

Chapter 5

Role of Cognitive and Other Influences on Rogue Trader Behaviour:

Findings from Case Studies

5.1. Introduction

One of the key findings from Chapter 4 was the lack of significant difference in the financial decision-making behaviour of investment professionals compared with retail investors in the survey sample. However, there was a distinctive pattern in the odds ratio in Table 4.5 where investment professionals were seen to be more likely to be affected by behavioural biases when the choices were risky ones. The aim of the discussions and analyses of the selected case studies in this chapter (the qualitative element of the mixed methods approach), therefore, was to investigate the reasons behind the seeming inability or reluctance of investment professionals to ignore the influence of behavioural biases under high risk situations; where their actions could result in either extremely large monetary gains or losses.

The discussion in this chapter consisted of three main sections. The first section was a brief account of the events behind five high-profile financial scandals caused by individuals who engaged in unauthorised trading or investment activities on behalf of their financial institutions, or rogue traders as they were popularly known. Section two highlighted some common characteristics of the rogue trading incidents, and section three was an analysis of the behavioural biases and related emotional influences behind the conduct of rogue traders.

5.2. Case Studies on Rogue Trading

Rogue trading is the term popularly used to describe unauthorised proprietary trading activities by financial market professionals. These trading activities which resulted in significant monetary losses and severe reputational damage to the affected financial institutions more often than not involved transactions in derivative products.

The problem of rogue trading was not a recent phenomenon. In 1974, Dany Dattel, a currency trader in Herstatt Bank, was reported to have lost close to DEM470 million trading USD/DEM.²⁵ DraKoln (2009) commented that this could probably have been one of the earliest reported occurrences of rogue trading in a financial institution. Dattel was by no means an isolated case as there had been many reported incidents of rogue trading since. It would be difficult to estimate the extent of this problem that plagued financial institutions around the world. It would not be unreasonable to assume that incidents of rogue trading where the losses incurred were not sizeable would likely be absorbed by the affected institution and not be reported in order to protect the reputation of the institution.

The list of selected case studies, which were the more noteworthy rogue trading incidents that had been reported in the news media over the last ten years along with the losses that were incurred, could be found in Table 5.1. Even though the collapse of Barings Bank was in 1995, no study on rogue trading would be complete without mention of Nick Leeson and his role in bringing down one of the oldest and leading merchant banks in London at that time. The rest of this section would consist of brief descriptions of the events which lead to the detection of the unauthorised trading activities for each of the selected case studies.

²⁵ Dattel's actions subsequently led to the collapse of Herstatt bank which was founded in 1792.

Table 5.1**Summary of Case Studies on Rogue Traders**

Rogue Trader	Year	Loss	Employer	Type of Trade
Jérôme Kerviel	2008	€4.9 billion	Société Générale	European index futures
Brian Hunter,	2006	USD6.5 billion	Amaranth Advisors	Natural gas futures
Luke Duffy, Gianni Gray, Vincent Ficarra, David Bullen	2004	AUD360 million	National Australia Bank	Foreign exchange options
John Rusnak	2002	USD691.2 million	Allied Irish Banks/Allfirst Financial	Foreign exchange options
Nick Leeson	1995	£827 million	Barings Bank	Nikkei futures

5.2.1. Jérôme Kerviel and Société Générale²⁶

In February 2008, Société Générale, the second largest bank in France, accused Jérôme Kerviel of being responsible for the largest single unauthorised trading loss in financial history at that point in time. Kerviel's unauthorised trading exposure of close to €50 billion in January 2008 resulted in a net loss of €4.9 billion when the bank unwound his positions. This news which stunned the global financial community caused stock markets to tumble around the world and even triggered an emergency decision by the US Federal Reserve to cut interest rates.

Kerviel joined Société Générale in 2000 where he obtained a position in the back and middle-office to process and oversee transactions carried out by the traders. In 2005, he was promoted to be a member of the bank's Delta One trading team which specialised

²⁶ This case study was based on accounts from Gauthier-Villars (2010), Carvajal and Kanter (2008), Davis (2008), Gauthier-Villars and Mollenkamp (2008) and O'Doherty (2008).

in the futures markets. His job as an arbitrage trader was to invest in a portfolio of stock index futures and at the same time take an equal and opposite position. This relatively low-risk hedging strategy was intended to take advantage of small price differences between futures contracts, thereby making some profits whenever the opportunity arose. Kerviel was not authorised to take unhedged directional trading positions. As a junior arbitrage trader, Kerviel's annual profit target was between €10 million to €15 million, and the net exposure of his almost perfectly balanced portfolio was not to exceed €500,000.

Instead of maintaining a hedged position, it was reported that Kerviel took small unauthorised directional trades from the start. He used his knowledge of the back and middle-office operations to bypass the bank's computer system and created fake hedging contracts which he removed from the system before they were settled and put in new contracts in order to give the impression that his trades were hedged. His initial successes encouraged him to continue with this unauthorised trading activity and to take larger positions. At the end of 2007, it was reported that his trading positions registered unrealised gains of over €1.4 billion on a portfolio with a notional value of €28 billion.

However, in 2008, Kerviel's luck changed when he gambled that the global credit crisis would start to recover in 2008 and increased his trading positions by an additional €21 billion. His positions took a turn for the worse when the market moved against him. By the time his unauthorised activities were brought to light in January 2008, he had about €50 billion in notional value of directional futures positions on European equity indexes.

Kerviel maintained throughout the investigations after he was found out that his supervisors were aware of his trading infringements but chose to ignore it as he was making money for the bank. For example, in late 2007, Eurex²⁷, a derivatives exchange, wrote to the bank citing concerns over the size of Kerviel's trading positions over the year. In addition, a report by a committee of the bank's independent directors highlighted that the back-office system had identified more than 74 breaches before the bank finally confronted Kerviel in January 2008.

The results of the investigations showed that Kerviel had falsified documents and keyed fictitious information into the bank's computer system, as well as breached his fiduciary duty to the bank. In October 2010, Kerviel was sentenced to three years in prison and ordered to pay €4.9 billion in damages to Société Générale. The fine was equivalent to the net loss incurred by the bank in unwinding Kerviel's positions in January 2008. Société Générale, on the other hand, was fined €4 million in July 2008 by the banking commission for serious deficiencies in its internal controls which lead to the trading losses. As a result of this saga, the bank was reported to have spent close to €50 million on a bank-wide initiative to tighten its risk controls.

5.2.2. Brian Hunter and Amaranth Advisors²⁸

Amaranth Advisors LLC was a hedge fund incorporated in Greenwich, Connecticut. The fund, which was launched in 2000 as a multi-strategy hedge fund, slowly moved the focus of its investment strategy to the energy sector. It was reported that as at 30 June 2006, the energy sector accounted for about half of the fund's capital and contributed to about 75% of the profits.

²⁷ Eurex is one of the world's leading derivatives exchanges. It is jointly operated by Deutsche Börse AG and SIX Swiss Exchange, and offers European benchmark derivatives.

²⁸ This case study was based on accounts from Daneshkhu (2010), Whitten (2010), Chincarini (2008) and Till (2007).

On 18 September 2006 the founder of Amaranth Advisors, Nick Maounis, informed investors of the fund that the fund had lost about 55% of its year-to-date assets due to losses in the natural gas market. The fund's assets had hit a high of USD9.2 billion in August, the previous month. By the end of September, after the energy portfolio had been transferred to a third party, the losses were reported to be in the region of USD6.5 billion. It was the largest trading loss then, to be surpassed by the loss in Société Générale two years later.

Brian Hunter had been largely viewed as being the main cause behind Amaranth's woes. Hunter started his career as an energy trader when he worked for TransCanada Corporation, a pipeline company in Calgary. In TransCanada, Hunter made profits for the company by looking out for energy options which had been mispriced. In 2001, he left TransCanada to join Deutsche Bank's energy trading team in New York. He was reported to have made USD69 million for the bank in his first two years, which earned him a promotion to oversee the natural gas desk. Hunter left Deutsche for Amaranth Advisors in 2004 to head the hedge fund's energy trading desk.

Within the first six months of joining Amaranth, a financial trade magazine in the United States (US) reported that Hunter had made USD200 million for the hedge fund. In 2005, it was reported that Amaranth had profited about USD800 million from Hunter's long positions when energy prices soared in the aftermath of Hurricanes Katrina and Rita. The huge profits attracted more investors to the fund, and pushed Hunter into the list of Wall Street's top traders.

While the trading strategies of hedge funds were closely guarded secrets, Hunter was believed to have based his trades on historical natural gas returns and predictions on the weather. He also maximised his returns by leveraging his portfolio using lines of credit from banks to a point where Amaranth had borrowed USD8 for every USD1 of investment capital. Hunter's portfolio which consisted of natural gas derivatives was so huge that in late July 2006, Amaranth's natural gas positions for delivery in January 2007 on the New York Mercantile Exchange (NYMEX) and the Intercontinental Exchange (ICE) was reported to have equalled the entire amount of natural gas used in January 2007 by residual consumers in the whole of the United States.²⁹

In September 2006, Hunter's trading strategy failed when the prices of natural gas contracts moved in the opposite direction to that of his expectations. This led to margin calls from Amaranth's lenders which it could not meet, and which eventually led to the dissolution of the fund at a loss of USD6.5 billion.

In 2007, the Federal Energy Regulatory Commission (FERC) charged both Amaranth and Hunter for alleged manipulation of natural gas prices in 2006 through their trading activities. In 2009, Amaranth settled with the FERC for USD7.5 million. Hunter did not participate in this settlement. In January 2010, a FERC administrative law judge ruled that Hunter had violated anti-market manipulation rules. It was also reported that the ruling would be subject to review by the full commission.

²⁹ From a report by the US Senate Permanent Subcommittee on Investigations (PSI) on *Excessive Speculation in the Natural Gas Market* released in June 2007.

5.2.3. National Australia Bank³⁰

The National Australia Bank, one of the four largest banks in Australia, was established in 1893. In January 2004, the bank announced that it had incurred losses amounting to AUD360 million resulting from irregular transactions in foreign exchange options. The news sent the bank's share price on the Australian Stock Exchange tumbling and wiped out almost AUD2 billion or 4% from the bank's market capitalisation within a few days.

Unlike the other incidents of rogue trading, the culprit in this episode was not a single individual but four individuals in the bank's currency options desk:

- Luke Duffy (head of the forex options desk),
- Gianni Gray (senior forex options trader),
- David Bullen (senior forex options trader), and
- Vince Ficarra (forex options trader).

The AUD360 million losses incurred was essentially due to a significant increase in the risk exposure of the bank's proprietary trading portfolio to the US dollar during the period September 2003 to January 2004. The highly leveraged call options transacted during this period in anticipation of a strengthening US dollar turned sour when the US dollar depreciated against the Australian dollar. However, instead of closing out the positions as the markets moved against them, the traders concerned continued to increase the size of their positions, a strategy aimed at recovering initial losses.

The report by PricewaterhouseCoopers (2004) revealed that the traders had been concealing their losses during the period in question; a practice which could have been

³⁰ This case study was based on accounts from The Sydney Morning Herald (2006), Australian Prudential Regulation Authority (2004) and PricewaterhouseCoopers (2004).

ongoing possibly as far back as 1998. The traders used their knowledge of the loopholes and weaknesses in the bank's front, middle and back office computer systems, including the accounting system, to cover up their losses by recording genuine transactions incorrectly, entering fictitious transactions and using incorrect revaluation rates. It was in early January 2004 when a fellow staff member noticed discrepancies in the trading accounts that the senior management was alerted.

The failure to minimise or even prevent this financial loss was a combination of three factors – (i) lack of integrity of the bank's staff, (ii) weak risk and internal control systems, and (iii) poor corporate and governance culture within the organisation. While the excessive risk exposures were hidden by the fraudulent actions of the traders, trading limits were continuously being breached. For example, in 2003, there were as many as 800 reports where the trading limits had been breached. It was alleged that these trading violations were ignored and summarily dismissed by management as part and parcel of building a business in trading currency options. This was coupled with the fact that the management was under the impression that the currency options desk was generating handsome profits for the bank through their speculative trading activities.

The aftermath of this saga saw significant changes to the bank's board of directors, where both the chairman and chief executive officer tendered their resignation. The four rogue traders were tried in court and found guilty on a string of charges related to the unauthorised trading transactions. All four were sentenced to serve prison terms as shown below.

Table 5.2

Court Verdicts in the National Australia Bank Saga

		Maximum sentence	Minimum sentence to be served before release on good behaviour
June 2005	Luke Duffy	29 months	16 months
April 2006	Gianni Gray	16 months	8 months
July 2006	David Bullen	44 months	30 months
July 2006	Vince Ficarra	28 months	15 months

5.2.4. John Rusnak and Allied Irish Banks/Allfirst Financial³¹

In February 2002, Allied Irish Banks, the second largest bank in Ireland, announced that its Baltimore-based subsidiary, Allfirst Financial, had incurred a loss of USD691.2 million. This loss was the result of alleged fraudulent trading activities by a trader named John Rusnak. In response to this scandal, the board of directors of Allied Irish Banks commissioned an independent investigation led by Eugene Ludwig, a former US Comptroller of the Currency, into the causes behind the losses.

Proprietary currency trading in Allfirst started in 1990. Before 1990, the bank's currency trading activities were limited to meeting the foreign exchange needs of commercial clients for import/export purposes. This was essentially a fee-based business with little risk exposure. John Rusnak who marketed himself as an experienced foreign exchange options trader was hired by Allfirst in 1993. He convinced his bosses that his arbitrage trading strategy, where he would take positions on currency movements and offset these positions with a complex system of hedges, would entail

³¹ This case study was based on accounts from Rulison (2003), Leith (2002), Ludwig Report (2002) and McNee (2002).

little risk and more importantly would be able to contribute to and diversify the revenue stream for the bank.

However, according to the Ludwig report, Rusnak's trading strategy was no more than taking directional bets on the movement of the currency using simple currency forward contracts. Rusnak's fortunes turned sometime in 1997 when he suffered large losses trading the yen. During that period, he had bought the yen in a falling market and lost money. He then bought more yen in a desperate attempt to recoup the losses and lost more money. Like other rogue traders before and after him, Rusnak managed to avoid detection by circumventing the bank's 'weak' risk control environment. He falsified records and documents; for example, reporting fake option contracts which created the appearance that his portfolio was hedged when in fact it was not. His fraudulent scheme was so efficient that not only did he manage to cover up his losses; he also managed to convince his bosses that he had been making money for the bank for which he was paid annual bonuses.

In early 2002, Rusnak's elaborate scheme began to unravel when the back-office supervisor noticed that the supposedly offsetting trades were not being properly confirmed. The back-office personnel were told by Rusnak that because the transactions were offsetting in nature with no net transfer of cash, there was no need to seek confirmation from the related counterparties. Furthermore, the head of treasury funds management had been voicing concerns that Rusnak had been using a very large proportion of Allfirst's balance sheet to fund his trading activities, and that in January 2002 it had jumped to USD200 million in one day. Alarm bells rang which prompted the back-office supervisor to initiate further checks and the discovery that Rusnak's

trades with purported counterparties in Asia could not be confirmed. Rusnak failed to show up for work on the morning his bogus trades were found out.

While the losses did not threaten the bank's solvency, it was equivalent to about 60% of the banking group's 2001 earnings. The chairman and chief executive officer of Allied Irish Banks offered their resignations to the board which were not accepted. However, six executives of Allfirst who had oversight responsibilities for the institution's trading activities were dismissed for failing to notice the fraud and losses. Rusnak pleaded guilty to charges of defrauding Allfirst and was sentenced in January 2003 to a seven and half year prison term. He was also ordered to pay a fine of USD60,000, participate in substance abuse and gambling counselling programmes, and forbidden to ever work in a financial institution unless permitted by the federal government.

5.2.5. Nick Leeson and Barings Bank³²

In February 1995, news of the collapse of Barings Bank, the oldest merchant bank in Britain and financial advisor to the royal family, shocked observers of financial markets around the world. The bank announced that it had potential liabilities amounting to £827 million due to unauthorised futures and options trading transactions from its Singapore subsidiary, Barings Futures (Singapore) Pte Ltd, which far exceeded the bank's capital of £200 million. Furthermore, Nick Leeson, the person alleged to have been responsible for the losses, had fled Singapore which sparked a global manhunt for him.

The saga of Nick Leeson and Barings Bank had been the subject of numerous case study analyses by academicians, consultants, auditors and risk experts. The lessons

³² This case study was based on accounts from BBC News (1999), Pressman (1997) and Bank of England (1995).

highlighted in publications and discussion forums illustrated the failure of weak risk management and internal controls, poor governance culture and practices, and the influence of greed and fear on investment professionals.

Leeson joined Barings Bank in 1989 as a clerk responsible for the settlement of transactions. In 1992, he was transferred to the Singapore office where he was promoted to the trading floor. At that time, the traders at Barings Futures (Singapore) were only authorised to perform two types of transactions:

- i. buying and selling futures and options contracts on behalf of clients or other entities within the Barings Bank group; and
- ii. arbitraging price differences between Nikkei futures traded on the Singapore International Monetary Exchange (SIMEX) and either the Osaka or Tokyo exchanges.

The traders were not allowed to maintain open positions overnight and each trader was given specific limits on intra-day trading. Hence the Singapore subsidiary was in principle conducting a low-risk business. However, in an effort to minimise the cost of operations, Leeson was allowed to assume the role of both front-office trader and back-office settlement manager; a fundamental breach of internal control procedures.

It was reported that Leeson started engaging in unauthorised trading as early as 1992, where he was alleged to have lost money from the very beginning. He then devised a scheme where he openly recorded profits and hid his losses in a special account – Account 88888. His fraudulent activities included submitting fake reports to the head office in London, misrepresenting the profitability of the subsidiary's trading activities, and falsifying trading transactions and accounting entries. As he was in control of the

back office operations, Leeson was able to hide his deceptions from the executives in London and the auditors.

Leeson soon gained recognition as Barings Bank's star trader in Singapore. In 1993, he was promoted to general manager of the Singapore subsidiary. According to the Report of the Board of Supervision Inquiry into the Circumstances of the Collapse of Barings (1995) the profitability of Leeson's trading activities were reported to have been £8.8 million in 1993 and £28.5 million in 1994 when in actual fact the cumulative losses were £23 million and £208 million respectively.

As the losses mounted, the size of Leeson's transactions grew in tandem in an effort to recoup the losses. In early 1995, Leeson took risky directional gambles on the Nikkei index, Japanese government bond index, and the Euroyen. His trading strategy was one where he would profit so long as the markets stayed fairly stable, but if the markets turned volatile he would lose big. As luck would have it, on 17 January 1995, the Kobe earthquake sent the Asian markets and Leeson's portfolio into a downward spiral. On 23 February 1995, when Leeson went missing from Singapore, his cumulative losses were estimated to be around £827 million.

In his book *Rogue Trader*, Leeson commented that the culture in Barings was one where everyone was under pressure to deliver profits. It was observed that the senior managers at Barings who were primarily from a merchant banking background neither understood nor even cared to understand the complexities of derivatives trading. No one questioned how Leeson was able to make such huge profits from a supposedly low-risk activity. For example the reported profit of £28.5 million in 1994 was equivalent to 77% of the total net profit of the Barings Bank group. Leeson's supervisors were happy as

long as his trading activities returned good profits because their bonuses paid were also based on his performance.

On 26 February 1995, Barings Bank was officially put under the administration of the Bank of England. Barings was subsequently sold to ING, the second largest insurance firm in The Netherlands, for a token consideration of £1. Leeson who fled Singapore before the news of the collapse of Barings Bank broke was arrested in Frankfurt on 2 March 1995, and extradited to Singapore where he was sentenced to six and half years in prison. He was released after serving four and half years.

5.3. Recurring Themes in Rogue Trading Scandals

Almost all of the post-mortem analyses into the causes behind high-profile rogue trading scandals by industry observers uncovered recurring themes. The series of events leading to the discovery of the financial losses were nearly always the same –

- i. irregular and unauthorised trades which were motivated by greed for money and recognition;
- ii. scheme where documents and counterparty transactions were falsified when losses mounted which were motivated by fear of discovery; and
- iii. trading strategy where positions were continuously being doubled to trade out of the losses incurred until the fraudulent scheme could no longer remain concealed.

The rogue traders exploited the weak control environment in their respective financial institutions; where little attention was paid to violations in compliance guidelines and trading limits by the supervisors and senior management so long as the rogue traders were seen to be bringing in profits.

PricewaterhouseCoopers (2004) rightly summarised the following factors – (i) lack of integrity of the bank’s staff, (ii) weak risk and internal control systems, and (iii) poor corporate and governance culture within the organisation – as coming together to create the ‘perfect storm’³³ in the National Australia Bank case. These three factors were similarly highlighted in the Ludwig report on Allied Irish Banks and the Bank of England report on Barings Bank. However, in the discussion that follows, the researcher had categorised the recurring themes from the selected case studies in Section 5.2 as (i) flawed corporate culture and (ii) misaligned trader incentive.

5.3.1. Flawed Corporate Culture

The phrase ‘no risk, no return’ or more appropriately, the counter-phrase ‘higher risk, higher return’, is the basic premise that underlie any investments in financial assets. Therefore, taking on financial risks to generate profits would be implicit in the business model of proprietary trading units of financial institutions, and where excessive risk-taking had been known to be well rewarded when superior returns were produced.

A review of the selected case studies would reveal some recurring failures in corporate practices and behaviour. There had been numerous examples where warning signs of a breakdown in the organisation’s management of financial risks in the trading rooms were clearly disregarded. Table 5.3 is a summary of some of these poor practices and behaviour.

³³ The Collins English Dictionary defined the phrase ‘perfect storm’ as a combination of events which were not individually dangerous, but occurring together produced a disastrous outcome.

Table 5.3**Summary of Flaws in the Corporate Culture**

	Société Générale	National Australia Bank	Allied Irish Banks	Barings Bank
Compliance, back office and internal audit staff were treated with disrespect and often bullied into submission		√	√	√
Traders were familiar with the workings of the back-office and accounting systems	√	√		√
Board and senior management lacked understanding of the derivative instruments involved	√	√	√	√
No one questioned whether the authorised trading strategy could have possibly produced the reported profits	√	√	√	√
Failure to heed nor react to alerts from external agencies on the trader's unusually large positions	√			√
Willingness to allow practices that contradict recommended guidelines on risk and internal control measures	√	√	√	√

It was very clear that in each and every case, the rogue traders were accorded 'superstar' status and were practically untouchable. Compliance and risk management would often be warned to leave the 'stars' alone and not to upset them. For example, when Brian Hunter of Amaranth Advisors threatened to leave the fund in 2005, the founder Nick Maounis renegotiated Hunter's compensation package and allowed Hunter to set up his own office in his hometown in Calgary, Alberta. This effectively gave Hunter total control over his trading activities, away from the oversight of compliance and internal audit. In the Ludwig report, it was highlighted that John Rusnak's direct supervisor in Allfirst Financial was highly protective of Rusnak, to the point where the supervisor would request that inquiries by the back office and risk assessment personnel regarding Rusnak's trading activities be forwarded to him for

clarification rather than disturb and irritate Rusnak. The Ludwig report also drew attention to Rusnak's temper and bullying behaviour towards the back office personnel and that no significant actions were seen to have been taken by the treasurer over such incidents.

Krawiec (2000) in her article on unravelling the mystery of the rogue trader suggested three explanations for the continued existence of rogue traders in financial institutions.

- i. One, it was a conscious decision by the management to bend the rules with regard to instances of excessive risk-taking or trading violations because the profits resulting from such activities would enhance the management's compensation and status within the organisation.
- ii. Two, because of the reluctance to lose face and to cut losses, supervisors and other members within the organisation who had oversight responsibilities over the rogue traders would be inclined to keep on letting the state of affairs continue instead of stopping it.
- iii. Three, profitable trading strategies come from taking on a great deal of risk, which was no different from the strategy that rogue traders deployed.

Krawiec concluded that financial institutions might have had intentionally fostered an environment that allowed rogue traders to carry on despite the potential for negative and at times disastrous repercussions on the business.

While such behaviour would be the reflection of a poor governance culture, it was understandable in that when a trader made lots of money for the organisation everyone would benefit in monetary terms; i.e. from the shareholders to the senior management to the trader's supervisors down to the other members of the trading team. For example, it was reported that Peter Barings, the then Chairman of Barings Bank, would have

received a bonus of £1 million for 1994 if the bank did not go under the administration of the Bank of England in February 1995. In the case of Société Générale, Jérôme Kerviel was reported to have made a profit of over €1.4 billion for the bank as at end of 2007 for which he would have been paid a bonus of as much as €300,000 even as a junior trader. It was also reported that the bonuses paid to the rest of his team, including the senior members, would have been boosted as a result of Kerviel's successful trades. As Kerviel was by far the most profitable trader in the team, his trading activities were left unchecked, which resulted in a €4.9 billion loss barely one month down the road.

Risk managers and compliance personnel faced daunting tasks when carrying out their duties and responsibilities. It would not be surprising if they were subjected to a great deal of resistance when trying to convince the management that something could be amiss because it would effectively be putting a stop to the party (Krawiec, 2009; Koenig, 2006; Cornell, 2004; Woods, 2004).

5.3.2. Misaligned Trader Incentive

The compensation structure for proprietary traders in a financial institution would normally consist of a base salary and a performance bonus based on the trading profits earned during the financial year. Hence, in a good trading year it would not be unusual for the proprietary trader to bring home a bonus that exceeded his or her monthly salary for the entire year.

This form of compensation structure was similar in form to that for employees involved in the sale of goods, who were incentivised with performance-based commissions. This meant that the more goods the employee sold, the more money the employee would

earn. Such a compensation structure, with a fixed and variable component, was intended to motivate and drive the employee to achieve greater profits for the organisation. Yet, the same compensation structure adopted by the financial institutions had come under much scrutiny and solicited much criticism (Folbre, 2010). This was because unlike profits that were obtained from the sale of goods, the profits from proprietary trading activities were from the taking on of financial risk that had a 50-50 chance of turning bad. However, the message that was being sent to the proprietary traders was that short-term trading profits would be rewarded regardless of whether the profits were obtained from over excessive risk-taking (Koenig, 2006; Krawiec, 2000).

Compensation policies of financial institutions had been identified as a contributory factor to the problem of rogue trading. Professor Stewart Howard in his commentary titled *The Scourge of the 'Rogue Trader'*³⁴ remarked that after the collapse of Barings Bank, Daniel Davis, a senior official of the Bank of England was quoted to have said "... a remuneration system which gives perverse rewards to risk taking behaviour may put the control system under great stress". In the same commentary, Davis's concerns were reiterated by Howard Davis, the then Deputy Governor of the Bank of England, who said "If remuneration is linked to profitability, it is important that the control environment should be particularly robust". In the National Australia Bank saga, one of the key points in the PricewaterhouseCoopers report was that the rogue traders were motivated by the desire to achieve the budgeted profits and receive the expected bonus payments. Both John Rusnak and Nick Leeson were paid handsomely on perceived profits when in fact their trading positions had accumulated losses.

³⁴ The commentary written by Professor Stewart Howard titled *The Scourge of the 'Rogue Trader'* (February, 2008) could be found at <http://www.imd.ch/research/challenges/TC022-08.cfm>

Wexler (2010) argued that there was no advantage for rogue traders to keep their level of risk-taking low. This was because in addition to monetary benefits, these traders also had much to gain status-wise within the organisation as well as among peers within the industry. Traders who were known to have taken high-risk bets and won were looked upon with admiration and envy by fellow traders. At the peak of his career, Brian Hunter was ranked 29 in the list of top traders. Nick Leeson strived to be the 'King of SIMEX' which was reflected by the size of his trades on the exchange. Even John Rusnak apparently enjoyed being wined and dined by brokers who were very willing to oblige. Rusnak was seen as an active trader and was therefore a profitable client for the brokers.

An examination of the risks and rewards of the rogue trader's trading strategy would reveal that on the upside, the trader would gain in terms of money and status. However, on the downside, if the rogue trader got found out, the name recognition and celebrity status could still remain. After Amaranth Advisors, Brian Hunter went on to start a hedge fund firm and was later hired as adviser to an alternative asset management company. Nick Leeson had a book published and a film made based on his days as a rogue trader, and is currently chief executive officer of Galway United Football Club and a sought after conference and dinner speaker. Even Jérôme Kerviel had been accorded some sort of cult status in cyberspace with the creation of dedicated websites and Facebook fan club pages by sympathisers after his dismissal from Société Générale (Monaghan, 2008). Hence, in an industry that induced and rewarded high-risk takers, where trader incentives are misaligned, it would be unlikely that the problem of rogue trading in financial institutions would be resolved and the industry would not witness such incidents in the future.

5.4. Behavioural and Emotional Influences in Rogue Trading Activities

The discussion in the previous section explored the dynamics of authority influence and incentive compensation practices as factors that had indirectly contributed to the prevalence of rogue trading in financial institutions. The discussion in this section focused on aspects of investor psychology behind the rogue trading phenomenon in order to obtain alternative insights into why some proprietary traders chose to engage in unauthorised trading activities; often times with damaging consequences to the financial institution that employed them.

In his book *Beyond Greed and Fear: Understanding Behavioral Finance and the Psychology of Investing* (2000), Hersh Shefrin said that there was a popular expression in the marketplace that financial markets were predominantly driven by greed and fear. In a rising market, investors were said to be driven by greed and the ensuing buying spree would push prices higher. But, when the market turned and prices tumbled, it was fear that drove investors to overreact and sell with little thought or reflection.

Nicholson (2002) and Nicholson and William (2000) identified a third and possibly the more influential driving force, i.e. the ego. Together with greed and fear, these three factors could provide an explanation for the cognitive biases in rogue trader decision behaviour. Ego had been described by Nicholson and William (2000) as the importance of being well regarded within one's community. The researchers argued that for professionals in the financial industry reputation was a good that counted for more than monetary reward. The pay-off benefits from either a good or bad reputation could still be reaped long after the incident that had brought about the recognition had taken place. In section 5.3.2, it was mentioned that Brian Hunter and Nick Leeson managed to

leverage off their dubious reputations to advance their careers after their unfortunate incidents in Amaranth Advisors and Barings Bank respectively.

From the selected case studies, the principal behavioural biases identified that could be used to explain the actions of the rogue traders were:

- Overconfidence and self attribution effect
- Desire for recognition
- Loss aversion
- Sunk cost effect

While there might be other psychological biases that could have had an effect on rogue trading behaviour, the discussions below would centre on the identified principal biases. In order to find an explanation for the findings in Section 4.6, where investment professionals were more likely to be influenced by behavioural biases when the choices were risky ones, the researcher proposed the following link between emotions and behavioural biases. An illustration of this link between the emotions of ego, greed and fear and the behavioural biases identified is presented in Figure 5.1. It should be noted that three of the four biases could be attributed to ego.

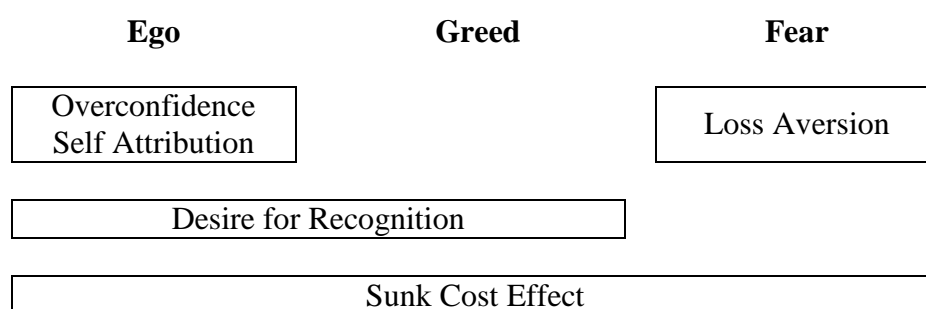


Figure 5.1

Link Between Emotions and Behavioural Biases

5.4.1. Overconfidence

Research in human psychology showed that people had a tendency to overestimate their achievements and capabilities in relation to others. This tendency had been nicknamed the ‘Lake Wobegon effect’ after Garrison Keillor’s³⁵ fictional community where all the men were good-looking, all the women were strong and all the children were above average. In a study on the subject of overconfidence by Cooper, Wood and Dunkelberg (1988), it was found that new business owners believed that the chances of succeeding in their new business venture was nearly two times higher than that for similar businesses by others.

Another study by Menkhoff and Nikiforow (2009) provided some insight to the issue of overconfident behaviour in investment professionals. The authors selected 100 German fund managers for this study on the assumption that this group would be motivated to exhibit efficient investment behaviour. However, the authors found that while the fund managers acknowledged the existence and influence of behavioural biases, they generally failed to recognise such biases in their own behaviour. The authors concluded that this flawed self-perception could be one reason why investment professionals failed to correct their behavioural biases.

By the same token, rogue traders could likely be under the flawed impression that they were better than the average trader (Cornell, 2004); which was reinforced by the ego. Overconfidence and the ego also lead rogue traders to be prone to the self attribution effect, where they would take credit for actions that went well and avoid responsibility for actions that did not. Hence, rogue traders who had been successful in the past were

³⁵ Garrison Keillor is an American author, storyteller, humorist and radio personality. He was the host of a radio show known as ‘A Prairie Home Companion’ which broadcasted a weekly monologue by Keillor entitled *The News from Lake Wobegon*.

more predisposed to the assumption that their winning streak would continue and hence would be more willing to take greater risks (Krawiec, 2000).

Nicholson (2002) remarked that the accompanying folly from overconfidence and self attribution was a misplaced confidence by rogue traders in their abilities to move markets at will or to outsmart the randomness of market price movements. This illusion of control which was observed in the behaviour of the rogue traders in the case studies also demonstrated the influence of the ego.

- Jérôme Kerviel was so confident that the global financial markets would start to recover from the mortgage crisis in 2008 that he increased his trading positions.
- Brian Hunter was so confident of his winning trade strategy that he practically cornered the natural gas futures market for delivery in January 2007.
- The trading team in National Australia Bank was so confident that the US dollar would strengthen in the fourth quarter of 2003 that they continued to increase the size of their positions even as the markets moved in the opposite direction.

The delusion with respect to the rogue traders' ability to win against the odds reinforced their belief that any downturn in their fortunes would be temporary, and that if the losses could be hidden from their supervisors for a brief period of time, the losses could be recovered through bigger and riskier trades. Their ego also prevented them from admitting their mistakes. In almost all rogue trading scandals, this would be the tipping point to the start of acts of falsification, lying and deceit which would continue until the deception could no longer be sustained and the rogue trader exposed.

According to Krawiec (2000) the supervisors and co-workers of the rogue trader could be equally overconfident about the abilities of the star trader to weather any downturns

and to keep on bringing in the profits. In a perverse sort of way, this helped to provide the rogue trader respite from the oversight and control of the supervisors and compliance departments, and to continue with the deception.

5.4.2. Desire for Recognition

Sherwin Rosen (1981) in his article in *The American Economic Review* introduced the concept of superstar economics, where he surmised that only a small number of people who were perceived to be the most talented in the activity in which they engaged, would dominate that activity and earn the most money. In other words, the top performers would gain in both status and wealth.

Gapper (2008) adopted this superstar concept to explain the motivations behind rogue trading behaviour. Gapper cited the example where the most bankable movie stars who belonged to the 'A-list' were able to demand huge fees when approached to work in a new production. It would not be difficult for the producers to raise funding for the project, and the final product would likely be a box-office hit when there was a star name attached. Similarly, proprietary traders who had an impressive track record would be able to demand huge payouts and/or raise capital from investors for investment funds managed by these traders.

It was because the incentives were so disproportionate due to the star system that proprietary traders would be driven to draw attention to themselves, to the point of taking excessive risks in their transactions. In addition to fame and fortune, as was discussed in Section 5.3, the star trader would also be 'rewarded' by the organisation with less scrutiny and queries regarding his or her trading activities. Hence a vicious

cycle would emerge. As the level of scrutiny decreased, the ability of the trader to take on bigger risks would increase, and the higher trading profits that result would allow the trader to maintain the superstar status (Krawiec, 2000). In a perverse sort of way, greed for status and recognition provided fodder for the ego, i.e. to be looked up upon by one's peers.

One observed similarity among the rogue traders in the selected case studies was that they came from relatively humble family backgrounds, which could be a reason for their quest for glory. Jérôme Kerviel is the son of a hairdresser and a vocational school metal shop teacher from a provincial town in France. John Rusnak grew up in the suburbs of Philadelphia where his father was a steel worker, and Nick Leeson grew up in a working class council estate in Watford where his father was a plasterer. All three found themselves in situations where they had the opportunity to make more money than they had ever dreamed of.

- Kerviel was promoted from the bank's back office to the Delta One trading desk as an arbitrage trader. It was natural for Kerviel to make comparisons with his fellow traders who traded complex over-the-counter derivatives and structured products, and who probably earned ten or twenty times more than he did. Kerviel was reported to have confessed that he wanted to be recognised as an exceptional trader and to get a bigger bonus.
- Before he was hired by Allfirst Financial, Rusnak worked as a trader in two New York banks but could hardly be described as a star trader. He saw the job in Baltimore as a chance to stand out in a smaller financial setup, and marketed himself from day one as an experienced foreign exchange options trader.
- When Leeson was transferred to the subsidiary of Barings Bank in Singapore, he was given the responsibility for making trading decisions and reconciling

trading accounts. This fundamental error in operational risk management allowed Leeson to elevate himself to star status within the Barings Bank group. Fleming and Zyglidopoulos (2009) described Leeson as a person who constantly sought attention, praise and respect from his superiors and other traders.

5.4.3. Loss Aversion

Human beings are not by nature risk-averse, but they are without doubt loss-averse. The seminal work by Kahneman and Tversky (1979) on prospect theory showed that when faced with a sure gain, most investors would become risk averse. On the other hand, when faced with a sure loss, these same investors could suddenly become risk takers and would be willing to take the chance that they could avoid the loss altogether even to the point of taking on more risk that could result in a greater total loss.

A number of studies had been carried out that found that professional traders and investors were on the whole reluctant to realise losses (Garvey & Murphy, 2004; Odean, 1998; Shefrin & Meir, 1985). Commonly known as the disposition effect, the motivation behind this behavioural phenomenon was loss aversion and regret. A loss when not realised was essentially a paper loss where there was still an opportunity for the loss to make good. If the investor did nothing and the loss built up, the investor would suffer from regret of omission. However, if the investor was to cut the loss and the investment subsequently recovered its value, the investor would suffer from regret of commission. Anecdotal evidence suggested that the emotional pain from a regret of commission was more intense than from a regret of omission (Kahneman & Riepe, 1998). In other words, investors would prefer to maintain the status quo and do nothing, than regret a poor action taken.

In the world of the rogue trader, loss aversion could be seen as the trigger for the lies, deceit and fraudulent actions undertaken in order to conceal the large losses incurred. Fear for the loss in this instance was not only monetary in nature. Recognising the loss would also mean the loss of face, and more importantly the loss of status along with the attendant benefits within the organisation.

The rogue traders in the selected case studies, with the exception of Brian Hunter, all yielded to the temptation that if they could buy time by covering up the losses in their trading portfolios, they would be able to trade their way out of their unfavourable situation. However, when the losses escalated, the rogue traders found themselves inflicted with a sense of unreality. For example, Leith (2002) narrated that there were times that Nick Lesson would sneak away to vomit during a bad trading session, and that Lesson had admitted that towards the end, he would experience a strange sense of elation with every loss because he was hoping to be caught which would eventually put an end to the nightmare.

5.4.4. Sunk Cost Effect

While loss aversion explained why traders were hesitant in acknowledging losses and would scheme to hide the losses, the sunk cost effect explained why traders continued to throw good money after bad in futile attempts to recover lost ground. The sunk cost effect was the tendency to hold on to distressed undertakings where a lot of time, money and effort had been expended on it. The sunk cost effect was in contradiction with traditional economics that viewed sunk costs as costs that had been incurred and could not be reversed. Hence, any new decision going forward should be evaluated based on

future costs and benefits of the considered action, and not on past outcomes (Jervis, 2004; Woods, 2004).

The strategy most rogue traders employed to recoup their losses was to double-up their bets. This was an investing strategy where by doubling the size of each subsequent trade, the trader was looking at earning a larger return when the price of the security moved in a favourable direction; thereby not only recovering the loss but also making a profit. The assumption here was that the latest adverse price fluctuation was temporary and that the market would soon correct itself. The emotional triggers behind this assumption were greed, fear and the inflated ego. However, all the rogue traders in the selected case studies found that this was not always the case, and the losses incurred from the doubling-up strategy accumulated to the point where it could no longer stay hidden.

Most rogue trading scandals could have been averted if the relevant stakeholders had paid attention to the sunk cost effect. In the case of Barings Bank, if Leeson's activities had been discovered and stopped one month earlier, the total loss would have been about one quarter of the final loss which could probably have been absorbed by the bank thus saving it from bankruptcy (Brown & Steenbeek, 2001).

5.5. Emotions and Self-Defeating Behaviour

Reviews of research on self-defeating behaviour found emotional distress to be a common factor (Baumeister et al., 2009; Baumeister & Scher, 1988). Three conceptual models of self-defeating behaviour were offered, where the patterns of behaviour could fall under (i) primary self-destruction, (ii) tradeoffs, and (iii) counterproductive

strategies. The reviews highlighted that the generally observed behaviour was that when individuals were upset, they tended to take foolish chances or to do stupid things and preferred choices that produced short-term benefits regardless of the long-term risks and costs. In contrast, individuals in neutral states of emotion would tend to play it safe.

Studies also showed that an individual's ability to learn to suppress emotional reactions was limited. The conclusions of experiments conducted by Roy Baumeister, head of the social psychology graduate programme at the Florida State University, and his colleagues on the issue of self-control could shed light on the behaviour of rogue traders. Montier (2007) summarised some of these conclusions below.

- Under emotional distress, individuals often failed to think things through and would choose high-risk, high-payoff options, even if these were objectively poor choices.
- Faced with threats to their self-esteem, individuals with high opinions of themselves would behave in manners contrary to their normal rational way of dealing with situations to salve blows to their pride.
- Individuals who failed in their practice of self-control were likely to exhibit self-defeating or counterproductive behaviour.
- Making choices and decisions required resources that operated like energy or strength and could get depleted. Individuals would inevitably tire out after making a series of important decisions, and as a result, subsequent decisions might be foolish and/or costly.
- The need to belong was a major source of human motivation. Irrational and self-defeating behaviour from individuals who had experienced social exclusion or interpersonal rejection was not uncommon.

Based on the findings by Baumeister, traders with losing positions could be pressured to focus on high-risk, high-payoff transactions to make up for the performance deficit. They could also be of the view that their self-esteem was under threat. They could become increasingly myopic, and could focus on actions that were short-term in nature, like falsifying transactions and documentation, while ignoring long-term repercussions. This accurately described the behaviour of the rogue traders in the discussion of the case studies in Section 5.2.

5.6. Summary of Findings

First, from the corporate perspective, the factors that allowed unauthorised trading and fraudulent cover-ups to occur in financial institutions, and the failure to detect such activities until it was too late were summed up below.

- Management and boards who were not committed to a culture of compliance and risk-taking.
- Managers who were not knowledgeable about the products being traded.
- Weak risk management and front- and back-office controls.
- Incentive structure that encouraged excessive risk-taking.
- Turning a blind eye when it came to top traders who generated huge profits.

Second, from a behavioural perspective, the emotional drivers behind rogue trading behaviour were greed, fear and ego. Furthermore, the behavioural biases that were

linked to these emotional drivers were:

- overconfidence;
- desire for recognition;
- loss aversion; and
- sunk cost effect.

Greed for money and status was the initial motivation that pushed the rogue traders to venture into unauthorised trades. Then the fear of loss of the same money and status pressured the rogue traders into acts of fraud and deception and to pursue reckless trading strategies. But in the end it was ego that carried the most weight. An inflated sense of ego that stemmed from overconfidence and recognition as a star performer hampered the rogue trader from heeding the warning signs, and in doing so, failed to concede that the course of action that they were taking was untenable. In short, ego ultimately pushed the rogue trader over to the 'dark side'.