which needs to be cured ASAP.” CRM expressed the view that Archegos would need to post around \$1 billion of additional initial margin to fit comfortably within the \$500 million scenario limit. CRM also stated:

Need to understand purpose of having daily termination rights and ability to raise margin [with] 3-days notice on swap if client is not amenable to us using those rights. Per your discussion with them, they don’t want to post more IM (until dynamic IM is implemented) and would rather post excess VM (which they have the right to withdraw at any time).

CRM concluded that it would rather secure the excess variation margin quickly, but that “the right number is closer to \$1 billion at this time. Please advise.”

The Head of PSR responded later that day, pushing back forcefully on CRM’s requests. First, he argued with CRM’s characterization of Archegos’s position, stating that he did not want “people up the chain thinking” that Archegos had “refuse[d] to work with” CS, noting that Archegos had “always been willing to help [CS] get to the right place,” by, among other things, “executing an SCMA in short order” to help with the business’s capital requirements, “getting CSI docs done quickly to migrate” off CSSEL, and “adding over \$1bn of shorts at the end of last year because we asked them to start balancing out their book.” The Head of PSR also noted that he had “asked the cross margin team to start scoping the work required for Archegos” and that he did not “think it should

take that long to get them operational.” He noted that the issue was “balancing a commercial outcome with risk management” and he did not believe that asking Archegos to post \$1 billion right away was a reasonable ask, because it continued “to add shorts, agree to higher [initial margin] on all new positions and have indicated they will de-risk longs soon.” He added that he was not convinced that managing Archegos to a severe scenario made sense “when their portfolio can be liquidated well within a couple weeks.” He suggested that “[a]sking for \$1bn is pretty much asking them to move their business, and the revenue profile is significant.”¹¹⁵

The CRM Director of Hedge Funds acknowledged Archegos’s “cooperation in bringing us shorts (albeit nullified by subsequent price appreciation on their longs) and that client has always been current on margin calls including during multiple stress periods.” He noted that the “[k]ey concern is material [initial margin] dilution caused by bullet swap structure coupled with substantial appreciation and their clear pivot away from (more conservatively margined) PB into swap where our offered leverage is much higher (we suspect relative to competitors as well, which could partially explain the growth in our balances).” He also defended the use of the Severe Equity Down scenario, noting:

You’ll recall they took an \$800mm+ PnL hit in CS portfolio during “Gamestop short squeeze” week [at the end of January]. We were fortunate that we happened to be holding more than \$900mm in margin excess on that day, so no resulting margin call. Since then, they’ve pretty much swept all of their excess, so think the prospect of a \$700-\$800mm margin call is very real if we see similar moves (also why \$500mm severe stress shortfall limit not only reasonable, but also plausible with more extreme moves).¹¹⁶

¹¹⁵ As noted *supra*, Archegos contributed approximately \$16 million in revenues to CS in 2020. Based on the enormous appreciation of Archegos’s positions, Archegos was on target to generate \$40 million in revenues in 2021.

¹¹⁶ In January 2021, an historic rally in GameStop Corp. shares sent the company’s stock price from \$19 at the beginning of the year to an intraday high of \$483 on January 28, a surge of over 2500%. The rally was thought to be driven in part by enthusiasm generated on internet forums. At the same time, numerous

On February 10, PSR asked Archegos for \$750 million in additional initial margin by converting all current excess margin at CS—approximately \$742 million—into initial margin and providing an additional \$8 million to bring the total to \$750 million. As of February 16, Archegos had not yet paid the requested \$750 million and was still “reviewing” CS’s proposal. Meanwhile, RDM/QAT had validated the PE figures generated through the new PE model—and Archegos’s PE had risen to \$529 million. Indeed, even using the old (pre-2020) historic-simulation PE model, Archegos’s PE was \$195 million—multiples of its \$50 million PE limit.¹¹⁷

Given these facts, the CRM Director of Hedge Funds wrote to numerous senior Risk officers, including the IB CRO and Head of Credit Risk, and the CRM Head of Counterparty Risk, to escalate the PE limit breach and the increasingly serious margining issues with Archegos’s swaps. He noted that there had not been material changes to Archegos’s swap book positions over the prior six weeks, and yet PE had grown from approximately \$30 million in early January to \$529 million in mid-February, a situation that RDM/QAT “mainly attribute to dilution in effective [initial margin]” as Archegos’s “large long swap book” had “appreciated substantially while [initial margin] levels have remained static.” He further observed that margin erosion was also the reason for Archegos’s outsized scenario exposure.

large investors held short positions in GameStop stock, and demand for shares among short investors seeking to exit their positions drove the share price even higher. Among other things, the episode highlighted the danger that concentrated exposure to the idiosyncratic risks of a particular stock could lead to significant trading losses.

¹¹⁷ Current and former CRM employees reported that, in view of the general concern with the validity of PE results under both the S-EF and S-EPE models, PE results under the retired historic simulation model were also calculated and circulated to the CRM team as another point of reference, particularly while surprising results from the new models were under investigation.

The CRM Director of Hedge Funds noted that all of these factors pointed to “the need for [Archegos] to immediately post more” initial margin. However, he also said:

For avoidance of doubt, I do not have any acute counterparty concerns; they should have ample liquidity to post more [initial margin] and Prime continue to emphasize their strong partnership with the client. That said, the sheer size of their swap book warrants ongoing scrutiny[.]

On February 16, 2021, CRM and PSR sent an email to the margin services group for Prime Financing to ask that no margin excess be returned to Archegos without explicit approval from the people on the email, including the CRM and PSR analysts covering Archegos, their direct supervisors, and CRM’s Head of Counterparty Risk.¹¹⁸ The email went on to state that CRM understood that CS was “holding \$669 million in margin excess today and want[ed] to ensure that buffer d[id] not erode until client has agreed to post more [initial margin.]” The margin services team agreed on the morning of February 17, 2021.

As of February 17, Archegos’s PE had risen to \$550 million and, on February 18, CRM downgraded Archegos’s rating from “medium” to “low” for purposes of PSR control reports.¹¹⁹ At the same time, the variation margin that CRM and PSR were hoping to convert to initial margin had itself eroded by approximately \$200 million.

The PSR analyst covering Archegos did not understand the basis for the downgrade and reached out to the CRM analyst for an explanation. He reported to the Head of PSR what he had learned, specifically that CRM was concerned with Archegos’s

¹¹⁸ As noted *supra*, when Archegos was put on the PSR watch list in 2018, margin services was required to seek CRM’s and PSR’s approval prior to making payment to Archegos relating to Prime Brokerage; however, this requirement did not apply to payments to Archegos with respect to Prime Financing, which was handled by a different margin services team.

¹¹⁹ As discussed *supra*, CRM’s ratings are provided to PSR in “buckets” of high, medium, and low, since PSR is walled off from more precise credit-related information about counterparties.

substantial increase in leverage (from “historical levels of 3-4x to 6x”), the extreme increase in Archegos’s NAV over a short period of time (*i.e.*, NAV of \$1.5 billion on April 1, 2020, \$6 billion on December 1, 2020, and \$8.1 billion on January 1, 2021), and the risk posed by Archegos’s holdings across the Street. The PSR analyst elaborated on the implications of this last point, stating:

CS sees a vertical slice of [Archegos’s] book, meaning there are not any hidden names we’re unaware of

So names like Viacom, Tencent, Discovery all > 3 DTV [in the CS portfolio], if there is an issue, all brokers would be looking to exit simultaneously

[Archegos] do[es]n’t have any lock ups ... the reason I mention this is because when I asked about their unencumbered cash position they noted to CRM that they hold c. 25% of NAV either in true cash as a custodian or in the form of excess [margin]....so, w/o a [lockup] and if everyone starts increasing [margin rates] simultaneously...this could, in theory, force a liquidation.

The PSR analyst encouraged the Head of PSR to push forward with collecting additional margin from Archegos as quickly as possible, noting that the “path of least resistance” was to convert excess margin at CS into initial margin (as had been previously proposed), but that \$200 million in excess margin had already been eroded by market moves since the time that CS had requested \$750 million from Archegos on February 10. The PSR analyst said CS had to “try and act soon.”

In response, the Head of PSR ignored the warning about Archegos’s exposure across the market—and the consequences of that exposure.¹²⁰ Instead, he simply stated: “[Archegos’s Head Trader] talked to Bill [Hwang] and it sounds like they are good

¹²⁰ The Head of PSR maintains that he never focused on the portion of the message in which the PSR analyst expresses concerns about the other prime brokers, and that he had likely focused solely on the last portion of the analyst’s message related to the request to have Archegos convert excess margin to additional initial margin.

to reclass. Will confirm when it is 100%.” Later in the day, however, PSR informed CRM that Archegos had refused CS’s request for \$750 million of additional initial margin, and was only willing to post \$500 million because market moves had eroded the excess margin at CS to \$466 million, which Archegos was willing to “top up” to \$500 million. The \$500 million of excess margin, plus the “top up,” was converted to initial margin on February 18, 2021.

The next day, CRM held a due diligence call with Archegos, during which Archegos told CRM that it had unencumbered cash and margin excess of \$6.6 billion held in a cash account at another bank. Archegos also told CRM that it had reduced its leverage from “6-7x gross / 3-4x net long” to “4.73x gross / 1.62x net long.” This claim provided CRM comfort about Archegos’s situation and the direction in which its risk management efforts were moving.

Nonetheless, also on February 19, the CRM analyst covering Archegos escalated the same concern that the PSR analyst had elevated to the PSR Head the day before: namely, that Archegos’s concentrated positions with CS were likely also spread across its other prime brokers. The CRM analyst told his supervisors that, while Archegos refused to answer specific questions about its holdings at other prime brokers, Archegos had told him that, “as they leg in to positions, they ideally prefer to do so pro rata across their core [prime brokerage] providers,” including CS, although that was not always accomplished. The CRM analyst noted that CS “should assume that [Archegos] potentially ha[d] additional exposure” on the same large, concentrated names “away from [CS].” CRM personnel suggested that it made sense for Archegos to be brought back to CPOC for further discussion; the next meeting was scheduled for March 8, 2021.

2. CS Attempts—and Fails—to Implement Dynamic Margining

Even though CPOC had discussed in September 2020 moving Archegos to dynamic margining as a solution to its persistent PE and scenario limit breaches, little was done until February 2021. Finally, on February 9, 2021, following the back-and-forth between PSR and CRM over the amount of additional initial margin to request from Archegos, the Head of PSR reached out to the software engineering team responsible for transitioning clients to the dynamic margining platforms and asked the team to “scope getting margin relief” set up for Archegos. The software engineering team ran Archegos’s swaps portfolio under the dynamic margining rules applicable to Archegos’s Prime Brokerage portfolio and delivered the results to the Head of PSR on February 10, reflecting that Archegos would need to increase its existing swap margin by **\$3 billion**. That is, Archegos’s existing swap margin was approximately \$1 billion, but if its swaps portfolio was margined under the Prime Brokerage margining rules, the total initial margin requirement would be approximately \$4 billion, resulting in a day-one step up of \$3 billion in additional initial margin.¹²¹

After receiving this news, the Head of PSR did not pursue this option. Instead, he directed the PSR analyst covering Archegos to develop a separate dynamic margining proposal for Archegos’s swaps portfolio using a more forgiving set of rules that would generate average margins of only 15%.¹²² It appears this direction was motivated

¹²¹ Notably, these terms did not include bias add-ons because, as discussed *supra*, CS agreed in 2017 to remove bias add-ons from the dynamic margining rules applicable to Archegos’s Prime Brokerage portfolio.

¹²² The PSR analyst recalls being asked to craft a proposal that would generate margins around 15%. The Head of PSR recalls telling the PSR analyst that Archegos’s swap margins with its other prime brokers ranged from 15-20% and that the proposal should fall within that range to be competitive. The Head of PSR could not recall when Archegos told him that its other prime brokers had margins ranging from 15-20%.

by a desire to present Archegos with a dynamic margining proposal that would require a lower day-one step up in initial margin. We have seen no evidence that PSR shared the \$3 billion “shortfall” margin number with CRM, or that it involved CRM in any discussion related to PSR’s decision to depart from Archegos’s Prime Brokerage margining rules to generate a less onerous dynamic margining proposal.

On February 19, 2021, the PSR analyst sent a dynamic margining proposal to the Head of PSR for internal review, noting that he had made the terms “about as tight” as possible, yielding an average margin of 16.74% if applied to Archegos’s existing swaps portfolio and leading to a day-one step up of approximately \$1.27 billion in additional margin. This was less than half of the additional initial margin that would have been required if Archegos’s Prime Brokerage dynamic margining rules were applied to Archegos’s swaps portfolio.¹²³ On February 23, 2021, the PSR analyst covering Archegos reached out to Archegos’s Accounting Manager and asked to speak about dynamic margining. Archegos’s Accounting Manager said he would not have time that day, but could speak the next day. The following day, he again put off the discussion, but agreed to review the proposed framework, which PSR sent over that day. Archegos did not respond to the proposal and, a week-and-a-half later, on March 4, 2021, the PSR analyst followed up to ask whether Archegos “had any thoughts on the proposal.” His contact at Archegos said he “hadn’t had a chance to take a look yet,” but was hoping to look “today or tomorrow.”

¹²³ Like most dynamic margining rules, the proposal was structured to provide for tiered base margin rates based on the country of origin (this proposal included four tiers) as well as add-ons that applied at various levels of volatility, concentration, liquidity, and market bias in Archegos’s portfolio. We found no evidence that PSR asked CRM to review or approve the specific dynamic margining proposal.

3. CPOC Discusses Archegos in March 2021

Archegos was presented at CPOC for the second time on March 8, 2021. As in September, the meeting was co-chaired by the IB CRO, and attended by, among others, the Head of Equities, CRM's Head of Counterparty Risk, CRM's Director of Hedge Funds, and the Head of PSR. Archegos was one of six counterparties discussed at the 90-minute meeting.¹²⁴

As reflected in the CPOC Packet for the meeting, Archegos was being presented to CPOC for a second time to “ensure awareness” of several issues, including the size of Archegos's swap book at CS, which was “Prime's largest in terms of GMV and NMV [net market value]”; the “concentrations/liquidity of [the fund's] underlying positions”; its “aggressive margins”; the “current exposures vis-à-vis counterparty's internal credit rating”; its “substantial use of leverage”; and its “highly volatile performance pattern.” The goal of the discussion was to “[o]btain consensus” on CS's scenario appetite for Archegos and “other risk measures or mitigating actions, along with a timeline for compliance.”¹²⁵

The CPOC Packet provided key metrics, including Archegos's market value, exposures, and leverage, and these were shown as extremely large. The committee could see that, as of January 2021, Archegos's PE was \$476 million, increased from \$31 million in December 2020, and its maximum scenario exposure was \$1.46 billion, increased from \$345 million in December 2020. The CPOC Packet showed that CS's Archegos exposure had grown substantially to a \$21 billion GMV and \$7 billion NMV,

¹²⁴ Neither of the Co-Heads of Prime Services was invited to or present at this meeting or at the September CPOC meeting.

¹²⁵ By March, the CPOC meeting materials had evolved to include a description of why the counterparty had been brought to CPOC and the goal for the committee's discussion.

with “aggressive margins of 8-9%.” It also noted that Archegos “generated some of the largest scenario exposures” in CS’s global hedge fund portfolio. Revenue generated by Archegos for CS was listed as \$8.5 million in 2019, \$17.4 million in 2020, and \$6.4 million year-to-date as of February 2021 (more than \$40 million annualized).

According to the materials, Archegos had posted an additional \$500 million of initial margin and had \$400 million of excess margin with CS. The materials highlighted Archegos’s “aggressive” use of leverage (up to 6-7x gross, 3-4x net) and volatile performance (five-year annualized volatility of greater than 70%), both of which had contributed to its credit rating downgrade despite its huge NAV growth (then approximately \$16 billion). The materials noted that Archegos held “[l]umpy single-issuer concentrations,” with its five largest positions “ranging in size from \$1.25bn (6% of GMV) to \$3.3bn (16% of GMV),” which equated to 8-9% of the outstanding float in certain names. Finally, the materials noted that the initial swap margins were static, but that the “client is reviewing a PB-style dynamic margin proposal [with] add-ons for concentrations, liquidity, portfolio bias, etc that should result in increased margin/reduced exposure.”

CRM team members and the Head of PSR again presented Archegos at the March CPOC meeting. As reflected in the meeting minutes, CRM emphasized that Archegos was an outlier in the Delta One swap book: with GMV exposures of \$20 billion, while the next largest client was \$5 billion, and a net long bias of over \$7 billion, while the next largest long-biased client was net long by \$1.5 billion. Discussion also highlighted Archegos’s “[s]ingle issuer concentration,” including a \$3.3 billion position representing “more than 8% outstanding float (next five largest are in the range of USD 1.2bn to USD 1.5bn).” The minutes also noted that, “[a]lthough these are large cap names, liquidation

timelines are much longer given the size of the positions; some names in the top 5 represent 3-7 days of trading volume.”

CPOC’s discussion of Archegos concluded with the following:

“Action/Decision: Move client to dynamic margining with add-ons for concentration and liquidity within the next couple of weeks. If no traction perceived by the middle of week of March 15, request an additional USD 250mn margin from the counterparty.”

The Head of PSR—a CPOC member—was designated the “owner” of this action item. He was further instructed to “[u]pdate the committee on the resolution of the decision and whether any aspect of add-ons may still be subject to discussion at the next meeting,” with a target completion date of “April 2021.”

While CPOC’s March 8, 2021 instructions were more concrete than they had been in the fall of 2020, the action items and timeline still failed to reflect a full understanding of the risk exposures posed by Archegos, as illustrated by the direction to request \$250 million in additional margin if no progress had been made by the week of March 15. The rationale for this particular amount is unclear, although certain participants recall that it was suggested by the Head of Equities. As noted in the CPOC Packet and minutes, CPOC understood that a dynamic margining proposal had been made to Archegos, but it is unclear whether CPOC was told that proposal would have required a day-one step up of approximately \$1.27 billion in additional margin. In all events, the mandated \$250 million request amounted to less than one-fifth of what would have been required as a day-one step up under the dynamic margining proposal sent to Archegos just two weeks earlier (and one twelfth of the day-one step up if dynamic margining was calculated using the rules applicable to Archegos’s Prime Brokerage portfolio).

4. Nothing Changes After Archegos is Discussed at CPOC

After the March 8 CPOC meeting, Archegos continued to put off CS's attempts to discuss its dynamic margining proposal. Following the CPOC meeting, the Head of PSR, who had attended the CPOC meeting, asked the PSR analyst to again reach out to Archegos. He did so that same day, this time asking to set up a time to speak soon, as CS wanted to target the week of March 22, 2021 to "go live" with dynamic margining. Archegos set a time to speak on March 11.

On March 11, the PSR analyst finally had a call with Archegos's Accounting Manager, after which the PSR analyst circulated by email a current calculation of the day-one step up in initial margin—\$1.49 billion—noting that Archegos could fund that amount if CS simply absorbed 60.5% of Archegos's \$2.5 billion excess margin held at CS as of the close of business on March 8.

On March 17, PSR sent Archegos an updated calculation resulting in a day-one margin increase of \$1.385 billion, which was based on the portfolio values at the close of business on March 15. The next day, on March 18, the PSR analyst asked for a call to answer any questions Archegos might have about CS's proposal prior to execution, hopefully the following week. Archegos responded that while it had been "hoping" the move to dynamic margining would not generate such a large "day 1 increase in margin," it understood that position values had moved and at this point the only open issue was to persuade Bill Hwang to agree to and execute the agreement. The Head of PSR scheduled three separate calls with Archegos between Friday, March 19 and Tuesday, March 23 to follow up—all scheduled for after market close—to finalize the discussion, but Archegos cancelled all three calls, each at the last minute.

Notably, during the several weeks that Archegos was “considering” this dynamic margining proposal, it began calling the excess variation margin it had historically maintained with CS. From March 11 through March 19, Archegos called \$2.4 billion in excess margin from CS, though each call was for less than Archegos was technically entitled to request based on current variation margin calculations. On March 11, CS paid Archegos \$740 million; on March 12, \$650 million; on March 15, \$200 million; on March 16, \$76 million; on March 17, \$145 million; on March 18, \$230 million; and on March 19, \$400 million.

CRM and PSR approved each request,¹²⁶ and the money was transferred to Archegos, despite the fact that there had been no traction on the dynamic margining proposals sent to Archegos, which, by March 11, required a day-one step up of approximately \$1.49 billion in additional margin.¹²⁷ CRM and PSR rationalized approving these requests for two reasons: first, they emphasized that CS did not have the legal right to refuse paying variation margin that Archegos was entitled to, and, second, Archegos continued to leave at least \$500 million in excess variation margin with CS, giving CS a cushion to fall back on.

Notably, from March 12 through the date of Archegos’s default, Prime Financing permitted Archegos to execute \$1.48 billion of additional net long positions,

¹²⁶ The approval emails were sent to the CRM and New York PSR distribution lists, and the payments were approved each time by the CRM and PSR analysts covering Archegos.

¹²⁷ Despite Archegos’s withdrawal of \$2.4 billion in variation margin during this time, we have seen no evidence that CS even considered calling initial margin under the ISDA’s provision allowing CS to do so upon three-days’ notice.

posting initial margin of \$314 million on those swaps (reflecting an average margin rate of 21.2%).¹²⁸

5. Archegos's Portfolio Collapses the Week of March 22, 2021

The market value of Archegos's portfolio—and thus the balance of variation margin—shifted precipitously during the week of March 22, 2021. ViacomCBS stock—Archegos's single largest long position¹²⁹—declined significantly in value, dropping 6.7% on March 22 alone and continuing to plummet throughout the week. This decline was precipitated, at least in part, by ViacomCBS's announcement on March 22 that it would be offering \$2 billion of its Class B common stock and \$1 billion of its Mandatory Convertible Preferred Stock—and the apparent lack of interest in that offering. On March 23, Archegos maintained \$606M of excess variation margin at CS. By the next day, March 24, that \$606M of margin was wiped out by market movements and Archegos owed CS \$177M of variation margin, which CS called, and Archegos paid.

¹²⁸ In addition, it appears that on March 12 Archegos renewed swaps in excess of \$13 billion, with an original maturity date of March 29, 2021, for 24 months (with the same initial margin) at Archegos's request. CS documents suggest that the renewal was a mistake. On March 12 the PSR analyst covering Archegos specifically instructed a Delta One trader not to renew these swaps in view of the pending discussions with Archegos about moving to dynamic margining.

The swap extension caused Archegos's RWA to explode. Archegos's RWA had already grown dramatically beyond its 2020 levels as a result of CS's downgrade of its internal rating for Archegos in February 2021. Thus the business had already communicated to the Head of PSR an urgent need to get additional initial margin from Archegos to bring down RWA before quarter end. The need became even more urgent following the swap extension. In view of the lack of progress on the dynamic margining proposal and the need to bring down RWA before quarter end, the Head of PSR maintains that he spoke to Archegos's head trader on or about March 19 and urgently requested \$750 million in additional initial margin as well as a reduction in the maturity of the new swaps, which he understood would be sufficient to bring Archegos's RWA down to manageable levels. While CS never received the \$750 million in additional initial margin, the Head of PSR reminded Archegos about the agreement to amend the termination dates of the renewed swap on March 25 and the swaps were amended that day to reflect a duration of only a few weeks.

¹²⁹ As of March 22, the gross market value of Archegos's ViacomCBS stock holding was approximately \$5.1 billion.

On March 24, another of Archegos's significant long positions—Tencent Music Entertainment Group—dropped approximately 20%. As a result of the Tencent and ViacomCBS stock declines, the variation margin moved further against Archegos, and CS determined that it would be making a margin call of over \$2.5 billion the following day. The enormous size of the next day's margin call was escalated to the Co-Heads of Prime Services and the Head of Equities and a call was scheduled with Archegos for that evening. The telephone call was led by the Head of Equities, who informed Archegos of the forthcoming margin call. The CFO for Archegos informed CS that, while Archegos had a \$20 billion NAV and had, up until that point, made all of its margin calls, it no longer had the liquidity to meet CS's forthcoming call or any other calls from its other prime brokers.

6. Failure to Escalate Beyond CPOC

Prior to March 24, there had been minimal escalation of issues surrounding Archegos's portfolio. It was addressed only perfunctorily at a small number of the dozens of Risk Committee meetings held in 2020 and 2021, prior to Archegos's default in March 2021.

Throughout 2020 and 2021, Archegos appeared in meeting materials for several different Risk Committees, but was mentioned only in passing on crowded slides alongside numerous other counterparties without any particular attention drawn to the significant risk that Archegos posed. During this period, Archegos was mentioned in the materials of the U.K. IB Credit Risk Committee 13 times, the IB Credit Risk Committee 13 times, the GM/IBCM Risk Management Committee 16 times, and the CSi/CSSEL Risk Management Committee three times. It appears that Archegos was specifically discussed at only a handful of these meetings; it is referenced in meeting minutes for six meetings of

the U.K. IB Credit Risk Committee and two meetings of the IB Credit Risk Committee. Each time, the minutes reflect only a brief discussion that focused on reassurances that Archegos's risk exposure was being managed.¹³⁰

Similarly, Archegos appeared only once in Board materials, specifically on page 47 of the Group Risk Report Appendices, which were included as an item in the December 10, 2020 Board of Director materials and the December 7, 2020 Board of Director Risk Committee materials. Here, too, Archegos was mentioned only in passing on crowded slides alongside numerous other counterparties and without any particular attention drawn to it. The relevant minutes reflect no discussion of Archegos. We have seen no evidence that Archegos and its persistent limit breaches were escalated to the Board, its Risk Committee, or to the Chair of the Board Risk Committee whether as part of formal governance or outside of formal governance (*e.g.*, as part of any other risk updates or meetings held with Board Risk Committee Chair).

Of course, escalation of counterparty credit risk was not restricted to formal committee meetings. Escalation can and often does occur in smaller meetings or one-off discussions. However, it does not appear that the Head of Equities raised Archegos to his boss, the IB CEO, until Archegos informed him, on the night of March 24, that it would not be able to meet the margin call of more than \$2.5 billion the following day.¹³¹ Similarly, it does not appear that the IB CRO ever raised Archegos to his boss, the Group

¹³⁰ Even when Risk Committees were presented with materials concerning Archegos, the data they were looking at were 4-6 weeks old, as the materials for any meeting had to be prepared well in advance and relied on data that had been "scrubbed." The Head of Credit Risk for the IB was required to specifically approve excesses that were more than \$500 million over the scenario group guidelines. These excess approvals were thus significantly backward looking; indeed, the Head of Credit Risk approved Archegos's PE limit exception from June 2020 at the September meeting of the IB Credit Risk Committee.

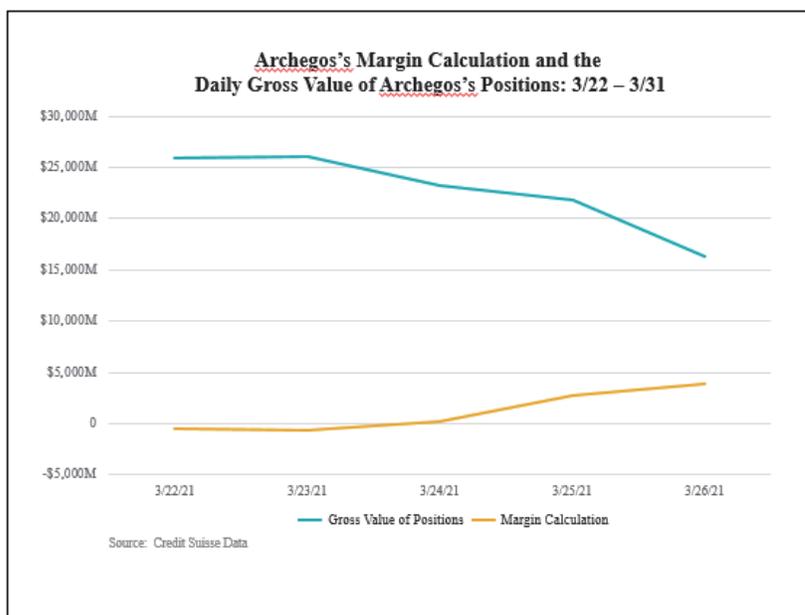
¹³¹ Nor did the IB COO, who was also Co-Chair of CPOC and a direct report of the IB CEO, ever raise Archegos with the IB CEO.

CRO, who also recalls first hearing about Archegos on the evening of March 24.¹³² Yet both the Head of Equities and IB CRO were members of CPOC (indeed the IB CRO was its Co-Chair) and both had attended the September and March discussions of Archegos, and understood by March 8, 2021, that Archegos's extremely concentrated and long-biased portfolio had massively appreciated, such that its gross exposures had grown to over \$21 billion, and Archegos's gross exposure and long bias was out of all proportion to—indeed four times higher than—the next largest client on the Delta One desk.

7. Archegos Defaults and CS Struggles to Unwind Archegos's Positions

On the morning of March 25, 2021, CS issued two margin calls—one in Prime Brokerage and one in Prime Financing—together totaling over \$2.8 billion. As the day unfolded—and as the share prices of Archegos's holdings continued to decrease, signaling an additional substantial margin call for the following day—the CS legal team worked swiftly to prepare Event of Default (EOD) notifications—exercising CS's contractual rights to demand full repayment of all outstanding balances upon a default, such as a failure to pay margin when due.

¹³² Indeed, we have seen no evidence that the Head of PSR ever directly raised concerns about Archegos's persistent limit breaches or eroding margin to his bosses, the Co-Heads of Prime Services, until that time.



At 12:30 pm EST on March 25, key personnel from CRM and PSR joined a call with Archegos during which Archegos reiterated that it would not be meeting its margin calls for the day. Archegos also said that the \$6 to \$7 billion of unencumbered cash it had been holding had been used up on margin calls from other prime brokers. Archegos stated that it did not have an intra-day estimate of profits and losses. And while Archegos claimed it was “committed to making all PBs and swap counterparties whole by liquidating assets to cover the shortfall with each dealer,” Archegos observed that it would need to “carefully liquidate positions in order to not tip the market,” and said it was unable to provide details on how much progress it had made selling assets since the market opened.

On the evening of March 25, Archegos held a call with its prime brokers, including CS. On the call, Archegos informed its brokers that, while it still had \$9 to \$10 billion in equity (a decrease of approximately \$10 billion from its reported equity the day before), it had \$120 billion in gross exposure (\$70 billion in long exposure and \$50 billion in short exposure). Archegos asked the prime brokers to enter into a standstill agreement,

whereby all of the brokers would agree not to default Archegos, while Archegos would down its positions. While CS was open to considering some form of managed liquidation agreement, it remained firm in its decision to issue a notice of termination, which was sent by email that evening, and followed up by hand-delivery on the morning of March 26, designating March 26 as the termination date. As of March 23, CS had approximately \$27 billion in gross exposure to Archegos; as of March 26, CS had approximately \$17 billion in gross exposure, reflecting the steep decline in the value of Archegos's positions. As of March 23, CS's average margins on Archegos swap positions had crept up further to approximately 9.4%, and CS's average margin rate across both Prime Brokerage and swap was approximately 9.6%.

On the morning of March 26, CS was approached by Archegos and told that Goldman was organizing block sales of certain ADR positions and invited CS to participate. CS ultimately participated in three such Goldman-led block trades, selling shares in Baidu, Tencent, and Vipshop Holdings. In these trades, Goldman did not disclose to CS the number of shares it was putting up in the block, and there was no agreement with Goldman as to which broker's shares were being sold first and/or how the sales would be distributed. Apart from the block, CS engaged in algorithmic trading that day, aiming to stay within 2-3% of average daily volume. Ultimately, CS sold just over \$3 billion notional on March 26, approximately \$1.27 billion of which was sold in the Goldman-led block sales.

Archegos and its prime brokers, including CS, Morgan Stanley, Goldman, Nomura, UBS, Wells Fargo, and Deutsche Bank, had another call on Saturday, March 27. On the call, Archegos again tried to orchestrate a forbearance agreement with its lenders,

whereby Archegos would manage liquidating its positions rather than leaving each bank to do so individually.

Archegos then exited the call and its prime brokers remained on the line. The possibility of a managed liquidation without Archegos was discussed, whereby Archegos's prime brokers would send their positions for review to an independent counsel, government regulator, or other independent third-party, who would freeze holdings for the entire consortium when the aggregate concentration reached particular levels, and give the lenders a percentage range within which they would be permitted to liquidate their overlapping positions. General counsel of the various banks and outside legal counsel were engaged to work through any regulatory and legal challenges, and counsel attended all calls.¹³³ Ultimately, several banks including Deutsche Bank, Morgan Stanley, and Goldman determined that they were not interested in participating in a managed liquidation, while CS, UBS, and Nomura remained interested.

On Sunday, March 28, CS entered into a managed liquidation agreement with UBS and Nomura. Pursuant to this agreement, CS participated in block sales of overlapping positions on April 5 and 14, 2021, liquidating approximately \$3 billion and \$2.2 billion, respectively, on those dates.¹³⁴ Otherwise, CS liquidated its other historic Archegos positions through open-market, algorithmic trading. As of April 22, 2021, CS had liquidated 97% of its Archegos exposure.

¹³³ Indeed, internal counsel from the various prime brokers held a call among themselves earlier that day, agreeing that lawyers would be present on any calls between the brokers, and that the lawyers would read a script on each call making clear that no broker was permitted to disclose its Archegos-related positions.

¹³⁴ The stocks sold in these trades were Vipshop Holdings, ViacomCBS, Farfetch, Texas Capital Bancshares Inc., IQIYI, Discovery (Series A), and Discovery (Series C).

As publicly reported, CS estimates that it lost \$5.5 billion as a direct result of Archegos's default and unwinding the resulting exposure. According to public reporting, Nomura lost approximately \$2.9 billion from the Archegos default; UBS lost approximately \$774 million; Morgan Stanley lost approximately \$1 billion; and Deutsche Bank, Wells Fargo, and Goldman reported immaterial losses.

III. KEY OBSERVATIONS

Our key observations revolve around a central point: no one at CS—not the traders, not the in-business risk managers, not the senior business executives, not the credit risk analysts, and not the senior risk officers—appeared to fully appreciate the serious risks that Archegos's portfolio posed to CS. These risks were not hidden. They were in plain sight from at least September 2020, when CPOC first met and CS senior leaders discussed Archegos's concentrated, long-biased, volatile equity swap positions. Yet no one at the bank acted swiftly and decisively to try to mitigate the risks posed by Archegos. And when CS finally took steps to mitigate the risks, the actions it took were ineffective, too little, and too late. Archegos defaulted on March 25, 2021.

These facts lead to a fundamental and inexorable conclusion: The Prime Services business was mismanaged. This was due in part to a lack of competence (including a failure to appreciate obvious and severe risks) as well as a culture in which profits were prioritized over sound risk management and respect for controls. In recent years, CS had cut costs, resulting in significant turnover in the business and a less experienced workforce. Additionally, managers wore multiple "hats," lacked clear roles and responsibilities, and failed to exercise effective oversight. The result was a business that allowed Archegos to take outsized risks without protecting CS from outsized losses.

A. The Business Failed to Understand and Appreciate the Magnitude of the Risks Posed by Archegos’s Portfolio.

Throughout 2020 and 2021, Archegos’s portfolio was highly concentrated, both at CS and across other prime brokers, and significantly under-margined at CS. The business was aware of these red flags, but did not connect the dots to appreciate the significant risks they portended. The business should never have put on such large, concentrated positions with Archegos, particularly without securing adequate margin.

1. Concentration

The business knew that Archegos’s portfolio was highly concentrated. For instance, by April 2020, Archegos’s top five long positions represented approximately 150% of its NAV. Around this time, the business began tracking the concentration of Archegos’s portfolio at CS in the Prime Services Weekly Client Update, which was distributed to the Head of Equities and Co-Heads of Prime Services.¹³⁵ This update continued to track Archegos’s concentration for the duration of CS’s relationship with Archegos.

While CS had limited visibility into Archegos’s operations and investment strategy given the relative opacity of family offices, the business did receive information (communicated by Archegos to CRM and shared with PSR) that Archegos had similar positions across its other prime brokers. Following a conversation with CRM in mid-February 2021, the PSR analyst covering Archegos told his manager, the Head of PSR, that if there was an “issue” with one of Archegos’s large, long positions, “all brokers would be looking to exit simultaneously.” He warned that because Archegos did not have lock-

¹³⁵ The April 3, 2020 Weekly Client Update appears to be the first such update to include Archegos concentration metrics; it noted that 28% of the GMV of Archegos’s portfolio at CS was held in positions that were >10% concentrated.

up agreements with any of its prime brokers, if all the prime brokers perceived this risk and increased their margins simultaneously, this “could, in theory, force a liquidation.” PSR never escalated this risk to more senior business managers, and it was not raised at the March 8, 2021 CPOC meeting.

2. Leverage

The business also understood that Archegos’s portfolio at CS was severely under-margined. In the years leading up to Archegos’s default, in response to requests from Archegos, CS had significantly reduced the margin requirements on Archegos’s portfolio and weakened the bank’s risk protections: in 2017, CS agreed to drop bias additions on Archegos’s Prime Brokerage portfolio, and, in 2019, it agreed to reduce the standard initial margin charged on Prime Financing swaps by more than half (from an average rate of 20% to 7.5%).¹³⁶ (The margin in Prime Brokerage never fell below 15%.) CS rationalized these changes on the grounds that Archegos was running a long/short strategy and its short swaps in Prime Financing acted as a hedge to its long cash positions in Prime Brokerage.

But after CS lowered the initial margin on swaps to 7.5%, Archegos began entering into more swaps. By 2020, Archegos’s swaps portfolio had fundamentally changed, becoming significantly long-biased; by September 2020, long swaps comprised two-thirds of its total portfolio.¹³⁷ The business knew about this shift: it was tracked in its Weekly Client Update and was the subject of numerous discussions with Risk, yet the business was slow to change Archegos’s initial margin rates on swaps even though the rationale for the lower rate (*i.e.*, reducing the directionality of the overall portfolio) no

¹³⁶ See *supra* at Section II.C.3.

¹³⁷ See *supra* at Section II.D.1.

longer applied. Although the business ultimately agreed with Risk in the fall of 2020 that Archegos's swap margins should be increased—and instituted higher margin rates on new trades—by then Archegos's swap margins (which comprised the vast majority of its portfolio) had eroded to approximately 6% and, even with higher margins for new positions, would not reach 10% on average before Archegos's default.¹³⁸

The business was also aware of the risk of initial margin erosion due to (i) static margining and (ii) bullet swaps. Static margining meant that the initial margin on Archegos's swaps remained static during the life of the swap, such that, if Archegos's positions appreciated in value, CS would be holding proportionately less initial margin against the positions. And, with respect to bullet swaps, Archegos and CS agreed to swap contract tenors in excess of a year (typically 24 months) that did not reset at any point (and thus the initial margin was not recalculated) during the life of the swap. This extended the period over which margins could erode. In fact, that is precisely what occurred here—Archegos's long swaps skyrocketed in value in 2020 and 2021, leaving CS significantly under-margined, particularly given the comparatively low initial margin CS had charged Archegos on swaps throughout 2019 and much of 2020.

Although the business increased Archegos's margin on some new trades, and turned down some new trades involving concentrated names, beginning in the fall of 2020, the risks borne by CS were not substantially altered as a result of these actions, in

¹³⁸ PSR created a new swap margin framework in July 2020 that would have increased Archegos's initial margin based on aggregate bias—a tiered margining model where the aggregate bias threshold would dictate a base margin rate and add-ons. But that new framework was never implemented, and it is not clear that PSR ever seriously pursued its implementation with Archegos. PSR also never implemented the concentration add-on for Archegos positions above 2 days' DTV, which had been agreed to in 2019 in connection with reducing Archegos's base swap margin rate to 7.5%, even though numerous Archegos positions would have qualified for the add-on.

particular, because (i) the overall portfolio had static margin and would suffer further margin erosion, (ii) the business continued to roll existing swaps at the historical low and static margin rates, and (iii) some new trades were put on at static margin rates under 10%.

B. The Business Missed Numerous Opportunities to Right-Size Archegos Risk

Prime Services viewed its relationship with Archegos as significant, contributing revenues of \$16 million in 2020 and expected to increase to \$40 million in 2021 (based on the enormous appreciation of Archegos's positions). The business was focused on maintaining and growing its relationship with Archegos and was keenly aware that it was competing for Archegos's business with a number of other prime brokers. As a result, the business continually advocated for an accommodative approach to risk, refusing to take forceful steps and generally suggesting half measures that failed to address the substantial risks that Archegos posed to CS. There appears to have been a reluctance among various CS employees to have difficult conversations with and about Archegos.

1. Contractual Rights

To take just one example, CS at all times had the contractual right under its agreements with Archegos to call for additional margin in CS's reasonable discretion upon three-days' notice. The business knew about this right and, in fact, cited it as one of the reasons it was comfortable with the Archegos risk. But the business never seriously considered invoking the right, instead characterizing it as a "nuclear" option with potential business-ending consequences for the Archegos relationship. Another example is the business's failure ever to invoke the liquidity bias add-ons (for all positions greater than 2 days' DTV) to which Archegos had agreed in 2019 in connection with CS reducing its swap margins to 7.5%. Given its desire to retain and grow Archegos as a client, and its

failure to recognize the gravity of the risks that Archegos's portfolio posed to CS, the business never took advantage of its rights to increase Archegos's initial margin even after the margin shortfall had grown so large that it would have taken billions of dollars to plug.

2. Credit Limits

The business repeatedly failed to satisfy its responsibility to ensure that Archegos transacted within the credit limits established by Risk. Archegos was in persistent, significant breach of both its PE and scenario limits throughout 2020 and 2021. Archegos's PE was consistently more than twice its limit for most of this period, even after the limit was raised from \$20 million to \$50 million in early February 2021.¹³⁹ And Archegos was in breach of its scenario limit—often hundreds of millions of dollars over the limit—beginning in July 2020 through the time of its default in March 2021, even after its \$250 million limit was increased to \$500 million in February 2021.¹⁴⁰ These limit breaches were well known to the business, reported to senior managers weekly, and discussed at length with Risk, although never finally addressed. Indeed, rather than directly addressing the cause of Archegos's breaches of its CSSEL scenario limit, the business chose instead to obtain a temporary CSSEL scenario appetite increase until Archegos's swap portfolio could be moved to CSi, which had a greater scenario appetite.

3. Dynamic Margin

It took nearly five months for the business to move forward (at the insistence of CRM) with a proposal to transition Archegos to dynamic margining, after the issue was first raised at the September 2020 CPOC meeting. And the proposal, made in February 2021, was not sized to protect CS from Archegos counterparty risk, but instead was based

¹³⁹ See *supra* at Section II.E.1.

¹⁴⁰ See *id.*

on a level that the business thought might be acceptable to Archegos. The business worked to get the terms “as tight as possible” in order to impose a smaller day-one step up in initial margin, an amount between \$1.3 and \$1.5 billion. But if Archegos’s swap positions had been cross-margined with its Prime Brokerage positions, which were already being margined on tighter-than-standard terms (without any bias add-ons), the day-one step up, as of early February 2021, would have been roughly \$3 billion. The business knew this, determined that a \$3 billion step up would be a non-starter with Archegos, and devised a less onerous, more accommodative proposal, which Archegos ignored in any event.

4. Variation Margin

While the business was waiting to hear back from Archegos on the proposed transition to dynamic margining, Archegos withdrew billions of dollars in variation margin tied to the meteoric appreciation of its portfolio. Each of these withdrawals required sign-off from both the PSR and CRM, which was provided because Archegos still retained a \$500 million excess margin cushion with CS. Although CS was contractually obligated to return variation margin called by Archegos, these calls could have prompted CS to insist that Archegos post the day-one dynamic margin step up or, failing that, to call initial margin under the ISDA, upon three-days’ notice. CS did neither. Instead, CS paid the variation margin called by Archegos, which totaled \$2.4 billion between March 11 and 19, 2021 alone, and Archegos never posted the day-one step up, or otherwise seriously engaged with the business on its dynamic margining proposal.

5. Additional Exposure

CS allowed Archegos to add significant new positions during the first quarter of 2021. Indeed, in the two weeks prior to Archegos’s default alone, Archegos

added \$1.48 billion of new long positions in concentrated names under static margining, albeit at an average initial margin rate of 21.2%. Some or all of this additional exposure may have been transferred by Archegos to CS from Archegos's other prime brokers, whose dynamic margining regimes likely imposed higher margins at that time due to, among other reasons, the rapid and dramatic appreciation in Archegos's positions. In addition, Archegos asked CS to extend the tenor on a significant portion (more than \$13 billion of long positions) of its swaps portfolio on March 12 for a period of two years (these swaps would otherwise have terminated at the end of March). CS renewed these swaps (apparently by mistake) for two years at the existing, inadequate margin rates, instead of conditioning renewal on a transition to dynamic margining. Although the renewal did not impact the ultimate outcome, this apparent operational error indicates weakness in operational risk controls in Prime Financing that merits additional investigation.¹⁴¹

¹⁴¹ Specifically, on March 12, 2021, Archegos emailed a Delta One trader and the Prime Services middle office team asking to extend the maturities of these swaps for 24 months. The trader forwarded the request to the Head of PSR and the PSR analyst covering Archegos, and asked if there were any issues with renewing the swaps. The trader did not copy the middle office, or anyone else, on his email to PSR. In the meantime, a junior member of the middle office team responded to Archegos, copying the trader, and reported that the swaps had been extended. This was not consistent with established protocol, which requires the middle office to await the trader's direction before initiating the booking. Shortly thereafter, the trader received a response from the PSR analyst directing the trader to hold off on the extension request because CS was engaged in discussions with Archegos about transitioning to dynamic margining. The trader did not recall receiving the email from the middle office stating that the swaps had been extended and, in any event, did not forward the email from PSR to the middle office team or otherwise direct the middle office to reverse the booking of these swap extensions. Nor is there any evidence that the trader informed the two more junior traders on the desk of PSR's direction to hold off on Archegos's requested extensions.

Although the middle office had initiated the booking of the swap extensions without the trader's approval, the swap extensions still required confirmation by a Delta One trader. That occurred later that day when one of the more junior traders provided his sign-off on the list of daily middle office bookings. That trader, who does not appear to have been privy to the PSR request that Delta One hold off on the swap extensions, approved the swap extensions, and the maturity date officially changed. He did so without first checking that PSR had approved the swap extension because he assumed that the middle office had already received confirmation from a Delta One trader prior to initiating the booking.

Following the extensions, RWA for the business increased dramatically and these extensions were determined to be the cause. As a result, the Head of PSR spoke with Archegos and, on March 25, the

C. CS Failed to Manage Prime Financing in the United States

Each of the Prime Services Co-Heads—one based in New York and the other in London—described his roles and responsibilities as excluding Prime Financing in the United States.¹⁴² The U.S.-based Co-Head said he was responsible for Prime Brokerage and did not have responsibility for Prime Financing in the United States or elsewhere. According to the U.K.-based Co-Head, the division of responsibilities in Prime Services became regional during COVID-19; he was in charge of all EMEA businesses, while the other Co-Head was in charge of all U.S. businesses.¹⁴³ Thus, in the year leading up to Archegos's default, neither Co-Head took responsibility for overseeing risk concerns related to U.S. Prime Financing clients.¹⁴⁴ Additionally, in the year leading up to the default (a year marked by significant market volatility and a global pandemic), the Co-Heads allowed the meetings of the PSRC (which they had previously attended with the Head of PSR and other business and regional heads) to lapse, leaving Prime Services with no business-wide, senior meeting devoted to risk. Both of the Co-Heads disclaimed familiarity with Archegos prior to its default, notwithstanding the fact that Archegos was among Prime Services' top 10 clients throughout the period, its third largest hedge fund counterparty by gross exposure prior to its default, and they received (along with the Head

extensions were reduced to approximately three weeks. The junior middle office employee acknowledged his breach of standard operating procedure in booking the trade without formal direction by a trader. The trader who communicated with PSR also regretted not informing both the middle office and the other traders of PSR's direction and acknowledged that it would have been prudent to do so given the size of the swaps at issue. The more junior trader who approved the booking similarly acknowledged his failure to check with others on the desk before approving lengthy extensions of such large trades and agreed that it would have been prudent to do so.

¹⁴² See *supra* at Section II.A.4.

¹⁴³ According to the U.K.-based Prime Services Co-Head, there was an entirely separate Head of APAC Prime Services who focused exclusively on the APAC (Asia Pacific) region.

¹⁴⁴ See *supra* at Section II.A.4.

of Equities) weekly bespoke risk reports for Archegos and a handful of other significant clients from November 2019 until Archegos's default in March 2021.

The Head of Equities (himself a former Prime Services Head) did not ensure that the Co-Heads of Prime Services were functioning effectively. As the senior-most business manager at CPOC, he failed to inform the Co-Heads of the discussion of Archegos at CPOC, despite his participation at both the September 2020 and March 2021 meetings. He also apparently never alerted his supervisor, the IB CEO, of the risks relating to Archegos, including the fact that its overall Prime Services portfolio had a notional GMV of about \$21 billion as of early March 2021, that it had concentrated positions representing 3-7 days' DTV, and that it was significantly under-margined.

D. Risk Failed to Understand and Appreciate the Magnitude of the Archegos Risk and Did Not Effectively Challenge the Business

Risk employees similarly failed to appreciate Archegos's true risk, despite a number of red flags. For example, CRM learned from Archegos that other prime brokers charged it higher margins, that these other brokers were dynamically margining Archegos's swaps portfolios, and that Archegos's long positions with CS were "indicative" of its positions at the other prime brokers. Archegos repeated the last point numerous times in due diligence calls, at one point telling CRM that it preferred to "leg into" positions pro rata across its prime brokers.¹⁴⁵ This information—that Archegos maintained similar positions across the Street, that CS was the only prime broker using static margining and that CS's margin rates were lower than those of other prime brokers—should have sounded alarm bells. But the CRM employees who were privy to this information do not appear to

¹⁴⁵ See *supra* at Section II.E.1.(b).

have appreciated its importance and failed to escalate the information to more senior Risk or business managers, including at CPOC.

This same myopia applied to Archegos's limit breaches. Rather than viewing the breaches as symptomatic of a much larger problem, CRM (with the business) seemed focused on eliminating the breaches without considering their larger significance. Thus, CRM did not insist that the business take immediate steps to reduce Archegos exposure (for example, by having Archegos sell down its concentrated positions and reduce its portfolio), and instead acceded to superficial fixes such as (i) raising Archegos's PE limit from \$20 million to \$50 million, (ii) raising Archegos's scenario limit from \$250 million to \$500 million, and (iii) monitoring Archegos's scenario exposure under the less stringent "Bad Week" scenario as opposed to the "Severe Equity Crash" scenario. The first two of these changes occurred at the same time that CS downgraded Archegos's internal credit rating. And, on more than one occasion, CRM advocated within CS for temporarily increasing limits because Archegos was a "significant relationship for the business."¹⁴⁶

CRM also accepted other means of addressing Archegos's limit breaches, including adding shorts to offset Archegos's long positions. The business advocated for the shorts, which increased Archegos's business with the bank, and were also preferred from a regulatory capital standpoint. The business does not appear to have focused on whether the shorts (largely index swaps) were actually an effective hedge against Archegos's large, concentrated, single-name, long positions in a small number of industry sectors. While CRM questioned whether shorts were an effective hedge, it did not

¹⁴⁶ See *supra* at Section II.D.5.

sufficiently challenge the business on this point. Compounding matters, the shorts helped mask the true risk of Archegos's portfolio, which was stressed using standard market-wide shock scenarios that did not adequately account for the idiosyncratic risk of Archegos's highly concentrated positions.

CRM cited a variety of factors that it viewed as mitigating the risks posed by Archegos's portfolio, including that Archegos (i) had a long-standing relationship with CS, (ii) had always posted collateral on time and in full, (iii) often left excess margin with CS, and (iv) had a history of responding positively to most relationship requests. In the end, CRM failed to fully appreciate the Archegos risk, failed to challenge the business to take more aggressive steps to manage it, and failed to insist that the business move more quickly to implement changes (like dynamic margining) that had already been agreed.

E. CS Failed to Escalate the Increasing Archegos Risk

To be clear, some Risk employees, specifically the CRM analyst who covered Archegos and his immediate supervisor, did raise concerns about Archegos's outsized and growing risk and challenged the business to make changes. However, senior members of the business and Risk with whom this information was shared did not appear to recognize the severity of the risks raised by the more junior Risk employees. Moreover, they failed to demand changes or to move with alacrity even when Archegos had become the largest Prime Financing hedge fund counterparty by notional exposure, with some of the highest concentration levels and largest limit breaches.

For example, although CRM personnel raised concerns to the business in the fall of 2020 about Archegos's large, biased, highly concentrated portfolio and its continued limit breaches, and flagged Archegos for the inaugural September 29, 2020

CPOC meeting, when CPOC ultimately addressed Archegos it was advised that the business and Risk had already agreed on steps with respect to Archegos risk. No one appears to have challenged these steps, assessed how and whether they could sufficiently mitigate the risk, insisted on a timeline for remediation, or escalated the issues to executive management or the Board. No further actions were directed by CPOC beyond providing the committee an update at an unspecified future meeting. In the months that followed, Archegos continued to breach its credit limits, and CRM continued to press the business to remedy those breaches.

Archegos was next brought to CPOC on March 8, 2021, when senior business and Risk executives again had the opportunity to review and consider the Archegos situation. By this time, the risk dimensions of the portfolio had significantly worsened: Archegos's gross notional swap exposure had skyrocketed to \$21 billion (by comparison, the next largest Prime Financing client had a \$5 billion GMV) and was net long biased by \$7.3 billion (the next largest long-bias was \$1.5 billion), with "aggressive" margins averaging 8-9%, and single-issuer concentrations representing more than 8% of the outstanding float and the top five issuers representing 3-7 days' trading volume, meaning it would take "much longer" to liquidate the positions.

These red flags notwithstanding, the CPOC reaction was muted. While the committee agreed that Archegos should be moved to dynamic margining (which the business had already proposed to Archegos), no deadline was imposed for effecting the move. Instead, the "action/decision" was to request \$250 million of margin if CS received "no traction" in its attempt to move Archegos to dynamic margining by the middle of the week of March 15, 2021. That amount of margin (\$250 million) bore no relationship to

the \$1.3 billion day-one step up that the bespoke dynamic margining proposal would have entailed (which itself was less than half the additional \$3 billion that would have been required if Archegos's swaps were cross-margining with its Prime Brokerage positions). None of the CPOC attendees could recall how the number was derived; indeed, it does not appear that CPOC was ever told—or ever asked—what Archegos's day-one dynamic margining step up would be under the proposal. In any event, CPOC did nothing to enforce this decision: by the middle of the week of March 15, Archegos still had not engaged on CS's dynamic margining proposal, and CS never collected the additional \$250 million in margin.¹⁴⁷

CPOC, a forum created expressly for the purpose of reviewing counterparties and making decisions on client strategy with a focus on the relative potential risks and rewards, appears to have given attendees false comfort that the Archegos counterparty risk was being managed, and that it need not be escalated further.¹⁴⁸ Although the CPOC Terms of Reference prescribed an escalation route to the IB CEO and Global CCO, it was reserved for instances where committee members could not agree on a decision. Since CPOC operated largely in silos, where members participated only when counterparties in their businesses were being discussed, and Risk failed sufficiently to challenge the relevant business's proposed approach, CPOC decisions were often pre-ordained. This effectively transformed CPOC into the end of the escalation process, as opposed to the source of escalation to more senior executives.

¹⁴⁷ See *supra* at Section II.E.3.

¹⁴⁸ CPOC's willingness to largely rubber-stamp whatever remediation plans the business team suggested without challenge, and without suggesting alternative risk management measures, also illustrates the general culture at CS of deprioritizing risk, as discussed *infra* Section III.F.

None of the senior leaders at CPOC—including the main IB business heads—appeared to pay close attention to or recognize the significant risks posed by Archegos’s portfolio or the urgent need to take mitigation steps to protect the bank. Indeed, they left the discussion of Archegos to CPOC members with responsibility for Prime Services (including the Head of Equities, who did not fully appreciate the Archegos risk). These CPOC members failed to escalate Archegos beyond CPOC to CS’s most senior business and Risk executives or to the Board. Indeed, those senior executives were first informed of an Archegos problem only after Archegos had informed CS that it would miss a \$2.7 billion margin call during the week of March 22, 2021.¹⁴⁹

Archegos also was not escalated through any of the other relevant CS committees, or otherwise. We have not observed any specific issues or inadequacies with the architecture of these committees, however, in operation they failed to safeguard the bank by identifying Archegos as a significant risk. Although Archegos was raised numerous times at various Risk Committees throughout 2020 and 2021, it was mentioned only briefly in voluminous meeting materials (*e.g.*, on a list of top hedge fund scenario exposures). Archegos does not appear to have been discussed at most of the meetings and, at those meetings where it was discussed, the discussion appears to have been superficial and limited to bland assurances that steps were being taken to address the risk.¹⁵⁰ The Risk Committees also were routinely presented with stale risk metrics, already four to six weeks old. For instance, the January 7, 2021 IB Credit Risk Committee materials included Archegos data as of November 2020 month-end, and therefore did not capture the

¹⁴⁹ We note that despite his involvement in establishing CPOC following the Malachite incident, the IB CEO did not receive specific updates from CPOC and does not recall following up on the work of the committee.

¹⁵⁰ *See supra* at Section II.E.6.

significant growth in Archegos's exposure in the interim. The lack of timely risk metrics meant that Risk Committees were not informed of emerging counterparty issues in real time.

Archegos was raised with senior business managers—the most senior of whom was the Head of Equities—as part of their day-to-day management and oversight of Prime Services. For instance, these executives received weekly risk reports highlighting a small number of clients, which clearly demonstrated the bank's growing exposure to Archegos. Eventually, Archegos grew to be Prime Services' third largest hedge fund counterparty by gross exposure. But none of these managers remembers Archegos being called out as a risk, and we have seen no evidence that they questioned the bank's growing exposure to Archegos. Nor did they question PSR or CRM about how they were addressing risk-related issues with regard to Archegos, including persistent, significant limit breaches.

F. CS Lacked a Strong Risk Culture and Failed to Invest in Risk Management

In addition to questions regarding the competence of CS business and Risk employees who failed to appreciate the significance of the escalating Archegos risks, there were significant deficiencies in CS's overall risk culture and the failure to prioritize risk management. This was evident not only as a result of the business's and Risk's failures to escalate Archegos despite numerous red flags, but also by the repeated accommodations that CS made for Archegos, including tolerating persistent limit breaches, as well as CS's lack of investment in personnel and systems.

1. Personnel

As described above, Prime Services relied upon its in-business risk function (PSR) to manage counterparty and portfolio-level credit risks. The relevant traders

delegated these responsibilities entirely to PSR. Yet when the Head of PSR died unexpectedly in 2020, the business heads appointed in his place a long-time Prime Services sales and marketing executive with no prior in-business risk experience. The new PSR Head was forced to learn on the job, primarily from more junior employees (he was the only PSR Managing Director in the United States), while also continuing to serve as the primary point of contact for Archegos (which he had covered for several years in his marketing role). Given the business's significant reliance on PSR to manage the business's credit risks, this set up was fraught with challenge.¹⁵¹ Under the new PSR Head's leadership, risk-mitigating decisions related to Archegos were weakened (*e.g.*, accepting \$500 million in additional margin from Archegos when CRM had been urging \$1 billion), delayed (*e.g.*, the plan to transition Archegos to dynamic margining, which, while raised in September 2020, did not begin until late February 2021 and, even then, failed to proceed with urgency), mis-prescribed (*e.g.*, proposing that new trades be done at higher margins, without addressing the inadequate margin on old trades or how new trades added to existing concentrations) or missing (*e.g.*, failing to invoke liquidity add-ons that had been previously agreed with Archegos).

Numerous CS employees reported that, in the months (indeed, years) prior to Archegos's default, both the first and second lines of defense were generally under-resourced both in terms of absolute headcount and expertise (given that more junior personnel were hired into seats previously occupied by more experienced personnel). The consequence of this "juniorization" of the first and second lines of defense effectively

¹⁵¹ We do not mean to suggest that business managers cannot transition effectively into risk management roles. However, a marketing coverage role is unlikely to have provided the relevant skills and hands-on risk management experience needed to head the Prime Services in-business risk function.

heaped greater responsibility on fewer, less experienced personnel who lacked the know-how or gravitas to manage pressure from the business or its clients.¹⁵² Moreover, because Risk in the United States was particularly understaffed, it often missed deadlines, lagged behind in its analyses of risk issues, and generally allowed a lax approach to remediating limit breaches.¹⁵³

2. Technology (the Business)

The business did not prioritize investment in technology that would have assisted in more effectively managing risk. For instance, PSR had identified a relatively inexpensive fix for bullet swaps that (subject to client agreement) would have automatically re-calculated initial margin based on the current mark-to-market value of the portfolio (thus preventing margin erosion). This fix would have cost approximately \$150,000, but the business did not prioritize or fund it.¹⁵⁴ The business also was slow to adopt automated technology that would enable it to dynamically margin swaps (again, subject to client agreement). Dynamic margining would not only have prevented margin erosion, but it also would have accommodated add-ons for, among other things, the concentration, liquidity and directional bias of the client's portfolio over time. Despite the systems limitation, dynamic margining could still have been agreed with Archegos at any time and implemented manually, although it would have been cumbersome and time consuming for CS to operate. CS already had an automated way to dynamically margin swaps (through cross-margining with Prime Brokerage) where they were conducted in the same legal entity, but the development of dynamic margining capability lagged behind for

¹⁵² See *supra* at Section II.A.4.

¹⁵³ See *id.*

¹⁵⁴ See *supra* at Section II.D.2.

clients, like Archegos, whose swaps and Prime Brokerage accounts were in different CS legal entities. The ability to dynamically margin swaps (without regard to the location—or existence—of a Prime Brokerage account) was developed in September 2020, yet Archegos was not among the clients that the business prioritized for transition to dynamic margining despite its significantly increasing risks and its escalation to CPOC. And even once the technology was operational, only four Prime Financing clients had executed the necessary documentation and been transitioned to automated dynamic margining by March 2021.

3. Technology (Risk)

During the year leading up to Archegos's default, Risk struggled with fragmented, ineffective technology, and data quality issues that impeded its ability to timely assess counterparty and portfolio credit risk. These issues were well known, but not sufficiently addressed, before the Archegos default.

As one example, the CRM systems only showed a counterparty's aggregate portfolio (*i.e.*, not individual position data). This high-level view was useful for some risk purposes, but impeded CRM's ability to see the details of the particular risks posed by a client. CRM also only received monthly verified data with respect to scenario limit breaches (although it could access rough scenario data twice weekly), and was unable on its own to run ad hoc scenarios with respect to a client's portfolio—instead, it was required to ask the business to run them. This arrangement posed undue risks, particularly because Prime Services had a number of hedge fund clients (including Archegos) with volatile positions that could change significantly intra-month, requiring frequent evaluation, and CRM (as well as PSR) resources were already stretched thin. Still, CRM relied heavily on

scenario data, even if stale, in fulfilling its duties, because its other available tool—potential exposure or PE—was perceived to be even less reliable.

Throughout 2020 and 2021, CRM viewed the outputs from the PE models for swaps with suspicion. We understand that CS implemented the S-EF model for swaps in January 2020, and the S-EPE model in December 2020. Both models were considered unreliable and generated extremely volatile PE numbers that were notably higher than they had been under the historical simulation model used prior to 2020. As a result, when either of these models generated a large PE amount for a client, the standard response was to investigate the validity of the number—a “frustratingly long” process that created considerable delay in remediating breaches.¹⁵⁵ This was a known issue at CS; indeed, PE remediation had been designated a “high priority” in early 2020 and despite CS’s expenditure of significant resources, remains a work in progress. Given these problems, CRM largely disregarded PE for purposes of evaluating counterparty credit risk and, despite its shortcomings, relied on scenario exposure as the most meaningful (albeit often stale) measure of counterparty risk.

G. Remote Booking Does Not Appear to Have Impeded Risk Identification

Some have questioned whether remote booking—whereby CS traders in the United States booked trades directly onto a U.K. legal entity—obscured Archegos’s risks. We do not believe that to be true. Although the remote booking process itself did not identify the Archegos risks, the relevant U.K. entities—CSSEL or CSi, depending on the timing—had effective systems in place to track breaches of their legal entity scenario

¹⁵⁵ See *supra* at II.D.2.(a).

appetites. Thus, when Archegos exceeded its SFTQ scenario limit in the fall of 2020, Risk personnel in the U.S. and the U.K. discussed the breach, what was causing it, and how to resolve it, and senior members of the business and Risk were consulted. Ultimately, the senior U.K. Risk officer signed off on a temporary increase of the CSSEL scenario appetite until Archegos could transition to CSi (where the scenario appetite was higher), which occurred in December 2020. Archegos continued to breach its limits after it was transferred to CSi, but this fact was again known to senior U.K. Risk leadership, which signed off on an increase in Archegos's risk limits a few months later.¹⁵⁶

More broadly, however, numerous CS employees cited CS's legal entity structure as imposing additional complexity in the management of both the business and Risk functions. As was seen with the migration of Archegos from CSSEL to CSi, the unique demands of individual CS legal entities consumed employee resources and also allowed opportunities for arbitrage (as was the case with Archegos's scenario limit breaches in CSSEL and CSi). The lack of uniformity in available margining regimes across CS entities is another case in point: the unavailability of automated cross-entity dynamic margining for certain U.S. Prime Services clients impeded CS's ability to actively manage its risk and required a number of manual, time-intensive work-arounds in a business with already strapped resources.

¹⁵⁶ Ironically, remote booking could potentially provide an additional check on improvident counterparty risk-taking. Here, however, not only was the remote booking information available to CSSEL/CSi senior Risk officers not sufficiently detailed to highlight such risks, but the same individual served as the IB CRO and the CSSEL/CSi CRO. Thus, rather than having two senior Risk officers who could separately and independently scrutinize the risks, CS only had one Risk officer who was double-hatted.

H. The Reputational Risk Process Was Flawed and Ineffective

Tiger Asia's settlement of insider trading claims and related guilty plea in 2012 are precisely the sorts of events to be addressed by a reputational risk review. Here, no such review was conducted until years after the events in question. This alone was a major flaw in the Reputational Risk Review Process (RRRP). Although senior business, Risk, and Compliance personnel knew about the regulatory settlement and guilty plea in real time, none of them took action. And although the Reputational Risk team was made aware of the news on multiple subsequent occasions in 2013 and 2014, they, too, failed to act.

In 2015, when the business (which is charged with initiating the RRRP) was finally pushed by Compliance to initiate the process, the news was already stale. The RRRP was perfunctory; the business forwarded materials provided by the client, which were accepted without any questions or attempted verification, and Reputational Risk gathered sign-offs from the business, Compliance, and Legal without review or challenge. Further, the EMEA Reputational Risk team's sign-off was conditioned on the assumption that Archegos was primarily trading with CS entities outside of the U.K., despite the fact that its swaps were actually being booked on CSSEL. In 2018, the situation proceeded similarly. The business was pushing to complete the RRRP so it could resume trading with Archegos in Hong Kong following the lifting of the four-year trading ban there. But the business attached the very same compliance documentation in support of the process and, while Compliance initially raised concerns about the reputational risk of Hwang's insider trading troubles, it reversed course and signed off. It does not appear that anyone gave

serious thought to the reputational risk of doing business with Hwang and, by this point, the news about his insider trading troubles was already several years old.

I. The Archegos Default Surprised CS

After the market closed on March 24, 2021, CS calculated that it would make an approximately \$2.7 billion margin call on Archegos the next day. Archegos indicated that it would not be able to meet the call. At that time, Archegos had a concentrated portfolio with CS totaling nearly \$24 billion in notional GMV, among the largest portfolios across Prime Services. These enormous numbers surprised CS senior executives. While some have suggested that CS was slow to unwind its positions following Archegos's default, CS believed it was among the first of Archegos's prime brokers to serve an Event of Termination notice, which was effective the morning of Friday, March 26, 2021. CS began unwinding its positions that same day. Given Archegos's significant concentrations in Chinese ADRs and certain U.S. technology stocks, the size of its positions, and market liquidity, it would take CS several days to liquidate the majority of its positions.

If CS's senior-most executives had been aware of Archegos's portfolio and the considerable risks it posed to CS in the weeks leading up to the night of March 24, 2021 (as CS was preparing to make a \$2.7 billion margin call on a little-known family office), they might have been in a position to take risk mitigation steps earlier, wholly apart from the technical steps required to close out of Archegos's positions under the ISDA. We decline to speculate about whether pursuing any different course of action would have reduced CS's ultimate losses and, if so, by how much.

J. CS Failed to Learn the Lessons of Past Failures

In the first quarter of 2020, CS suffered a significant loss arising from the default of another hedge fund, Malachite. This loss was sudden and far in excess of what CS had estimated as its exposure. The CS Board reacted by calling for a review of the incident, as well as swift actions to address it. Among other steps, the IB conducted a review to ensure that no similar counterparties existed elsewhere in the Equity Derivatives business, and expanded the audits conducted by IA to include topics such as counterparty risk. The IB also asked IA to review the Malachite incident to diagnose the root causes of CS's loss. IA identified multiple deficiencies and lessons from the incident, including:

- Insufficient consideration of “early warnings of potential distress” and warnings of market volatility (for example, scenario exposure reaching full capacity or PE limit breaches);
- Ineffective controls to assess tail risk scenarios because the use of standard scenarios did not capture the idiosyncratic risk of particular hedge fund clients;
- Insufficient margin, due to the use of static, rather than dynamic, margining;
- Unclear ownership of roles and responsibilities in the event of default, which hindered transparency of events and timely escalation; and
- Fragmented and manual crisis management processes drove a slow management response.

While based on different facts, several of the lessons from Malachite apply with equal force to Archegos, and had not been implemented at the time of Archegos's default: as in Malachite, the business and Risk failed to heed and adequately address early warning signs of Archegos's outsized risk, including limit breaches; CS continued to rely on standard scenario measures that were not appropriate for stress testing the idiosyncratic risk of Archegos's highly concentrated portfolio; the business failed to prioritize moving

Archegos to dynamic margining; and the business failed to clearly define management responsibilities that would have enabled CS to timely escalate and respond to risk-related issues.

One of the Malachite lessons was the need for CS to understand every counterparty holistically in order to more adequately and effectively assess risk. The only CS Risk function involved in monitoring Archegos risk was CRM, which had dedicated coverage of Archegos, conducted its annual credit review, set its credit limits, and monitored its exposure against those limits. But when Archegos defaulted, CS became exposed to the entire market risk of the Archegos positions booked with CS. Yet CS had never seriously considered the market risk inherent in Archegos's portfolio pre-default despite the increasing magnitude of the risk and the downgrade of Archegos's credit rating. While CRM worked with Market Risk after the Malachite default to identify concentrated positions held by clients of the Equity Derivatives group, Prime Financing swaps (including Archegos's portfolio) were considered out of scope because they were less complex, linear derivatives. CS also had an XVA group—a hybrid market and credit risk function that had purchased credit protection on Archegos (as well as a large number of other derivatives counterparties)—but its remit was limited. CS's inability to see counterparty risk holistically (and to consider its contingent market risks) was a blind spot that impeded a full assessment of the risks inherent in Archegos's positions and the related risks to CS.

IV. RECOMMENDED REMEDIAL MEASURES

We set forth below a number of remedial measures that are directly responsive to our key observations and that we recommend CS implement. Unless

otherwise specified, our recommendations are focused on the IB's Prime Services business, and its U.S. hedge fund and family office clients.

For the sake of clarity, we note that CS has been proactive in response to the Archegos default and the resulting multi-billion dollar losses. We expressly acknowledge those instances where CS has already taken action over the past four months to address the issues we have identified. While we understand that CS has taken numerous significant actions to enhance Risk Management across the bank—including a systematic examination of material exposures across all divisions—we limit our discussion of remedial measures to those actions that are directly relevant to our findings.

A. CS Leadership, Management Oversight and Staffing

1. CS Should Revamp Its IB Leadership

CS should replenish its senior ranks in the IB and Risk with individuals who are capable, competent, and experienced, and who are committed to—and will be held strictly accountable for—identifying, acting on, and escalating risks. We understand that CS has terminated several senior executives following the Archegos incident and replaced them on a permanent or interim basis, and that further significant hiring efforts are underway. In addition, the IB has created a new, senior, in-business risk role to facilitate the IB's focus on risk management, and has hired a leading consultant to assist it in reviewing its in-business risk management.

2. CS Should Prioritize Hiring Experienced Risk Managers

PSR, the Prime Services in-business risk function, lost a number of senior, experienced personnel who were replaced over time with less experienced individuals. Risk, too, had numerous departures of senior Risk officers and a “juniorization” of the Risk

function during the relevant time period. CS should prioritize the hiring of capable, competent, and experienced risk managers, and critically evaluate the expertise of existing team members, in the first and second lines of defense. We understand that CS has filled some of these roles on an interim basis with employees from other areas of the bank and is in the process of interviewing candidates for recently vacated roles on a priority basis. We also understand that CS has created a number of new senior Risk positions and has already begun to fill those positions with experienced risk managers.

3. CS Should Evaluate the Adequacy of Risk Management Staffing

Credit officers in the CRM hedge fund group cover a large number of hedge funds and family offices. These employees have been spending extensive time validating outputs produced by credit risk models and relying on the business to answer detailed questions about clients' positions or to perform bespoke scenario analyses. In light of the PE remediation project and the data available to CRM analysts, CS should evaluate whether additional credit analysts are required to appropriately assess and monitor Prime Services credit risk. We understand that CS has added additional CRM resources, including top specialist risk management consultants, to assist with remediation and other related efforts, and is undertaking a broader review of CS Risk experience and resourcing. In addition, the IB has added a significant number of new permanent positions in the Credit Risk function to supplement and strengthen the team.

4. CS Should Evaluate Whether Senior Managers Are Overburdened

Several CS employees reported that they were asked to "do more with less" over the past several years, taking a toll on CS senior managers, who frequently have

multiple roles and responsibilities (*i.e.*, are “double-hatted”), and decreasing their effectiveness. The U.K.-based Co-Head of Prime Services and the IB CRO are just two examples of senior business and Risk managers whose attention may have been diverted by competing responsibilities prior to Archegos’s default. CS should evaluate whether other key senior executives are burdened with too many responsibilities to manage risk effectively. We understand that CS is currently well-advanced in conducting a review of “double-hatted” senior positions at the bank in light of the Archegos incident.

B. Clearly Defining Roles and Responsibilities

1. CS Should Define Prime Services Roles and Responsibilities

The day-to-day management of Prime Services counterparty risk was divided between the business and Risk, although each had access to different information and their roles and responsibilities were sometimes blurred. For instance, while CRM recommended that Archegos be placed on PSR’s “watch list” of hedge fund clients that required closer monitoring, Archegos was not included on CRM’s own watch list (which was designed to identify counterparties near default), and there was a lack of clarity around what additional monitoring watch-list counterparties like Archegos actually received. In addition, the Co-Head structure in Prime Services created gaps in management oversight, which were exacerbated during the COVID-19 pandemic. CS should review and clarify roles and responsibilities in the Prime Services business and CRM, including with respect to counterparty risk management. We understand that the IB is currently assessing the roles and responsibilities of key employees with a focus on their first line of defense responsibilities, particularly in PSR.

2. CS Should Underscore First Line of Defense Responsibilities

The U.S. Delta One traders deferred to PSR to manage the business's risk, despite the existence of numerous red flags. The traders failed to identify significant risks, including the under-margining of Archegos swaps, and failed to perform credit checks before executing trades. As a result, traders missed numerous opportunities for action and escalation. Moreover, senior managers responsible for the business failed to challenge or escalate CS's increasing Archegos exposure despite weekly risk reports that clearly depicted the mounting exposure. Senior managers also did not appear to know that these exposures were in breach of limits, that these breaches were persistent and of long duration, and that no efforts were being made to remediate these breaches.

CS should evaluate existing policies, procedures, and frameworks to ensure that they convey clearly the business's risk responsibilities and should conduct additional training across Prime Services to underscore the responsibilities of the first line of defense. We specifically recommend that the PSRC, which we understand stopped meeting in 2020, be reconstituted and strengthened. We believe it is important that Prime Services senior leadership meet periodically with the Head of PSR and other senior members of the PSR team to evaluate and manage counterparty credit risk. These meetings could provide a venue, in addition to CPOC, to conduct periodic "deep dives" on particular clients. CS should also add "teeth" to the first line of defense risk obligations by tracking and allocating the financial cost of counterparty risk to the business—*i.e.*, through a credit valuation adjustment ("CVA")—and should consider calculating CVA in a method similar to how it is calculated elsewhere in the IB. We understand that CS is reestablishing the PSRC among other steps to strengthen the first line of defense risk focus.

C. Strengthening Existing Processes to Protect CS

1. CS Should Improve Risk Discipline and Enforce Risk Limits

Although limit breaches may occur for justifiable reasons, repeated, extended, and significant breaches of credit limits should not be tolerated. In resolving limit breaches, the objective should be to address the relevant counterparty risk and not simply to address regulatory capital implications. We recommend that CS implement policies that provide concrete, non-discretionary parameters for escalating limit breaches, as well as clear-cut escalation paths based on the characteristics of the breach (*e.g.*, size, age, etc.). Failure to abide by these policies should trigger severe disciplinary consequences. We understand that CS has implemented a number of changes in this area. Among these: CS has instituted a “four eyes” required review of all limit breaches; limit breaches will be a standing agenda item for any committee that owns and approves risk limits; and CS is in the process of implementing a protocol for escalation of PE limit breaches or temporary limit increases above \$10 million, pursuant to which breaches that have not been remediated within five days will be reported to the Executive Board and then subsequently to the Board Risk Committee.

2. CS Should Transition Clients to Dynamic Margining

CS should transition its Prime Financing swap clients to dynamic margining. We understand that, as of April 2021, CS had prohibited the onboarding of new Prime Financing swap clients on static margining and that, as of the date of this Report, CS has moved all of its existing U.S. Prime Financing swap clients to dynamic margining. Moreover, we understand that CS is reviewing its dynamic margining model for Prime Services, with the aid of an expert consultant.

3. CS Should Expand Its Consideration of Reputational Risk

In the case of Archegos, the business did not initiate the Reputational Risk Review Process (RRRP) until several years after CS (including senior business, Compliance, and Risk personnel) knew that Hwang/Tiger Asia had settled insider trading charges and pleaded guilty to criminal charges. CS should ensure that it is not reliant on the business to initiate reviews of potential reputational risk, that triggers and processes for such reviews are clearly articulated, and that the reviews are sufficiently independent from the business, which often advocates in support of retaining the client relationship. It bears emphasis that the Archegos RRRs occurred in 2015 and 2018; we understand that, since that time and long before the Archegos default, CS had implemented numerous changes to its RRRP, including a new governance structure to provide a more holistic view of reputational risk, with defined escalation paths to both Divisional and Group Client Risk Committees chaired by members of both Risk and Compliance. Among other steps, the bank has also been conducting a thematic review of reputational risk flags across its major client exposures Group-wide.

D. Focus on Counterparty Risk: Risk Appetite, Governance, Processes

1. CS Should Re-Examine its Counterparty Risk Appetite and Controls

In light of the Archegos default and the approximate \$5.5 billion loss suffered by CS, the bank should reassess its acceptable levels of counterparty risk. CS should consider imposing additional clarity and controls over its acceptable risk appetite, including establishing limits on gross counterparty credit exposure and policies governing exceptions to and escalations of breaches of such limits. Senior management should be

held strictly accountable for ensuring that the bank's stated risk appetite and exposure limits are articulated clearly and adhered to scrupulously, with breaches punished severely.

We note that CS took immediate steps following the Archegos default to reduce its overall risk exposures across the bank and, specifically, in Prime Services. Indeed, Prime Services' RWA and leverage exposure were reduced by 54% and 39%, respectively, between the end of the first quarter of 2021 and the end of the second quarter. We understand that CS has already recalibrated its risk appetite and, towards that goal, has taken a number of steps, including implementing notional GMV limits on Prime Services clients, reviewing Prime Services' largest single-name concentrations to ensure they are consistent with the bank's adjusted risk appetite, and instituting mandatory margin requirements for certain client exposures.

2. CS Should Revamp Its Counterparty Risk Processes

CS should add further expertise in its counterparty risk management process. CS had very significant credit contingent market risk to Archegos's portfolio—that is, if Archegos were to default, CS would be exposed to the full market risk of the Archegos positions booked with CS. But CS failed to adequately consider this potential market risk in the run up to Archegos's default. Moreover, CS has an existing XVA group with significant counterparty management expertise, but failed to draw on that expertise in connection with managing the Archegos risk.

We understand that CS is now considering ways to assess counterparty risk more holistically, including by involving Market Risk Management personnel. To that end, the bank recently appointed a senior executive to a newly created Market Counterparty Risk position. CS should ensure consistency in its approach to calculating, pricing,

reporting, and managing counterparty risk across the IB. Given the counterparty management expertise in CS's existing XVA group, CS should increase the role that function plays to improve CS's overall counterparty risk management. We understand that CS is considering an expanded role for its XVA group in counterparty risk management.

3. CS Should Improve Its Counterparty Risk Governance

CPOC was established to address shortcomings in the IB's evaluation of counterparty risk and to facilitate a more holistic review of these risks. CPOC members include senior leaders in the IB as well as in Risk and Compliance, many of whom are equipped to critically evaluate counterparty risk. Yet, in practice, these senior leaders operated in silos, deferring to the business and Risk personnel who covered the particular counterparty under review at CPOC, and failing to challenge and, if necessary, escalate matters to the executive management or the Board. Thus, while CPOC was a step in the right direction, at least architecturally, CS should refocus and strengthen how the committee operates. In particular, CPOC should reevaluate its Terms of Reference to ensure that the composition and mandate of CPOC aligns with the other adjustments CS has made to enhance its counterparty risk management. CPOC also should be embedded into CS's overall committee hierarchy for more effective governance. We understand that the bank has already made enhancements to CPOC, including by adding the IB CEO as a Co-Chair with the IB CRO, and lengthening the meetings to allow for more in-depth discussion and analysis.

E. Improving the Quality of Risk Information and Access

1. CS Should Improve the Presentation and Quality of Credit Exposure Information

Although CS senior executives received information about Archegos at Risk Committee meetings, among other venues, the information was frequently not presented in a clear manner that underscored the need for action and remediation, and, perhaps as a result, the presentations did not result in meaningful escalation. We understand that since the Archegos default, and supported by an external consultant, CS has developed a tactical monitoring tool that provides daily reporting of Prime Services risk exposure to senior management in the IB and the global Risk function to ensure timely consideration and, if necessary, escalation of significant counterparty exposures.

2. CS Should Re-Examine Its Suite of Risk Exposure Metrics and Ensure That Employees Understand These Metrics

Due to changes in exposure methodologies and volatility in exposure metrics during 2020 and 2021, business and Risk employees lacked confidence in the quality and accuracy of these metrics. Moreover, employees have not been adequately trained to understand what these metrics are designed to highlight and any potential shortcomings in the calculation approaches. CS should review its exposure methodologies and train business and Risk personnel on its exposure metrics, including PE and scenario exposures. CS should also stress additional risks, such as concentration, basis, and liquidity, to more fully reflect the risk dimensions of positions. We recommend that CRM analysts make broader use of bespoke scenario stresses where relevant, covering the idiosyncratic risks in the client's portfolio and trading strategy. In addition, we recommend that QAT consider adding risk controls as a necessary qualitative input into the CS Hedge

Fund Rating Model. As the Archegos default underscores, NAV levels cannot be relied upon as a surrogate for the adequacy of risk controls. We understand that the IB has reviewed the metrics it uses to measure its risk exposures on a gross and net basis, and has implemented several changes, including adding four standard scenarios in evaluating Prime Services counterparties that specifically target the idiosyncratic and strategy-specific risks in a client's portfolio, and implementing GMV limits on client exposure.

3. CS Should Improve Risk Access to Data and Technology

In addition to concerns about potentially inaccurate data (in the case of PE), Risk has also struggled to obtain up-to-date information on scenario exposure. CS should prioritize the completion of its PE remediation project,¹⁵⁷ and should also ensure that CRM analysts have access to systems and data that allows them to run off-cycle, bespoke scenario analyses so they are not dependent on the in-business risk function for real-time information. We understand that CS has already implemented changes in the counterparty information that CRM can access for Prime Services hedge fund clients, specifically in terms of the notional size of a client's portfolio.

F. Broader Implications: Read-Across and Redefining Culture

1. CS Should Conduct a Read-Across

Given the Malachite default, as well as other challenges recently faced by the bank, we recommend that CS conduct a read-across to consider the core issues of

¹⁵⁷ Given the ongoing high priority project undertaken by the bank with respect to PE remediation, we have not performed an extensive analysis of CS's S-EPE model for swaps or its application to Archegos's positions in connection with our investigation. However, the bank may want to examine the application and functioning of the model with respect to Archegos's positions, since the model failed, by orders of magnitude, to capture the realized losses at the 95th percentile at any time before Archegos's default. Moreover, the PE was calculated to be near zero just three weeks before the default. Our review also raised questions with respect to the assessment of wrong-way risk and correlation risk, and whether Archegos's Chinese ADRs may have been mistakenly proxied to U.S. indices and U.S. default parameters based on the currency of the securities rather than the country of risk.

competence, culture, and complexity, and to reflect on whether lessons learned from Archegos as well as these other challenges should inform CS's remedial measures. We understand that CS has performed, and will continue to perform, such read-across exercises. We suggest that these read-across exercises be supplemented by the specific findings in this Report.

2. CS Should Instill a Culture of Responsibility, Accountability, and Respect for Controls

CS should develop a corporate culture where *all* employees at *all* levels view themselves as risk managers with responsibility for identifying, acting on and escalating risks, and are held strictly accountable for the failure to discharge their risk management duties. CS should assess its existing control framework to ensure that each employee's risk management duties are clearly articulated and emphasized. CS should review relevant policies and procedures and improve its training. Senior management, supported by the Board, should set a "tone at the top" that stresses the importance of risk and related controls. CS should encourage employees to proactively confront issues as they arise, and should provide clear paths for escalation. CS should recognize the positive steps employees take to enhance and strengthen CS's control environment, but should also take strong action to address situations in which employees have failed to uphold CS's risk management culture. To ensure that the changes to corporate culture are significant and enduring, it is imperative that senior management and the Board buy in and express their full commitment and support.

We understand that CS's executive management and Board are committed to improving the bank's culture. CS has taken actions against 23 individuals who failed to discharge their responsibilities to protect CS from Archegos's excessive risk-taking,

including those most directly involved in Archegos, as well as several members of CPOC. These actions include termination of employment (nine individuals) and monetary penalties totaling approximately \$70 million in the aggregate.¹⁵⁸ CS has also recognized the efforts of certain Risk employees who took proactive steps to escalate Archegos risk to more senior members of the business and Risk functions. In addition, we understand that CS has taken steps to enhance the stature, authority, and independence of the Risk function and to prevent the business from undermining Risk decisions by, among other things, requiring that any business effort to “appeal” a Risk decision to a more senior Risk manager be escalated and reported to the Board Risk Committee Chair.

V. CONCLUSION

Following the Archegos default and resulting losses, CS announced that it would conduct a thorough and searching review, on an expedited timeframe, of the bank’s relationship with Archegos. The stated purpose of this review was not only to report on the particular issues that led to CS’s losses, but also to reflect on the broader consequences and lessons learned. Although the bank has already made significant strides in addressing many of the Special Committee’s recommendations in this Report, these remedial measures need to become embedded through their consistent and continuous application, and additional reflection on the lessons from this Report is also warranted. We understand that CS leadership is fully committed to taking all steps necessary to address and remediate the issues identified in this Report, and to position CS for a stronger future.

¹⁵⁸ This amount is based on the CS share price on March 26, 2021. We understand that the monetary penalties include not only negative compensation adjustments, but also, in certain instances, cancellation of 100% of deferred compensation awards and clawback of amounts previously paid by the bank.

GLOSSARY OF ABBREVIATIONS

ADR	American Depository Receipt
AML	Anti-Money Laundering
APAC	Asia-Pacific region
ATE	Additional Termination Event
CCR	Counterparty Credit Risk
CCO	Chief Credit Officer
CDO	Chief Data Officer
CEO	Chief Executive Officer
COO	Chief Operating Officer
CPOC	IB Counterparty Oversight Committee
CRM	Credit Risk Management

CRO	Chief Risk Officer
CS	Credit Suisse Group AG and relevant subsidiaries
CSi	Credit Suisse International
CSSEL	Credit Suisse Securities (Europe) Ltd.
CSSU	Credit Suisse Securities (USA) LLC
CVA	Credit Valuation Adjustments
DOJ	Department of Justice (U.S.)
DTV	Daily Trading Volume
EAUD	Equity Available Upon Default
EMEA	Europe, Middle East, Africa region
ETF	Exchange Traded Fund

FCA	Financial Conduct Authority (U.K.)
FCC	Financial Crimes Compliance
FINMA	Financial Market Supervisory Authority (Swiss)
FINRA	Financial Industry Regulatory Authority
FIWM	Fixed Income Wealth Management
GMRM	Global Market Risk Management
GMV	Gross Market Value
HF	Hedge Fund
HFRM	Hedge Fund Rating Model
IA	Internal Audit
IB	Investment Bank

IM	Initial Margin
ISDA	International Swaps and Derivatives Association
KYC	Know Your Customer
MPOR	Margin Period of Risk
MTM	Mark-to-Market
NAV	Net Asset Value
NMV	Net Market Value
PB	Prime Brokerage
PE	Potential Exposure
PnL	Profit and Loss
PSA	Portfolio Swap Annex

PSR	Prime Services Risk
PSRC	Prime Services Risk Committee
QAT	Quantitative Analysis and Technology
RDM	Risk Data Management
RMC	Risk Management Committee
RRR	Reputational Risk Review
RRRP	Reputational Risk Review Process
RWA	Risk Weighted Asset
SA-CCR	Standardized Approach - Counterparty Credit Risk
SCMA	Swap & Collateral Management Agreement
SEC	Securities and Exchange Commission (U.S.)

S-EPE	Strategic Expected Positive Exposure
S-EF	Strategic Enhanced Factor
SFC	Securities and Futures Commission (Hong Kong)
SFTQ	Severe Flight to Quality
SIMM	Standard Initial Margin Model
SMP	Standard Margin Process
TRS	Total Return Swap
VaR	Value-at-Risk
VM	Variation Margin
XVA	X-Value Adjustment
YTD	Year to Date