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Société Générale (A): The Jérôme Kerviel Affair

I told myself that Société Générale would never fire someone who was generating this much cash.¹

—Jérôme Kerviel

On January 24, 2008, Société Générale announced that its net income for the 2007 fiscal year would be reduced by a €4.9 billion loss attributable to a trading fraud perpetuated by a single trader, Jérôme Kerviel. The announcement followed the “quiet” unwinding of the trader’s positions, which amounted to about €50 billion, over a three-day period during which global stock markets experienced a significant drop, as investors worried about deteriorating economic conditions in the United States.²

“At first this seemed like a joke”, said Nicolas Rutsaert, an analyst covering European banks at Dexia in Brussels, adding that Société Générale “was a leader in derivatives and was considered one of the best risk managers in the world.”³ The Kerviel scandal had made Société Générale vulnerable to criticism. The French President Nicolas Sarkozy had called for the resignation of the bank’s CEO and Chairman Daniel Bouton, and was reportedly furious to have been kept in the dark. The Prime Minister Francois Fillon insisted that the Kerviel incident was distinct from the financial market turmoil, but skeptics suspected that Kerviel was a scapegoat for the bank to disguise its total exposure to the subprime market. Christine Lagarde, Ministry of Finance, asked the country’s banking regulator to strengthen control mechanisms in response to the scandal.⁴ Meanwhile, the French public, generally prone to criticizing financial spheres, showed support to Kerviel and felt that he was a victim of the “greed” of a large, profit-obsessed bank.⁵

¹ James Stewart, “The Omen,” *The New Yorker*, October 20, 2008.

² Ibid.

³ Gregory Viscusi and Anne-Sylvaine Chassany, “Société Générale reports €4.9 billion trading loss,” *Bloomberg.com*, January 24, 2008.

⁴ Francois de Beaupuy and James Hertling, “Sarkozy says Société Générale Executives Share Blame,” *Bloomberg.com*, January 29, 2008.

⁵ James Stewart, “The Omen,” *The New Yorker*, October 20, 2008.

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Company History⁶

Founded in 1864, Société Générale was one of the oldest banks in France. It had initially served French industrialists and had financed its operations almost entirely with its own resources. In 1871, the bank became quoted on the French stock exchange and in 1945, it was nationalized.

While the French economy was recovering from World War II, the growth in domestic production and foreign trade opened up new markets for the banking sector. The industry underwent radical changes, expanding the range of banking services on offer and pursuing a much greater specialization in lending. Against a backdrop of tougher competition, Société Générale reorganized its business activities as an international banking group. It expanded into countries such as Italy and Mexico, where new markets were developing, and acquired leading positions in some new financing techniques, such as finance leasing and setting up *ad hoc* credit subsidiaries. International expansion, along with the introduction of IT facilities to cope with an extended customer base, drove steady growth. On July 29, 1987, the government sold its interest in Société Générale to the public, allowing the company's shares to be traded on the Paris Bourse exchange.

In 1991, Daniel Bouton joined Société Générale as Executive Vice President. Described as brilliant and highly analytical but cold and blunt, Bouton was the quintessential product of the French meritocracy, a man of modest provincial upbringing who rose to the corporate elite through the most prestigious schools, with degrees in political science and public administration, from the Institut d'Études Politiques and the ENA School of Paris respectively, followed by professional experience in the French Ministry of Finance as Budget Director (1988-1990). He succeeded Marc Vienot, also a graduate of the Institut d'Études Politiques and the ENA School of Paris, as CEO in 1993 and became Chairman as well in 1997.⁷

In 1997, with the purchase of Crédit du Nord, Société Générale acquired a network of regional banks that enabled it to step up its retail banking activities in France. It then expanded its international presence via acquisitions and set up its retail banking services as a separate division outside France. Under Bouton, Société Générale prioritized its corporate and investment banking businesses by focusing on those activities offering strong growth potential, such as equities, mergers and acquisitions, fixed income, and brokerage on organized futures markets.

Company Structure⁸

The three main business divisions of Société Générale were Retail Banking and Financial Services, Global Investment Management and Services, and Corporate and Investment Banking (SGCIB).

Société Générale's Retail Banking and Financial Services business was present in 37 countries, with significant positions in Central and Eastern Europe, the Mediterranean Basin, Africa, and French overseas territories. It had a network of 2,795 branches and 40,000 employees serving 8.8 million individual customers and over 730,000 businesses.

Global Investment Management and Services incorporated five complementary business lines: Asset Management, Private Banking, Securities Services, Newedge (multi-asset brokerage), and

⁶ Source: Société Générale's Web site, <http://www.societegenerale.com>, accessed September 17, 2009.

⁷ Gilles Lockhart, "Daniel Bouton, le cerveau de la Générale," *L'Expansion*, March 1, 2004.

⁸ Most of the information in this section (and throughout the case) is based on the "Mission Green" Report, available on Société Générale's Web site under "Special Committee Report" at <http://www.socgen.com/sg/socgen/pid/174/context/SC/lang/en/object/rubriqueSC/id/2047/rubid/2047/nodoctype/0.htm>, accessed September 17, 2009.

Boursorama (online banking). In 2008, it employed 11,000 staff worldwide and had €336 billion in assets under management.

SGCIB was made up of three departments: Global Equities and Derivatives Solutions (GEDS); Fixed Income, Currency, and Commodities (FICC); and Capital Raising and Financing. The whole investment banking arm of the bank was often credited with Société Générale's strong performance; in 2006, SGCIB showed a return on equity of 48% while the figure for the entire group was 26% (see **Exhibit 1**).

The main functions involved in GEDS and FICC were research, sales, engineering, and trading. The primary responsibilities of trading teams consist of pricing and executing transactions on behalf of clients or the bank (proprietary trading). However, traders are also expected to develop and maintain up-to-date knowledge of current economic trends and financial market conditions. Their ability to anticipate movements in markets and individual securities based on their reading of current data is key to their success, i.e. the implementation of profitable trading strategies on behalf of their clients and employers. While other functions such as sales and internal controls are essential to a well-functioning trading floor, traders are individuals with a unique set of skills within an organization. Their knowledge, ability to make decisions under pressure and capacity to innovate by designing complex transactions are core strategic assets for firms that compete in securities trading.

The true engine of Société Générale's success was the equity derivative trading division of Global Equities and Derivatives Solutions. Derivatives are securities which provide payoffs that depend on the value of other assets (such as fixed-income and equity securities). The main categories of derivatives in terms of relationships they bear with the underlying asset are options, forwards and swaps. Derivatives are primarily used for hedging and risk management purposes, but can also be part of speculative trading strategies for traders and investors who wish to take advantage of their leverage potential. The equity derivatives trading division of GEDS offered a range of derivative products tailored to client needs in terms of investment duration and risk. Among the 1,365 employees of GEDS, 385 worked in arbitrage or in volatility trading. Arbitrage consists of identifying mispricing in individual securities and buying (selling) undervalued (overvalued) products. The main arbitrage trading activities performed by the GEDS arbitrage trading teams were index arbitrage (taking advantage of discrepancies between the prices of stocks that constitute an index and the prices of futures contracts on that index), equity borrowing or lending (either to hedge derivative positions or to supply certain clients), and arbitrage of relative values (e.g., risk arbitrage and fund arbitrage).

According to estimates from analysts, derivatives trading accounted for 20% of the bank's total profit in 2007.⁹ A Merrill Lynch analyst argued that "equity derivatives at Société Générale [are] probably the best in the world qualitatively and quantitatively. The diversity and resilience of its revenues should not be underestimated."¹⁰ Indeed, the equity derivative trading division had generated profits in every quarter since 1993 and, between 2003 and 2006, had had only 13 days with losses of more than €5 million. According to Merrill Lynch estimates in 2006, the division's 59 profit centers were all profitable, none accounting for more than 10% of revenues.¹¹

Société Générale built and reinforced its position as the world's leading expert in derivatives by investing heavily in IT infrastructure and human capital. Since the mid-1980s, the bank's derivatives division pioneered complex products and a centralized IT system that allowed it to trade more

⁹ Nelson D. Schwartz and Jad Mouawad, "A French style of capitalism is now stained," *New York Times*, January 28, 2008.

¹⁰ David Lanchner, "Pardon my French," *Institutional Investor*, April 17, 2006.

¹¹ *Ibid.*

efficiently than its competitors. And from the inception of Société Générale's derivative trading business in the 1980s, the bank had built its competitive edge by hiring graduates who had mastered the mathematically rigorous curricula of France's top engineering schools. In the 2000s, the division was repeatedly recognized as "Equity Derivatives House of the Year," most recently by *Risk* magazine in January 2008. Even by 2006, Société Générale had clearly established itself as the worldwide leader in equity warrants, with a market share of 18.4 percent.

Société Générale was known among analysts for being more willing than some of its peers to take proprietary trading risks. Internal sources anonymously confirmed that traders were encouraged to make risky investments with the bank's money.¹² That culture of risk-taking could be traced back to the origins of the bank's derivatives trading business, when small teams of engineers and mathematicians recruited from top schools became known as the "soldier-monks"—named after the monks who fought in the Crusades—for their discipline and fierce competitiveness. The soldier-monks were dedicated to making Société Générale a world-class player in the field of derivatives and believed they could achieve this goal by managing their risky bets through the complex computer models they took pride in developing.¹³

The Delta One Listed Products Desk

Delta One was a subdivision within the arbitrage division of Société Générale. The term "delta one", based on the statistical method for deriving probabilities, referred to the type of products that were traded by the team—derivatives whose value changes to the same extent as that of the underlying asset (either in the same or the opposite direction). Exchange-traded funds, or equity swaps, are well-known delta one products. It was common for financial institutions involved in securities trading to have a delta one trading group. The head of Delta One at Société Générale, Martial Rouyère, led a staff of 24, eight of whom made up the Listed Products trading desk and 10 of whom made up the Index Tracking trading desk.¹⁴ Eric Cordelle, 36, joined Delta One as desk head for Delta One Listed Products (DLP) in April 2007, after spending four years in the Tokyo office of Société Générale. He was experienced in structuring financial products but not in trading them.¹⁵

Jérôme Kerviel

One of Cordelle's direct reports in his new job was Jérôme Kerviel. (**Exhibit 2** illustrates the chain of management above Kerviel. Cordelle was his immediate supervisor, while Rouyère was Cordelle's immediate superior.) Kerviel had joined Société Générale in 2000, signing a 13-month contract for about €32,000.¹⁶ His initial appointment was in the Middle Office. His supervisors were generally impressed; reports indicated that he was "efficient," "rigorous and autonomous" and that he "excelled at mastering information technology."¹⁷ Two years later, he accepted an offer to join the trading floor as a trading assistant. His main tasks were answering phone calls and maintaining records for senior traders. But his ability to design complex derivative strategies caught the attention of his superiors and he joined the trading desk of DLP in 2005. There he specialized in turbo

¹² Nelson Schwartz and Katrin Bennhold, "A Trader's Secrets, A Bank's Missteps," *New York Times*, February 5, 2008.

¹³ *Ibid.*

¹⁴ Nicola Clark, "French trader's bets said to have generated alerts," *New York Times*, February 15, 2008.

¹⁵ Gérard Davet, Claire Gatinois, and Anne Michel, "Société Générale: face aux falsifications de Jérôme Kerviel, une hiérarchie peu curieuse," *Le Monde*, March 13, 2008.

¹⁶ Gérard Davet, "Mauvais Joueur," *Le Monde*, February 15, 2009.

¹⁷ *Ibid.*

warrants, a kind of stock option with a knock-out barrier feature. First introduced in Germany in 2001, turbo warrants became popular because they were less sensitive to volatility than regular options.¹⁸ (See **Exhibit 3** for more details.)

Kerviel's career path from the Middle to the Front Office was highly unusual. The French university system was divided among regular public universities and "Grandes Écoles." While universities were required to admit any local student who earned a high school diploma ("Baccalauréat"), the Grandes Écoles had highly competitive entrance exams, which students spent two to three years preparing for in dedicated programs. Most high-profile civil servants, top executives, and politicians in France were graduates of Grandes Écoles. The CEOs of virtually all the 40 largest French companies went to Grandes Écoles. In the finance world, graduates from top engineering schools (particularly Polytechnique and Centrale) and business schools (particularly HEC, ESSEC and ESCP Europe) were predominant in trading floors. Cordelle himself was a graduate of both Polytechnique, the most prestigious engineering school in France, and the École Nationale de la Statistique et de l'Administration Économique (ENSAE).

Most traders were recruited straight out of top schools, whereas Kerviel had not graduated from one at all.¹⁹ He obtained a degree from the IUP (equivalent to a trade school) of Nantes and, after completing an internship with Société Générale, graduated from a program focusing on investment banking oversight offered by the University of Lyons.²⁰ Once promoted to the trading desk, Kerviel felt that he needed to prove himself to his peers and superiors.²¹ From his very first meeting as part of the trading team, he felt like an outsider.

Kerviel's Build-up of Large Directional Positions

In July 2005, Kerviel built a short-selling position of about €10 million in Allianz, one of the world's largest insurance companies. Such transactions were outside the scope of his assignment to turbo warrants, but his position turned out to coincide with the terrorist bombings in London and he realized large profits thanks to the negative effect of that event on the insurer's stock price.

In 2006, Kerviel increased his directional position on equities to about €135 million, with exposure exceeding €5 million on the individual stocks of Allianz and two German companies specialized in photovoltaic products (SolarWorld and Q-Cells). Meanwhile, he also started taking positions on futures contracts on DAX, the major German stock index.

In early 2007, as the U.S. subprime debt crisis was developing, Kerviel began building a short position on DAX futures, which amounted to €850 million on January 24, 2007, increased to €2.6 billion by the end of February, and reached €5.6 billion by the end of March. DAX reached an all-time high in July and Kerviel's short positions on DAX futures peaked at over €30 billion. He unwound that position in August but started building up a similar short position in the fall. Meanwhile, he continued to accumulate directional positions on individual stocks for up to €350 million. In November and December 2007, Kerviel unwound his positions on DAX and EUROSTOXX futures contracts; all his large positions on indexes were down to zero on December 31.

¹⁸ Wong, Hoi Ying, and Ka Yung Lau, "Analytical Valuation of Turbo Warrants under Double Exponential Jump Diffusion," *Journal of Derivatives*, Summer 2008, pp. 61-73.

¹⁹ Right after high school, Kerviel took the entrance exam for the Institut d'Études Politiques ("Sciences Po") of Lille, but he failed and went to a regular university instead. (James Steward, "The Omen" *The New Yorker*, October 20, 2008.)

²⁰ James Steward, "The Omen" *The New Yorker*, October 20, 2008.

²¹ *Ibid.*

Between January 2 and 18, 2008, Kerviel built a long position on index futures for a total of €49 billion.

“Cash Machine”

In 2007, Kerviel’s reported earnings of €25 million for proprietary trading alone were far in excess of the approximately €3 million he had generated through his ostensible job, arbitrage on competitors’ turbo warrants. Overall, his earnings grew sixfold between 2006 and 2007 and accounted for 59% of the DLP trading desk’s total earnings in 2007 (see **Exhibit 4** for more details). Kerviel ranked very high among all traders in the division and became well-known among his colleagues, some of whom called him a “cash machine” or “star.” Although his reported earnings for 2007 were in excess of what they would have been based on his authorized activity, they were still a far cry from his actual earnings of €1.5 billion (see **Exhibit 5**).

Kerviel did not appear to benefit personally from his unauthorized trading. Upon joining the trading desk, he earned an annual salary of €48,000. For 2006, he received a bonus of €60,000, a modest amount compared to more senior traders’ compensation, which was on the order of €1,000,000, according to a French newspaper.²² For 2007, he asked for a €600,000 bonus but his supervisor was only prepared to recommend half that amount. Judging from his lifestyle, Kerviel was not prone to spending large amounts of money in order to show off. However, Cordelle recalled that, during a “happy hour” gathering, Kerviel asked him how one could secure a €500,000 bonus. As Cordelle remained elusive, Kerviel insisted and asked whether earnings of €50 million would suffice. Cordelle responded that it was “not entirely out of the question.”²³

Société Générale’s Internal Controls

Traders were subject to oversight from their direct supervisors. In practice, the main control tasks of trading desk managers were to (1) check that the net position of the desk under their supervision would not exceed the allocated risk limit (€125 million for the DLP desk) and (2) regularly consult databases containing information on traders’ activities and profits/losses. According to an internal directive dated June 2, 2000, Front Office managers were supposed to develop “a daily analysis of the coherence of risks, earnings and positions [...] in order to strengthen the security and reliability of the monitoring of the division.” In 2007, the procedures in place specified that “each trader must be aware of the market risk limitations allocated to him by his risk manager and must be capable of presenting a document reiterating the risk limitations for the division to which he belongs. Any breach of the limit must be remedied immediately.” A January 2008 update further stated that it was “each Risk Manager’s and each desk manager’s responsibility to ensure that a daily control of net and gross positions is carried out for all of the products handled and all of the various underlying assets.”²⁴

Prior to 2007, Kerviel’s immediate superior tolerated his regular intraday directional positions on index futures and equities, despite the fact that those positions were outside of the scope of Kerviel’s assignment to turbo warrants and were unjustified considering his junior level of seniority as a trader. For example, Kerviel proudly told his supervisor about his gains on the Allianz stock after the

²² “Société Générale: Libération publie une liste de bonus,” *Agence France Presse*, September 21, 2009.

²³ Gérard Davet, “L’Ancien Supérieur de Jérôme Kerviel: ‘J’en ai marre d’avoir un menteur en face de moi,’” *Le Monde*, January 24, 2009.

²⁴ “Mission Green” Report, available on Société Générale’s Website at http://www.societegenerale.com/sites/default/files/documents/Green_VA.pdf, accessed April 21, 2010, p. 45.

London terrorist bombings. His supervisor advised him to be careful, arguing that he could just as easily have lost a lot of money. That supervisor resigned from Société Générale in January 2007. During the two and a half months until Cordelle took over on April 1, the head of Delta One did not set up any monitoring mechanism for the trading desk's activities. Instead, the most senior trader was in charge of validating the desk's monthly earnings and Kerviel even validated his own earnings in March. **Exhibit 6** suggests that lack of direct supervision coincided with a large increase in Kerviel's unauthorized positions.

Cordelle's managerial style was one of trust. He took for granted that his traders would answer his questions and those of the control agents truthfully. Rouyère, the head of Delta One, was aware of Cordelle's lack of experience as a trading manager, but he did not give him any guidance with respect to his monitoring prerogatives. Instead, during the second half of 2007, Cordelle and Rouyère were pursuing other priorities, such as dealing with high turnover in the Middle and Front Office teams and dealing with equities affected by the subprime crisis.

Aside from the trading desk managers' supervisory roles, other mechanisms were in place to monitor trading activities, but they were fragmented among several departments, each of which acted only within its own purview. For the most part, these control functions were meant to ensure that transactions were correctly executed rather than to detect any fraudulent activity. Most closely related to the trading desk were the back and middle Offices. Their primary responsibilities were to (1) ensure the proper administrative and financial handling of market transactions, (2) carry out first-level controls in accordance with regulatory and internal requirements, (3) participate in the financial reporting process, and (4) manage operation risks. Each trader had an assistant whose role was to help with routine tasks such as recording trades. Because the assistants were, hierarchically speaking, attached to the Middle and Back Offices rather than to the traders themselves, they also provided an initial layer of control over traders' activities.

The Middle and Back Offices also worked closely with SGCIB's Financial and Accounting division and Risk Management division. Although the Risk Management division provided guidelines about firm-wide risk tolerance, the desks had some discretion with respect to risk limits. At Delta One, Kerviel's gross positions do not appear to have been subject to limits. Also, that desk tolerated large directional positions on an intraday basis, which gave traders some flexibility, so long as they did not keep large net positions opened overnight.

There were also indirect mechanisms for monitoring traders' activities. For instance, a trader was required to take at least one two-week vacation every year, which ensured that someone else would occasionally take over his or her account. When Rouyère voiced his concerns over Kerviel's reluctance to take any vacation, Kerviel argued that he was troubled by the recent passing of his father; his superiors accepted this as a valid reason to bypass the vacation rule that year. Altogether, Kerviel took only four days off in 2007, an extraordinarily low number considering that French workers enjoy one of the highest levels of paid vacation time in the world.²⁵

Overall, although Société Générale's trading activities were growing fast (transaction volumes for Delta One doubled over a twelve-month period and Front Office staff grew from 4 to 23 employees in two years) the bank's internal controls were audited by Ernst & Young and Deloitte in 2007 and both firms reported no concerns.

²⁵ Finland, France, and the United Arab Emirates guarantee a minimum of 30 paid vacation days per year in addition to paid public holidays, according to a 2007 survey by Mercer Resources. See Cable News Network, "Give me a break," Cable News Network Web site, <http://edition.cnn.com/SPECIALS/2007/work.life.balance/chart/>, accessed September 17, 2009.

Alerts Regarding Kerviel's Activity

Between the end of 2006 and early 2008, control agents received 74 alerts related to anomalies in Kerviel's trading. They followed the prescribed procedures to resolve the matters but took no further initiative to either verify Kerviel's assertions or cast a critical eye on the information they received. The procedures themselves frequently did not include Kerviel's superiors, and even when they did, there might only be an e-mail informing the manager of the alert. For example, in April and May 2007, Rouyère and his hierarchical superior were informed by the Middle Office of anomalies in Kerviel's activities detected in the routine review of discrepancies between the Front Office records and accounting department records. In July 2007, Rouyère did not react to an alert regarding abnormally high levels of cash borrowings made by Kerviel.

There were also external alert signals. In October 2007, Cordelle received e-mails from Eurex, the leading European derivatives exchange, regarding Kerviel's purchase of 6,000 forward contracts in a two-hour interval. (He later argued that he received 200 to 300 e-mails each day and that he had not read that one in detail.) The following month, Cordelle and the compliance department received two letters of inquiry from Eurex regarding Kerviel's activities. Cordelle and Kerviel discussed the letter; Kerviel reportedly told his supervisor that Eurex was "stupid." Communicating privately to his broker, however, Kerviel said he was "in trouble, [...] making too much money."²⁶ The compliance department handled the situation and even offered to organize a conference call, but Eurex did not follow up on that initiative. Questions from Eurex were primarily about Kerviel's trading strategy and procedures (many transactions were entered through a London-based subsidiary called FIMAT Futures Limited), not about abnormal volume, and the answers provided by Société Générale were deemed appropriate.²⁷

Kerviel's Methods of Concealment

Kerviel used several techniques to hide his unauthorized transactions. First, he recorded fictitious trades that offset his positions and the latent earnings associated with them; this altered the risk and valuation estimates of his portfolio. Subsequent investigations revealed that he had entered 947 transactions of this nature.

Second, he recorded pairs of fictitious trades that offset each other in terms of quantities of shares but not prices. For example, on March 1, 2007, he recorded the purchase of 2,266,500 shares of SolarWorld at €63 per share and the sale of the same number of shares at €53 each, hence recording a fictitious loss of €22.7 million. Investigations uncovered 115 transactions of this nature.

Kerviel cancelled these fictitious trades, single or paired, before they could be detected by internal control systems. He bought himself time by using "technical" counterparties (e.g., counterparties not yet classified because they were not in the client reference database), internal counterparties (such as ClickOptions, a wholly owned subsidiary of Société Générale), and trades with deferred start dates.

Third, Kerviel recorded provision flows, which is normally the prerogative of trading assistants (although traders are not technically precluded from accessing the system.) A provision flow is a positive or negative amount intended to correct modeling bias and values calculated by the Front Office system. Investigations found nine instances of fraudulent provision flows by Kerviel. Knowing

²⁶ Gérard Davet, "Mauvais Joueur," *Le Monde*, February 15, 2009.

²⁷ Nicola Clark, "French trader's bets said to have generated alerts," *New York Times*, February 5, 2008.

that the provision flows were monitored monthly, Kerviel made sure to cancel them before the control took place.

Kerviel also hid his tracks by using different computers to enter his transactions. Cordelle once saw him take intraday positions at the desk of a junior trader and even confronted him about it, but in fact, Kerviel's use of that computer was part of the junior trader's training.²⁸

Overall, Kerviel used a variety of techniques to avoid dealing repeatedly with the same control agents should his activity raise questions. When he did come under questioning from superiors or control agents, he forged e-mails (two in April 2007, three in June 2007, and two on January 17-18, 2008, when his fraud was discovered) to substantiate his untruthful responses. He re-used e-mails he had previously received, keeping the headers and changing the text.

Kerviel may also have colluded with his trading assistant, Thomas Mougard. Indeed, about 15% of Kerviel's fraudulent transactions were recorded by Mougard. Internal investigations revealed an e-mail from Mougard to Kerviel which contained information Mougard could not have obtained without knowledge of the fictitious trades.

Discovery of Kerviel's Trading Activities

Based on newly implemented risk guidelines under the Basel II Accord, the Cooke ratio (a measure used to determine a bank's capital adequacy standard) for the counterparty on eight forward contracts entered by Kerviel was abnormally high and raised suspicion among the Accounting and Regulatory Reporting team of SGCIB. When asked to name the counterparty in those fictitious transactions, Kerviel sent the following email to the control agent: "This materialized the give-up of puts made late; I owe money to the counterparty. We'll rebook it a.s.a.p." The control agent later confessed that he did not understand Kerviel's explanation, but did not follow up on it either. A series of procedures and increased scrutiny followed over several days, during which Kerviel admitted that he had made a mistake with respect to the identity of the counterparty. It was Deutsche Bank, he said, forwarding two e-mails to substantiate his explanations. However, a control agent eventually decided to contact Deutsche Bank, which found no record of those eight transactions²⁹.

On Saturday, January 19, 2008, Kerviel was on his way to Normandy for the weekend when he was summoned back to Société Générale's headquarters for an urgent meeting with several officials of the bank to explain his positions. The officials tried not to pressure Kerviel excessively in their interrogations; they were mindful of the recent suicide of another derivatives trader who had jumped off a bridge after being interrogated by his superiors regarding his unauthorized trades.³⁰ Jean-Pierre Mustier, the head of SGCIB, who had himself been one of Société Générale's first equity derivatives traders, told Kerviel he was curious to understand his trading strategy. Kerviel explained that he had

²⁸ Nicola Clark, "Trader tells prosecutors boss saw illicit deal," *New York Times*, March 14, 2008.

²⁹ "Mission Green" Report, available on Société Générale's Web site at http://www.societegenerale.com/sites/default/files/documents/Green_VA.pdf, accessed April 21, 2010, p. 32.

³⁰ Nicola Clark and Katrin Bennhold, "Pressure mounts for resignation at French bank," *New York Times*, January 30, 2008.

found a “martingale”³¹ on DAX future contracts, but his trading strategy was not complex.³² Kerviel initially understated the full extent of his exposure but eventually revealed his scheme.³³

Closing of the Position and Public Disclosure

The bank decided that Kerviel’s positions should be closed as quickly as possible—and secretly. Maxime Kahn, a senior equity-derivatives trader in the firm, was asked to carry out the closing, which he did over the next few days.³⁴ Meanwhile, CEO/Chairman Daniel Bouton informed the Autorité des Marchés Financiers (AMF), the regulatory body overseeing French capital markets, of the situation and requested authorization to withhold any public disclosure until the positions were closed. He also called Christian Noyer, the governor of the French central bank (and a fellow graduate from “Sciences Po” and ENA),³⁵ to discuss potential liquidity concerns.

On January 24, 2008, Société Générale announced that it had suffered losses of about €2 billion due to the bank’s exposure to the U.S. subprime mortgage market and €4.9 billion due to Jérôme Kerviel’s unauthorized trades, which brought the firm’s overall annual profits down from €5.2 billion in 2006 to somewhere between €600 and 800 million in 2007. The bank also announced the need for a capital increase of €5.5 billion to cover the losses.³⁶ At Société Générale’s request, trading in its shares was suspended that day.

Eventually, the company disclosed restated quarterly income statements for SGCIB, having adjusted the initially reported data to take into account Kerviel’s fictitious trades (see **Exhibit 7**).

Kerviel’s Revelations to the Police³⁷

Société Générale filed a court complaint against Kerviel on grounds of breach of trust, falsifying documents, and unauthorized computer access. The Paris prosecutor’s office opened a preliminary investigation and, by the end of the week, Kerviel was interrogated by the police for two days. He admitted that he had engaged in positions that exceeded the risk limits specified for his trading desk and had concealed those positions with fictitious transactions.

Kerviel scoffed, however, at the idea that his superiors had not known what he was doing. He argued that it would have been impossible to generate as much profit as he did by trading within the scope of his mandate. Despite numerous alerts, no one had reprimanded him. Jérôme Kerviel argued that he had the unspoken approval of his superiors for his activity because of his contribution to Société Générale’s bottom line.

³¹ A martingale is most commonly illustrated as a betting strategy in a coin-tossing game where a gambler doubles his bets after every loss so as to recover at the first win all losses plus a gain equal to the original stake.

³² Philip Delves Broughton, “Jérôme Kerviel: Tricks of the trader”, *The Sunday Times*, February 19, 2009.

³³ James Steward, “The Omen,” *The New Yorker*, October 20, 2008.

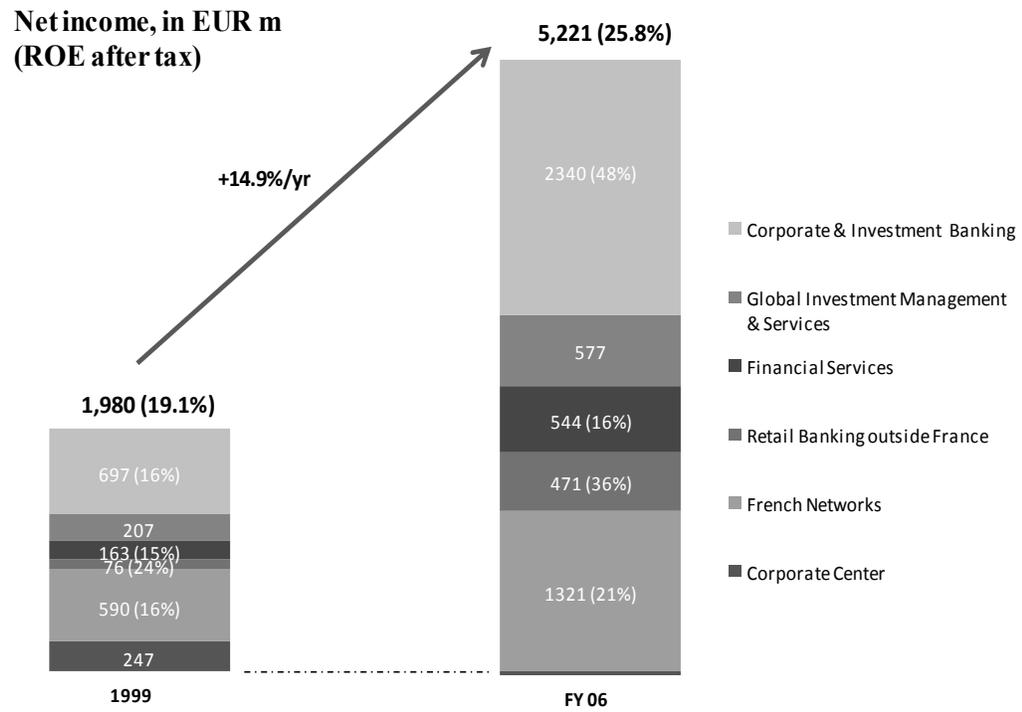
³⁴ Katrin Bennhold, “Société Générale case hears from options specialist,” *New York Times*, October 16, 2008.

³⁵ Banque de France, “Christian Noyer—Governor of the Banque de France,” Banque de France Web site, <http://www.banque-france.fr/gb/fondatio/about/noyer.htm>, accessed September 17, 2009.

³⁶ Press release by Société Générale, January 24, 2008. Available at http://media.corporate-ir.net/media_files/irol/69/69575/240108/en/Societe-Generale_cdp-240108_VersionUS.pdf, accessed September 17, 2009.

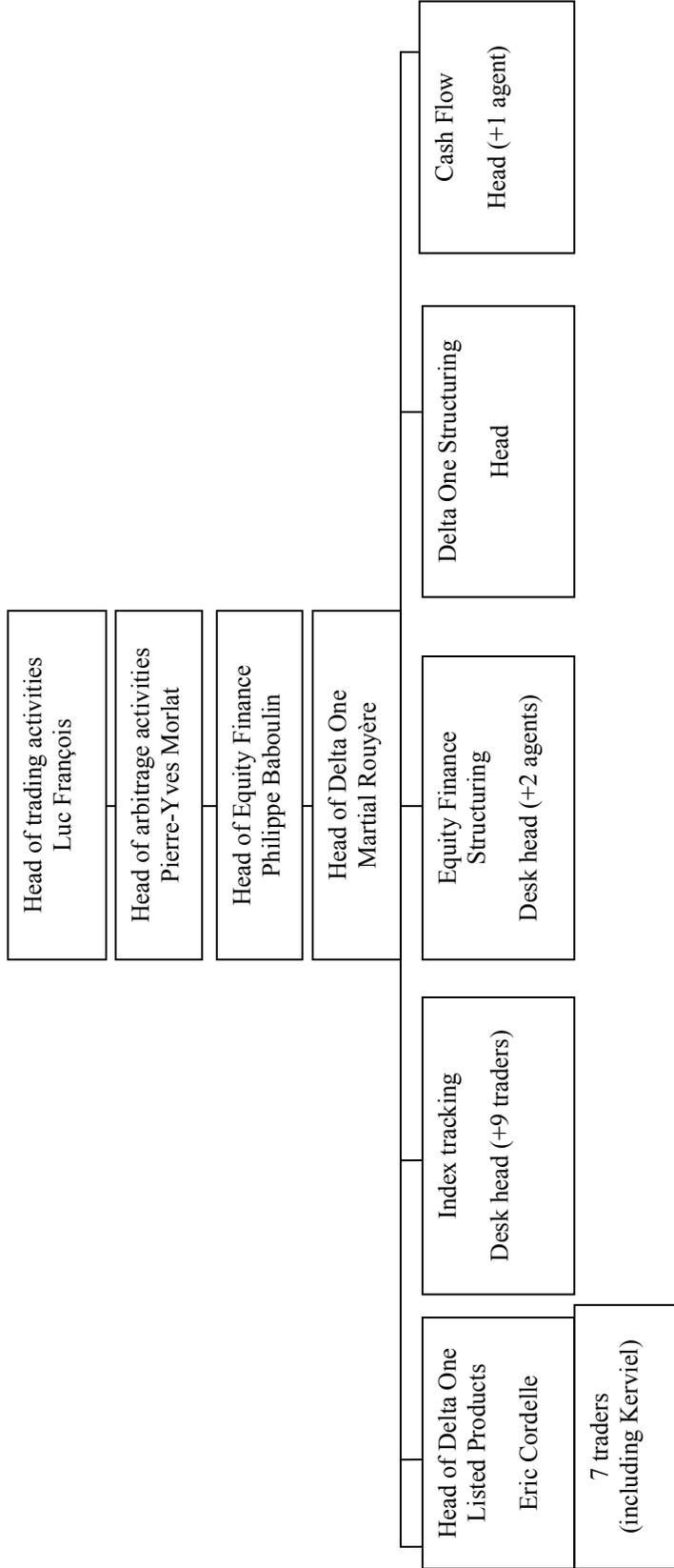
³⁷ Gérard Davet and Elise Vincent, “Jérôme Kerviel: ‘Je ne peux pas croire que ma hiérarchie n’avait pas conscience des montants que j’engageais,’” *Le Monde*, January 29, 2008.

Exhibit 1 Key Financial Data for Société Générale – Prior to Kerviel’s Trading



Source: Société Générale Presentation of Fiscal Year 2006 Financial Results (February 14, 2007).

Exhibit 2 The Chain of Management over Kerviel within the Global Equities & Derivatives Solutions (GEDS) Division



Note: the chart shown above shows the structure in place until December 18, 2007. After that date, the head of trading activities became head of GEDS and was replaced by the former head of arbitrage activities, who for his part retained his previous office.

Source: Adapted from "Mission Green" Report, available on Société Générale's Web site under "Regulated Information" at http://www.societegenerale.com/sites/default/files/documents/Green_VA.pdf, accessed January 9, 2010, p. 11 – case writer added actual names.

Exhibit 3 Kerviel's Authorized Activities.

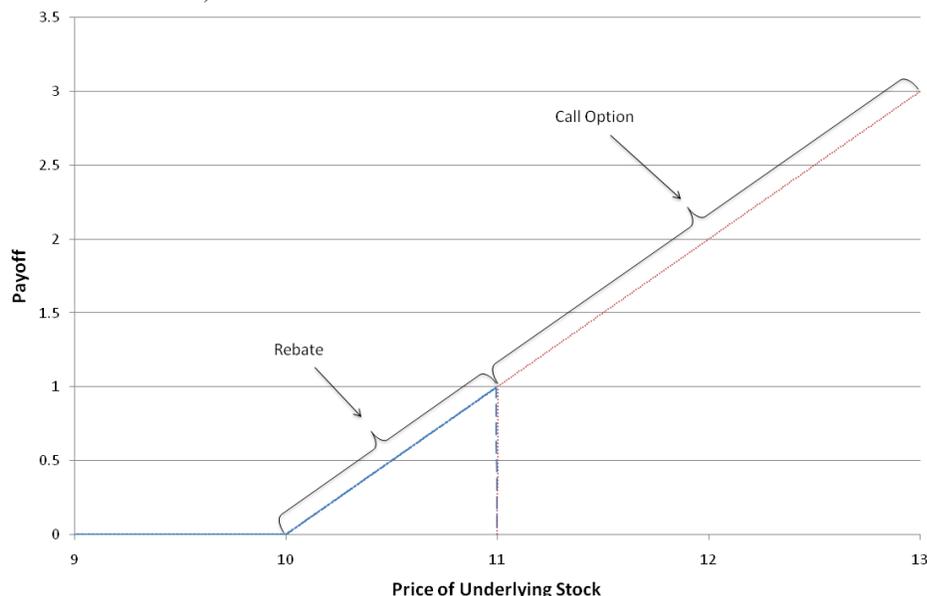
- **Turbo warrants**

- Principle: SG sells warrants with knock-out options to its clients (principally as call options, *i.e.* purchase/call options offered to the client) and hedges by buying the underlying asset in question.
- Strategy: “long turbos” are purchase options that can be deactivated if the spot price falls below the barrier, whereas “short turbos” are options to sell that can be deactivated if the spot price rises above the barrier. The purchase of the underlying assets is carried out by SG, which allows the client to benefit from a leverage effect (as the client does not purchase the asset.)
- Underlying assets: shares (single stock), baskets of shares (more unusual), ETFs (sector and/or geographical exposure), indices, German state bonds, currency.
- Maturities: no maturity date (“open end turbo”), maturity fixed at the date of issuance of the warrant (“closed end turbo”), one-day maturity.
- In the event of knock-out, SG resells the hedge and gives the client the difference between the strike and the corresponding level.

- **Arbitrage on competitors' turbo warrants**

In the context of markets' growing volatility, the DLP desk identified competitors' turbo products whose price was no longer adapted to market conditions. Arbitration consists of the purchase on day D of competitors' call turbos and their hedging by the sale of futures contracts. If the market opens at D+1 by showing a fall which deactivates the product, SG registers a profit (the trader can in fact re-purchase his hedge with a profit).

Example of payoffs associated with a “long turbo” with rebate in the event of knock-out (strike price is set at 10 and knock-out barrier at 11):



Source: Adapted from “Mission Green” Report, available on Société Générale’s Web site under “Regulated Information” at http://www.societegenerale.com/sites/default/files/documents/Green_VA.pdf, accessed January 9, 2010, p. 10. Casewriter added the example.

Exhibit 4 2006 and 2007 Earnings from Delta One Trading

Earnings from proprietary trading

<i>EUR millions</i>	2006	2007
Jérôme Kerviel's earnings	0	25
DELTA ONE earnings	24	114
Jérôme Kerviel's weighting	0%	22%

Earnings from client trading

<i>EUR millions</i>	2006	2007
Jérôme Kerviel's earnings	7	18
DELTA ONE earnings	20	45
Jérôme Kerviel's weighting	35%	40%

Total earnings from trading (i.e. minus sales credits)

<i>EUR millions</i>	2006	2007
Jérôme Kerviel's earnings	7	43
DELTA ONE earnings	44	159
Jérôme Kerviel's weighting	16%	27%

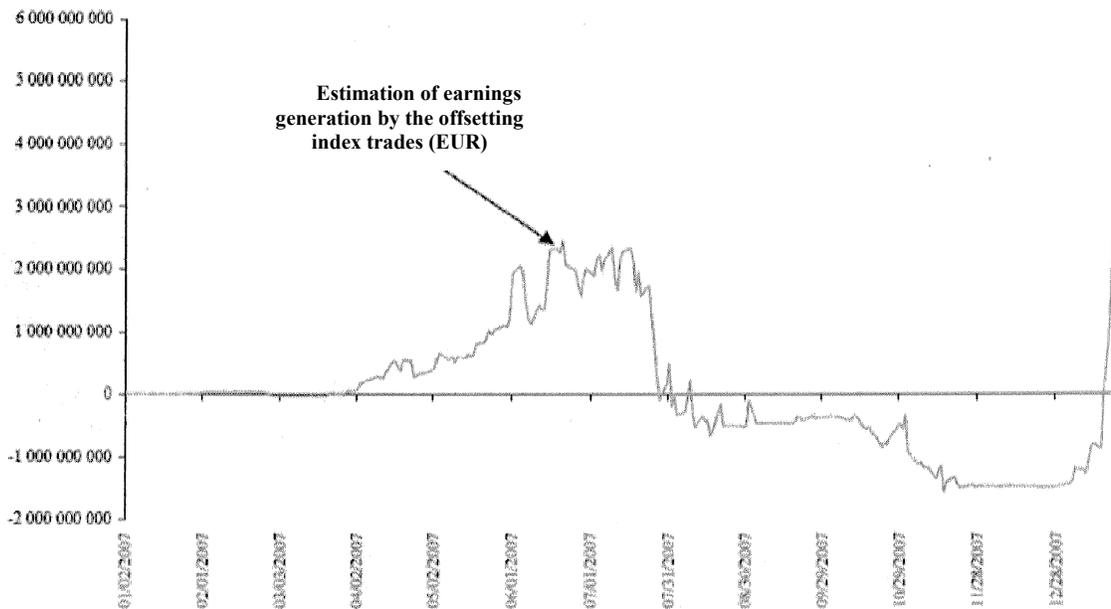
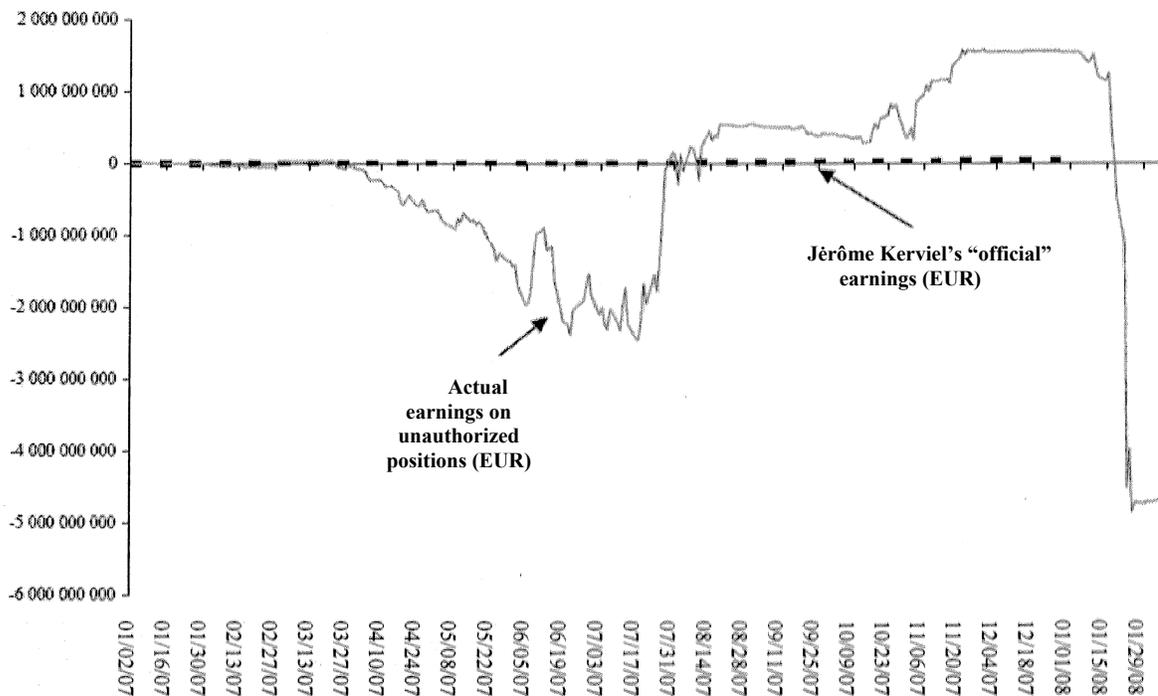
For proprietary trading, the distribution of the 143 arbitrage traders of the equity and derivatives trading division is as follows:

Earnings in EUR m.	<0	0-5	5-10	10-15	15-20	20-25	25-30	30-35	>35
Number of traders	10	76	14	12	9	8	4	4	6

Concerning proprietary trading, Jérôme Kerviel, with earnings of EUR 25 million generated by proprietary trading, was therefore the 15th best trader with the division, out of a total of 143.

Source: "Mission Green" Report, available on Société Générale's Web site under "Regulated Information" at http://www.societegenerale.com/sites/default/files/documents/Green_VA.pdf, accessed January 9, 2010, pp. 46-47.

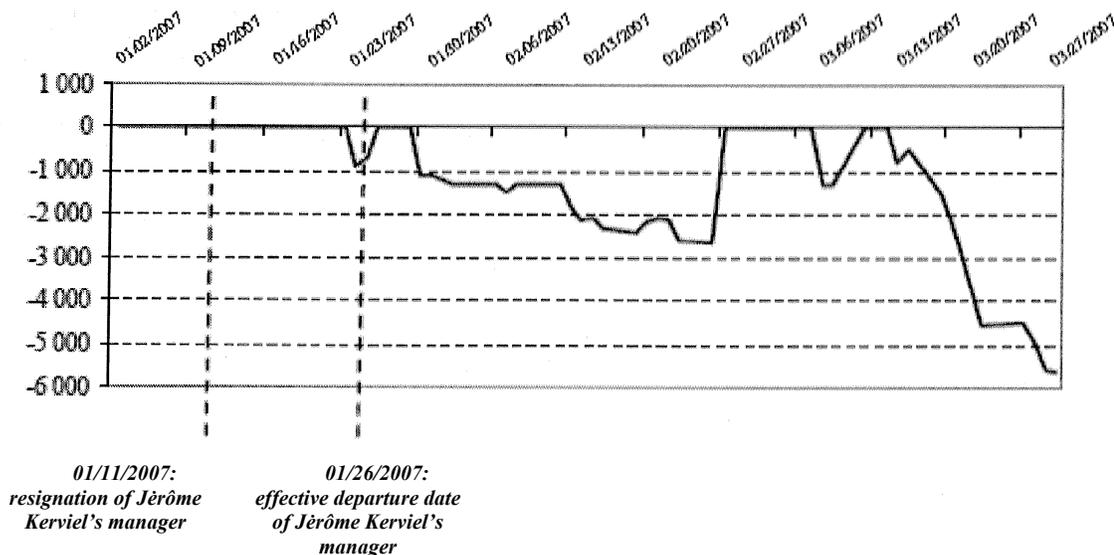
Exhibit 5 Kerviel's Actual vs. Reported Earnings



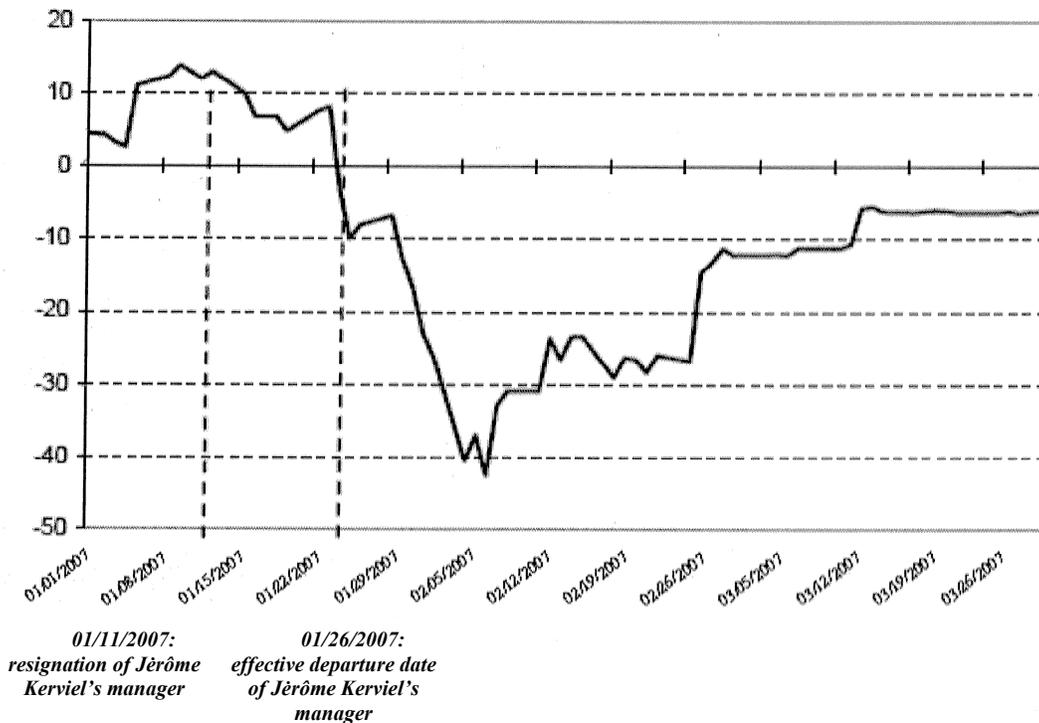
Source: "Mission Green" Report, available on Société Générale's Web site under "Regulated Information" at http://www.societegenerale.com/sites/default/files/documents/Green_VA.pdf, accessed January 9, 2010, p. 22.

Exhibit 6 Kerviel’s Unauthorized Trading Activity around the Departure of his Immediate Supervisor

Unauthorized positions on DAX futures during Q1 2007 in EUR millions.



Unauthorized positions on equities during Q1 2007 in EUR millions



Source: “Mission Green” Report, available on Société Générale’s Web site under “Regulated Information” at http://www.societegenerale.com/sites/default/files/documents/Green_VA.pdf, accessed January 9, 2010, p. 44.

Exhibit 7 Restatement of SGCIB 2007 Quarterly Results Due to Offsetting Trades

In EUR m	Q1 07		Q2 07		Q3 07		Q4 07	
	Reported	Restated	Reported	Restated	Reported	Restated	Reported	Restated
Net banking income	1,947	1,947	2,077	2,077	1,159	1,159	(661)	(661)
Operating expenses	(1,081)	(1,081)	(1,112)	(1,112)	(743)	(743)	(489)	(489)
Gross Operating Income	866	866	965	965	416	416	(1,150)	(1,150)
Net allocation to provisions	29	29	31	31	(9)	(9)	5	5
Operating income excluding net gains or losses (c.f.below)	895	895	996	996	407	407	(1,145)	(1,145)
Net gains or losses on unauthorized and concealed market activities	0	-97	0	(2,064)	0	2,524	(4,911)	(5,274)
Operating income including net gains or losses (c.f.above)	895	798	996	(1,068)	407	2,931	(6,056)	(6,419)
Net income from companies accounted for by the equity method	6	6	2	2	6	6	5	5
Net income from other assets	1	1	(1)	(1)	2	2	24	24
Income tax	(233)	(200)	(274)	428	(101)	(959)	2,109	2,109
Net income before minority interests	669	605	723	(639)	314	1,980	(3,918)	(4,158)
Minority interests	3	3	2	2	4	4	0	0
Net income	666	602	721	(641)	310	1,976	(3,918)	(4,158)

Source: Company website – Presentation of Financial Results for the First Quarter of 2008 (May 13, 2008).