THE PROFESSIONAL RISK MANAGER (PRM™) DESIGNATION PROGRAM

PRM™ SELF STUDY GUIDE · **EXAM IV**

CASE STUDIES · STANDARDS OF BEST PRACTICE CONDUCT AND ETHICS · PRMIA GOVERNANCE

PRM™ SELF-STUDY GUIDE – EXAM IV

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OVERVIEW

Exam IV of the **PRM™ designation** tests a candidate's knowledge and understanding of the Case Studies, Standards of Best Practice, Conduct and Ethics and PRMIA Governance.

Exam IV is where we study some failed practices, standards for the performance of the duties of a Professional Risk Manager, and the governance structure of our association, the Professional Risk Managers' International Association. The materials for this exam are freely available on our web site – ***http://www.prmia.org/prm-exam/examIV***

You can use this Self-Study Guide to focus your study on the key Learning Outcome Statements from each chapter. These Learning Outcome Statements form the basis for the questions asked during the examination that you will take as Exam IV of the PRM™ designation program. We recommend that you first read the materials, then review the Learning Outcome Statements, then re-read the materials with particular emphasis on these points.

We recommend strongly that you do not simply read the Learning Outcome Statements and then try to find the information about each in the books as a short-cut way of preparing for the exam. Real-life risk management requires your ability to assemble information from many simultaneous inputs, and you can expect that some exam questions will draw from multiple Learning Outcome Statements.

After studying the materials for this section, becoming comfortable with your knowledge and understanding of each Learning Outcome Statement, and working through the Study Questions, you will have read the materials necessary for passing Exam IV of the PRM™ designation program.

Taking the PRM™ qualification, as well as working as a risk officer, requires a certain amount of mathematical expertise. This is not excessive. Anyone who has passed mathematics studies at advanced high school level, or who has completed the first year of a university degree in a mathematical-based qualification (physics, economics, engineering, etc) should have no problem with the requirements. For others, we recommend that they take tuition in the mathematics required and that they focus on this as the first part of their studies for the PRM™.

There is no guarantee that using the Self-Study Guide, in combination with the reading materials will give you a passing score. But, they should all provide you with assistance in doing your best. We wish you much success in your effort to become certified as a Professional Risk Manager!

CONTENTS

WORD DEFINITIONS

In this guide, we use Command Words. These are similar to those used by the CFA Institute, with a few additional words, and indicate levels of ability expected from successful candidates on each Learning Outcome Statement.

Calculate	To ascertain or determine by mathematical processes.
Characterize	To describe the essential character or quality of.
Compare	To examine the character or qualities of, for the primary purpose of discovering resemblances.
Construct	To create by organizing ideas or concepts logically and coherently.
Contrast	To compare in respect to differences.
Deconstruct	To disassemble the key elements of ideas or concepts.
Define	To set forth the meaning of; specifically, to formulate a definition of.
Demonstrate	To prove or make clear by reasoning or evidence; to illustrate and explain, especially with examples.
Derive	To obtain by reasoning
Describe	To transmit a mental image, an impression, or an understanding of the nature and characteristics of.
Differentiate	To mark or show a difference in; to develop different characteristics in.
Discuss	To discourse about through reasoning or argument; to present in detail.
Draw	To express graphically in words; to delineate.
Explain	To give the meaning or significance of; to provide an understanding of; to give the reason for or cause of.
Identify	To establish the identity of; to show or prove the sameness of.
List	To enumerate.
Show	To set forth in a statement, account, or description; to make evident or clear.
State	To express in words.

STUDY TIME

Preparation time will vary greatly according to your knowledge and understanding of the subject matter prior to your self-study, your ability to commit dedicated and uninterrupted time to your study and other factors. In general, candidates who prepare for the exams of the PRM™ designation program allocate about three months to preparation for each exam.

You may spend three hours each week in study, or as much as ten or more, each week to ready yourself. Follow the suggestions above regarding the use of the Learning Outcome Statements and Sample Exams. Once you are comfortable with your readiness, it's time to register for the exam.

TESTING STRATEGIES

All questions are multiple-choice, and there are no penalties for incorrect answers. Bear in mind that it is vitally important to finish the exam in the time allotted. Do not linger over questions longer than is sensible.

For example, if the exam has 30 questions in 90 minutes, do not spend longer than three minutes per question. If at the end of three minutes you have not answered the question, decide on the best answer you can (ignoring the obviously wrong), mark your answer and move on. If you do have any spare time at the end of the exam you can always go back and review the answer. However, make absolutely sure that you have an answer for every question at the end of the exam!

Another strategy would be to go through all the questions, answering the ones you find easier first. Then after a first pass, divide the remaining questions by the time remaining and proceed as above.

STUDY QUESTIONS

A few questions, with answers, have been provided to help the candidate understand some of the concepts of the PRM™ Handbook. These study questions are not comprehensive of all concepts in the exam, nor are they necessarily questions of a similar type to those in the exam. They are provided in good faith as a study aid.

CASE STUDIES

An integral part of the study of risk management is the lessons to be learned from failures that have occurred globally. The case studies in this section describe the failures, their causes and the lessons to be learned from them. Download case studies on the PRMIA website at ***http://www.prmia.org/prm-exam/casestudies-standards***

BARINGS

This case study consists of the "Report of the Board of Banking Supervision Inquiry into the Circumstances of the Collapse of Barings, 18 July 1995."

Learning Outcome Statement

The candidate should be able to:

- Describe how the massive losses were incurred
- Describe why the true position was not noticed earlier
- Describe the role of the External Auditors
- Describe the supervision done by the Bank of England
- Describe the role of The Securities And Futures Authority (SFA, now known as the Financial Services Authority, the FSA)
- Describe the Lessons learned from the Barings Case Study
- Discuss the events leading up to the losses, the risks incurred and the mitigation processes described

Events

- Massive losses incurred by Nick Leeson, the General Manager and Head Trader of Barings Financial Services (BFS) by reason of unauthorized and concealed trading activities within BFS.
- The true position was not noticed earlier by reason of a serious failure of controls and managerial confusion within Barings.
- The external auditors, supervisors or regulators of Barings had not detected the true position prior to the collapse.

Risks Incurred

- Operational Risk — A lack of segregation between front and back office. Leeson was permitted throughout to remain in charge of both front office and back office at BFS.
- Operational Risk — The lack of understanding of BFS's trading activities, the lack of reconciliation to client records of the funding provided by Barings in London to BFS and the lack of verification of the (false) information provided by BFS, the deficiencies and inaccuracies in large exposure reporting to the Bank of England.
- Operational Risk — The system of checks and balances necessary for the proper management and control of a financial institution failed in the case of Barings with regard to BFS in a most serious way, at a number of levels and in more than one location.

Potential Mitigation

- Management teams have a duty to understand fully the businesses they manage.
- Responsibility for each business activity has to be clearly established and communicated.
- Clear segregation of duties is fundamental to any effective control system.
- Relevant internal controls, including independent risk management, have to be established for all business activities.
- Top management and the Audit Committee have to ensure that significant weaknesses, identified to them by internal audit or otherwise, are resolved quickly.

NATIONAL AUSTRALIA BANK – FX OPTIONS

This case study consists of the "Investigation into foreign exchange losses at the National Australia Bank, 12 March 2004."

Learning Outcome Statement

The candidate should be able to:

- Describe the sequence of events and trading activities that led to the losses
- Describe the analysis of the losses and how they occurred, with an initial focus on foreign currency option transactions entered into on or after 1 October 2003
- Describe the key policies, procedures, systems and control failures within the foreign currency options trading business responsible for the losses
- Describe the impacts on customers and third parties
- Discuss the events leading up to the losses, the risks incurred and the mitigation processes described

Events

- The National Australia Bank staff members involved in the currency options trading are referred to as Traders.
- The Traders' activities were contrary to the NAB's strategy. The risk exposure of the currency options desk to the US dollar increased significantly in late 2003. This exposure resulted in significant losses when the US dollar fell by some ten cents against the Australian dollar.
- By the 12th of January 2004, false transactions with a reported value of A$185 million were included in Horizon (the currency options trading and processing system), and on 13 January 2004 the NAB made the first announcement of the losses, then estimated at A$180 million. By the 27th of January 2004, after adjusting for a revaluation of the portfolio, total losses of A$360 million were announced.
- The Traders concealed losses by entering various types of false transactions into the trading system, Horizon. Various methods were used which exploited gaps in controls. The key methods were:
    - Incorrectly recording genuine transactions
    - Entering false transactions
    - Using incorrect revaluation rates

Risks Incurred

- Operational Risk — Integrity of people
- Operational Risk and Market Risk — Risk and control framework
    - The currency options trading activity lacked adequate supervision
    - Risk management failed
    - There was an absence of financial controls
- There were significant gaps in back office procedures
- Operational Risk — Governance and culture

Potential Mitigation

- The daily profit and loss analysis for large movements is "not an effective tool" because significant profit and loss differences arose from the use of different systems in the front and back offices. In addition, the profit and loss is not reconciled daily to the general ledger, but monthly. Other experience shows the importance of this control and the need to explain large daily profit and loss movements.
- The extent of proprietary trading and how to monitor and control it.
- The involvement of the Chairman and CEO in the risk infrastructure and regular reporting to them to monitor the trading business.
- That all transactions should be checked for reasonableness of market price and economic rationale.
- Proper limits need to be in place.
- The need for several senior managers in a unit to understand the intricacies of proprietary trading before it is undertaken.

BANKGESELLSCHAFT BERLIN

This case study focuses on the losses incurred at Bankgesellschaft Berlin, one of Germany's 10 largest banks in summer 2001.

Learning Outcome Statement

The candidate should be able to:

- Describe the Timeline of Events
- Describe how property-based funds carried unforeseen and uncovered risks
- Describe the lessons learned
- Discuss the events leading up to the losses, the risks incurred and the mitigation processes described

Events

- BgB sets up property-backed funds that are a lot riskier for the bank than for its retail investors. It also approves a series of risky loans to property developers and becomes involved with many of Berlin's landmark regeneration projects.
- The property bubble bursts in Berlin and surrounding regions leading to massive losses and liabilities in the bank's property-linked portfolios.
- Early in summer 2001, the Berlin senate was informed that Bankgesellschaft Berlin, one of Germany's 10 largest banks, needed an emergency transfusion of E2 billion in new capital.

Risks Incurred

- Credit Risk — Loans to property developers
- Operational Risk — Management

Potential Mitigation

- Investment guarantees can prove a disastrously expensive way to build business volumes: the downside economic risks must be assessed, tracked and managed.
- Strict loan approval procedures, and best-practice approaches to tracking credit risk concentration and deterioration are critical to sound bank risk management.
- Supervisory boards, like boards of directors in the US and UK, must ensure that they are well educated and informed about the economic risk factors underlying key business activities.
- Strict loan approval procedures and best-practice approaches to tracking credit risk concentration and deterioration are critical to sound bank risk management.
- Politicians and bank risk management don't mix well, a lesson that could have been learned from Paris' Credit Lyonnais debacle a decade earlier.

TAISEI FIRE AND MARINE INSURANCE CO.

This case study focuses on the events leading up to the bankruptcy of Taisei Fire and Marine Insurance Co ("TFMI") with losses of US$2.5 billion, and describes how TFMI management were unaware of the risks they had retained, irrespective of reinsurance policies they had placed with Fortress Re. It also describes the fundamental characteristics 'finite' reinsurance policies.

Learning Outcome Statement

The candidate should be able to:

- Describe how events of the 9/11 World Trade terrorist attack brought about massive reinsurance losses — US2.5 billion — when they thought they were fully covered
- Differentiate between 'full' and 'finite' reinsurance cover
- Discuss potential mitigation measures which would have avoided or lessened the losses
- Discuss the need for stress and scenario testing for the low-frequency-high-impact incidences

Events

- 1972 — TFMI enters into first management agreement with Fortress Re
- 2001 — September, The terrorist attack on the World Trade Centre
- 2001 — November, TFMI files for protection (rehabilitation) under Japanese law
- 2002 — TFMI has estimated excess of liabilities over assets of US$765 million
- 2002 — January, The remaining business lines of TFMI are acquired by another Japanese insurance company

Risks Incurred

- Insurance Risk — uninsured exposure – even for low-frequency-high-impact events – still need to be measured, managed, and potentially hedged
- Insurance Risk — understanding the extent of insurance coverage in any insurance policy, but more importantly understanding what is not covered
- Governance Risk — senior management has a duty to its shareholders, stakeholders, and customers to ensure it is fully aware of all the risks inherent in its business strategy, and takes the appropriate measures to mitigate those risks

Potential Mitigation

- Notwithstanding the long-term relationship between TFMI and Fortress Re, the management of TFMI may have delegated, but should not have abrogated, its responsibilities for ensuring it was fully reinsured, or understood the inherent risks of not being so. Saying "It seems I did not fully understand the contents of the contract" is a clear warning sign of the implications of cultural misunderstandings arising out of international contracts.
- Management teams have a duty to understand fully the businesses they manage and the inherent risks of those businesses.

WASHINGTON MUTUAL

This case study focuses on how in September 2008 Washington Mutual — due to a strategy of low lending standards and bad quality acquisitions — was seized by the US regulators after a history dating back to 1889.

Learning Outcome Statement

The candidate should be able to:

- Describe how the bank's acquisition of Long Beach Financial in 1999, and Providian in 2005 — both forays into sub-prime lending — brought about the eventual shrinkage of the credit quality of the bank's loan book
- Describe the effect and dependency of FHLB funding when only 60% of the bank's assets were funded by depositors
- Characterize the deteriorating effect on earnings that substantially increased provisions and net charge-offs would have
- Identify the events of 2007/8 which contributed significantly to the seizure of the bank by federal authorities

Events

- In 1889, Washington National Building Loan and Investment Association filed Articles of Incorporation to offer its stockholders a safe and profitable vehicle for investing and lending.
- On 25th June 1908, the company changed its name to Washington Savings and Loan Association and in 1917 converted to a mutual savings bank.
- From 1990 to 1996, Washington Mutual acquired 16 smaller banks.
- In 1999, the company bought subprime lender Long Beach Financial, considered one of the more dubious lenders in the Californian mortgage market.
- In October 2005, it acquired the formerly "subprime" credit card issuer Providian for approximately US$6.5 billion.

Then the troubles started to appear.

- By the end of 2005, despite beginning to shrink in terms of total assets, the bank disclosures to investors spoke of growth and bright prospects ahead, but deposits had only funded about 60% of its assets, plus 20% of assets funded by the FHLB.
- In 2007, seismic cracks began to appear in the subprime mortgage business
  - New Century Financial fails
  - July — Countrywide Financial announces defaults and delinquencies were increasing across the board
  - August — Washington Mutual announced it was raising its mortgage standards, and conditions were deteriorating
  - September — announced it was laying off 3,000 workers, and cut its dividend by 73%
- In 2008, despite a US$7 billion investment by a group of investors in April, Washington Mutual is doomed
  - September, CEO is forced out
  - September, bank is seized by the regulator while bank's management team was on a commercial flight
  - Bank is sold to J P Morgan

Risks Incurred

- Credit Risk — the clear lack of pricing risk into lending decisions
- Credit Risk — unrealistic provisioning for losses
- Stress and Scenario Testing — the absence of stress testing the effect of increasingly high defaults, net charge-offs, and loan and lease losses
- Regulatory and Governance Risk — the failure by the regulators to identify the build-up of credit losses

Potential Mitigation

- In periods of low interest rates and easy credit, it is easy to grow a business, potentiality overspending for assets which have deteriorating credit loss and default ratios.
- The originate-and-distribute model depends entirely on confidence and market sentiment.

FANNIE MAE AND FREDDIE MAC

This case study provides an insight into the day-to-day workings of two of the largest US financial intermediaries in the asset backed security business, and the events leading up to their bailout by the US Government in 2008.

Learning Outcome Statement

The candidate should be able to:

- Describe how the intervention of politicians, and the creativity of banks in selling to sub-prime lenders, overwhelmed the capabilities of both organizations, and derailed what was essentially a viable and valuable business model.
- Describe how the computer models were ineffective in stress testing the multiplicity of variable repayment and interest plans initially sold to sub-prime lenders.
- Characterize the fundamentals of disintermediation within the asset-backed securities value-chain.
- Show how intricately linked the originate-and-distribute model is to investor confidence, both locally and globally.

Events

- Fannie Mae was born in 1938 on the back of Franklin Roosevelt's New Deal to facilitate liquidity in the mortgage market, with explicit US government backing.
- In 1968 Fannie Mae was converted in a GSE (government sponsored enterprise) with implicit government backing.
- In 1970, Freddie Mac was created to compete with Fannie Mae, and between them they facilitated the securitization of the largest mortgage market in the world.
- In 1977, the business model for both was compromised by politicians insisting on more lending in poorer areas without an appropriate mention of the increased risk.
- In 1999, politicians succeeded in having the credit and collateral requirements for both Fannie and Freddie eased to allow more mortgages for more, lower income, families.
- In 2000, some tightening of the rules to exclude some risky, high-cost lending from the securitization program.
- In 2003, oversight of Fannie and Freddie comes under US Department of Treasury Control, and new US government funds were made available for mortgage down-payment and closing costs.
- In 2004, the restrictions of 2000 were dropped and high-risk loans could be securitized again.

The lull before the storm...

- 2007 — the mortgage crisis begins with the recognition that more sub-prime borrowers were increasingly unable to continue their repayments, with many being affected by the interest rate re-set requirements on adjustable rate mortgages – all of which contributed to more repossessions and foreclosures adding to an already glutted and depressed real estate market.
- In 2008 the market value of Fannie and Freddie had plummeted to all-time lows, their capital adequacy ratios fell severely below required levels, and the both the entire US domestic mortgage market, and (mainly Asian) Central Banks watched as their holdings were being priced as worthless.

The storm...the entire US, and global, financial system was teetering on the brink of collapse

- In August 2008 the US government stepped in and placed both Fannie Mae and Freddie Mac under its conservatorship – thus providing liquidity to the US (and international) securities markets, explicitly guaranteeing outstanding and new debts, and providing and re-establishing both stability and confidence in the global financial system.
- The takeover of Fannie Mae and Freddie Mac is probably one of the most expensive bailouts ever faced by tax payers in the history of the US.

Risks Incurred

- Credit Risk — the clear lack of pricing risk into securitization and lending decisions.
- Market, Credit and Operational Risk — computational and stress testing models on the mortgage pools were clearly unable to cope with the sophistication and complexity of the underlying lending products being sold to sub-prime borrowers.
- Politicians and financial risk management — they don't mix well. Sometimes fiscal efficacy in government falls short of the standards expected in the private sector.
- Regulatory Governance Risk — the failure by the regulators to identify, and remedy, the build-up of credit exposure and losses inherent in such a complex infrastructure.
- Moral Risk — the blurring of ownership, accountability and ultimate responsibility, for any government sponsored organization.

Potential Mitigation

- Implied or explicit government guarantees can prove to be disastrously expensive and in many instances, create a systemic risk.
- Strict loan approval procedures and standards, and best-practice approaches to tracking credit risk concentrations and deterioration are critical to sound financial risk management.
- Politicians, like boards of directors in the UK and US, must ensure that they are well educated and informed about the economic reality and risk factors underlying key business, economic, and political decisions.

LTCM

This case study focuses on the collapse of hedge fund, Long-Term Capital Management (LTCM).

Learning Outcome Statement

The candidate should be able to:

- Describe the events that led to the collapse of LTCM
- Describe the lessons learned
- Describe how UBS made a loss due to LTCM
- Discuss the events leading up to the losses, the risks incurred and the mitigation processes described

Events

- LTCM had the ability to put on interest rate swaps at the market rate for no initial margin. It meant being able to borrow 100% of the value of any top-grade collateral, and with that cash to buy more securities and post them as collateral for further borrowing; in theory, it could leverage itself to infinity.
- Most of LTCM's bets had been variations on the same theme, convergence between liquid treasuries and more complex instruments that commanded a credit or liquidity premium. Unfortunately, convergence turned into dramatic divergence. LTCM's counterparties, marking their LTCM exposure to market at least once a day, began to call for more collateral to cover the divergence.

Risks Incurred

- Market Risk — Model Risk. The misguided assumption that 'our counterparty and the market it was operating in, were performing within manageable limits'.

Potential Mitigation

- Model risk
- Unexpected correlation or the breakdown of historical correlations
- The need for stress-testing
- The value of disclosure and transparency
- The danger of over-generous extension of trading credit
- The woes of investing too little in game theory

BANKERS TRUST

This case study focuses on the losses and loss of reputation at Bankers Trust (BT) in 1994 after it was sued by four of its major clients who asserted that Bankers Trust had misled them with respect to the riskiness and value of derivatives that they had purchased from the bank.

Learning Outcome Statement

The candidate should be able to:

- Describe the Timeline of Events
- Describe the lessons learned
- Discuss the events leading up to the losses, the risks incurred and the mitigation processes described

Events

- BT's reputation took a pounding after the bank was sued by several customers alleging various forms of fraud and racketeering with respect to derivatives transactions they had entered into with the bank. Several of these suits have since been settled both in and out of court, costing the company millions of dollars in settlement and possibly much more in damage to its reputation.
- The root cause appears to have been that BT's clients felt that BT had unfairly exploited their comparative lack of sophistication in handling these sophisticated derivative products.
- This appears to be an example of poor stakeholder management. In focusing on increasing profits, Bankers Trust didn't pay adequate attention to the fact that its clients were vital to its business. Even if it did nothing dishonest, it failed to serve its clients in terms of making them feel informed and at ease with their deals.

Risks Incurred

- Operational Risk — Sales practices

Potential Mitigation

- Give adequate attention to all aspects of risk. An enterprise risk management program must balance the "hard side" of risk management (including policies, limits and systems) and the soft side (including people, culture and incentives).
- Reputation risk management suggests that in a time of crisis, management should focus on integrity and openness in dealing with customer complaints and public perception.
- Align incentives properly. Performance pressure may encourage participation in deals that ultimately backfire, especially if incentives and oversight are not aligned properly.
- Practice good stakeholder management. Clients are stakeholders, too! In the rush to create profits for share-holders, attention must still be given to the clients who are integral to the business.

ORANGE COUNTY

This case study focuses on the bankruptcy of Orange County, US in December 1994 after suffering losses of $1.6 billion from a wrong-way bet on interest rates in one of its principal investment pools.

Learning Outcome Statement

The candidate should be able to:

- Describe the Timeline of Events
- Describe the lessons learned
- Discuss the events leading up to the losses, the risks incurred and the mitigation processes described

Events

- Robert Citron, the treasurer of Orange County who controlled the $7.5 billion pool had riskily invested the pool's funds in a leveraged portfolio of mainly interest-linked securities. His strategy depended on short-term interest rates remaining relatively low when compared with medium-term interest rates.
- But from February 1994, the Federal Reserve Bank began to raise US interest rates causing many securities in Orange County's investment pool to fall in value.
- On December 6, 1994 Orange County declared bankruptcy after suffering losses of around $1.6 billion.

Risks Incurred

- Market Risk — Interest Rate Risks

Potential Mitigation

- Beware the unconstrained star performer, even when he or she has a long track record. Where there's excess reward, there's risk – though it might take time to surface.
- If the organizational structure, planning and risk oversight mechanisms of an institution are fractured, it is easy for powerful individuals to hide risk in the gaps.
- Borrowing short and investing long means liquidity risk, as every bank knows.
- Risk-averse investors must tie investment objectives to investment actions by means of a strict framework of investment policies, guidelines, risk reporting and independent and expert oversight.
- Risk reporting should be complete and easily comprehensible to independent professionals. Strategies that are not possible to explain to third parties should not be employed by the risk averse.

NORTHERN ROCK

This case study focuses on the events leading up to the first run on a UK bank since 1866 – that of Northern Rock in August 2007.

Learning Outcome Statement

The candidate should be able to:

- Describe the Timeline of Events
- Describe how the bank's business model was a significant contributory factor in the crisis
- Understand how liquidity management is so vitally important when managing a mismatched funding book
- Describe the multi-dimensional (co-variance) risk problems of Northern Rock
- Understand Reputational Risk and the difference between Solvency and Liquidity
- Discuss the role of the regulator and Bank of England
- Discuss the events leading up to the losses, the risks incurred, the eventual UK government rescue operation, and the mitigation process described

Events

- In 1997, Northern Rock converted to bank status, thereby allowing it to conduct a full range of banking business, with a central securitization and funding strategy focused predominantly on secured wholesale and other capital market funding.
- During the summer of 2007, it was a victim of the general market turbulence and lack of confidence triggered by worsening developments in the US sub-prime mortgage market.
- Also in the summer of 2007, notwithstanding unprecedented UK government support, depositors withdrew funds on a large scale.
- In September 2007, Northern Rock was forced to seek massive financial assistance from the Bank of England, and eventually reverted to UK government ownership.

Risks Incurred

- Portfolio and Capital Funding Risk — Excessive dependency on one sector
- Operational and Reputational Risk — A sharp decline in confidence can lead counterparties in the wholesale markets and retail depositors to suddenly withdraw funding from a suspect bank, driving the institution into a funding liquidity crisis.
- Stress and Scenario Testing — the absence of stress testing the business model for the multi-dimensional Low-Probability-High-Impact covariance incidences, leading to disaster myopia.

Potential Mitigation

- A business model which emphasizes short-term wholesale funding and securitization for matching long-term liabilities with short-term funding is a recipe for disaster.
- In a global banking environment, when one segment catches a cold another segment may contract fatal pneumonia; and while some banks might be too big to fail from a depositor's, regulator's, and politician's perspective, shareholders can still lose everything.

METALLGESELLSCHAFT

This case study focuses on the losses of approximately $1.5 billion made by the "Energy Group" of Metallgesellschaft AG in December, 1993.

Learning Outcome Statement

The candidate should be able to:

- Describe the trading strategies employed by the conglomerate
- Describe how proper supervision could have averted disaster
- Describe how similar financial crises may be avoided in the future
- Discuss the events leading up to the losses, the risks incurred and the mitigation processes described

Events

- Metallgesellschaft revealed publicly that its "Energy Group" was responsible for losses of approximately $1.5 billion.
- These losses were due mainly to cash-flow problems resulting from large oil forward contracts it had written.

Risks Incurred

- Market Risk — A lack of necessary funds needed to maintain their position.

Potential Mitigation

- The management of MG would have benefited from implementing the recommendations put forth in the Group of Thirty Derivatives study. These recommendations are basic, but the blatant disregard for these principles cost MG a mere $1.5 billion.
- MG's disaster in the oil markets should be seen as a reminder to the corporate community to understand the nature of their position in financial markets and to understand the ramifications of market movements on your financial positions.

WORLDCOM

This case study focuses on the collapse of WorldCom in 2002 due to accounting fraud.

Learning Outcome Statement

The candidate should be able to:

- Describe the Timeline of Events
- Describe the lessons learned
- Discuss the events leading up to the losses, the risks incurred and the mitigation processes described

Events

- WorldCom achieved its position as a significant player in the telecommunications industry through the successful completion of 65 acquisitions. Between 1991 and 1997, WorldCom spent almost $60 billion in the acquisition of many of these companies and accumulated $41 billion in debt.
- Mergers and Acquisitions, especially large ones, present significant managerial challenges in at least two areas. First, management must deal with the challenge of integrating new and old organizations into a single smoothly functioning business. The second challenge is the requirement to account for the financial aspects of the acquisition.

Risks Incurred

- Operational Risk — Failed corporate governance, accounting abuses, and outright greed.

Potential Mitigation

- When well conceived and executed properly, a growth-through-acquisition strategy is an accepted method to grow a business. Is there a need to put in place protections to insure stakeholders benefit from this strategy? If so, what form should these protections take?

CHINA AVIATION OIL (SINGAPORE)

This case study provides an insight of the losses (US$550 million) incurred by China Aviation Oil (Singapore) ("Cao") in 2004 due to a combination of trading losses in oil futures being misreported in a period of transition between accounting regulations, and without the appropriate and necessary risk management policies, procedures and systems being in place.

Learning Outcome Statement

The candidate should be able to:

- Describe how the absence of corporate risk management objectives, policies and reporting, led to the losses being incurred and hidden
- Describe how proper supervision could have averted the losses
- Discuss the events leading up to the losses, the risks incurred and the mitigation processes described
- Describe how the difference in the accounting requirements of IFRS and IAS 39 led to the misreporting of the losses

Events

- 1993 — China Aviation Oil (Singapore) established as an oil trading company with the remit of procurement for the airports in the People's Republic of China, and international oil trading
- 2003 — Q1–Q3, profitable bullish view of the market with speculative option trades
- 2003 Q4–2004 Q3, bearish view adopted with corresponding positions taken
- 2004 — Q4 (October), international oil prices rose steeply, leaving CAO with significant margin calls on its open short positions
- 2004 — Q4 (November), unable to meet some margin calls so positions closed out resulting in accumulated losses of US$390 million plus unrealized losses of US$160 million – totalling US$550 million
- 2006 — Q1 (March), CAO chief executive Chen Jiulin arrested, charged with insider trading, and sentenced to 51 months imprisonment

Risks Incurred

- Market Risk — un-hedged market positions will always result in losses when market movements go contrary to expectations
- Governance Risk — the absence of the necessary corporate risk "appetite" policies, business strategy, and corresponding policies and adequate procedures, plus senior management oversight all contributed to the losses

Potential Mitigation

- The management of China Aviation Oil would have benefited from implementing the recommendations set forth in the Group of Thirty Derivatives Study. These recommendations are basic, but the disregard for these principles resulted in a US$550 million loss.
- Management teams have a duty to understand fully the businesses they manage. Daily mark-to-market of any risk positions, and reporting the numbers — all the numbers — through the management hierarchy daily is the most effective way of making those responsible and accountable to being aware of the risks.
- Proper limit structures need to be in place.
- Decentralized trading decisions require controls and risk monitoring at the center of the organization.
- Accounting numbers are not a good guide to risk-adjusted profitability in any business, especially the commodities business.

STANDARDS OF BEST PRACTICE, CONDUCT AND ETHICS, AND PRMIA GOVERNANCE

GROUP OF THIRTY BEST PRACTICES

The Global Derivatives Study Group conducted a study on derivatives and their uses. The Study formulated and disseminated recommendations about their management.

Learning Outcome Statement

The candidate should be able to:

- Describe the Twenty Four Recommendations made by the Study Group

Objectives

- Many, both inside and outside of the financial industry, remain uncomfortable with derivatives activity. They see it as complex and obscure, potentially subject to abuse that might lead to the failure of individual firms or even to a crisis in the financial system. This Study recognizes and addresses these concerns by explaining derivatives and their uses and by formulating and disseminating recommendations about their management. The distinguishing feature of this Study is the practical character of its contents. This Study was conducted largely by market participants.

Actions

The Global Derivatives Study consists of the Recommendations, an Overview of Derivatives Activity, and three Appendices:

- The Study offers 20 recommendations to help dealers and end-users manage derivatives activity and continue to benefit from its use. The Study also recommends four ways that supervisors and regulators, for their part, can help the financial infrastructure keep up with derivatives activity.

The 20 recommendations for a dealer and end-user of derivatives cover:

- The Role of Senior Management
- Marking to Market
- Market Valuation Methods
- Identifying Revenue Sources
- Measuring Market Risk
- Stress Simulations
- Investing and Funding Forecasts
- Independent Market Risk Management
- Practices by End-Users
- Independent Credit Risk Management
- Measuring Credit Exposure
- Aggregating Credit Exposures
- Master Agreements
- Credit Enhancement
- Promoting Enforceability
- Professional Expertise
- Systems
- Authority
- Accounting Practices
- Disclosures

In addition, there are four recommendations for legislators, regulators, and supervisors:

- Recognizing Netting
- Legal and Regulatory Uncertainties
- Tax Treatment
- Accounting Standards

PRMIA GOVERNANCE PRINCIPLES

As an independent association of professional risk managers from diverse industries around the world, PRMIA provides the premier meeting place for financial and non-financial corporations, their stakeholders and their regulators to engage in and verify the existence of best practice corporate governance. The tool we use is the PRMIA Standards of Corporate Governance.

Learning Outcome Statement

The candidate should be able to:

- List the Ten Principles of Corporate Governance
- Describe the applications of the Principles

Objectives

The ten principles have been gleaned from international sources, non-commercial and commercial, and from various disciplines, all addressing aspects of good governance. They are designed to be cross-cultural norms that provide Boards, Audit Committees and Senior Executives with a standard framework for effective governance and regulators and auditors with an evaluation tool to ensure that good governance principles are actually being employed.

Best practice governance and risk management do not attempt to eliminate risk. Rather, they are designed to aid corporations in the pursuit of maximizing the risk-adjusted return on capital and in their transformation of uncertainty, which is unmanageable and unmeasurable, to risk, which is substantially more measurable and manageable.

These ten principles of corporate governance are based on common themes in a variety of literatures on corporate governance (see Source Documents):

- Principle One: Key Competencies
- Principle Two: Resources and Processes
- Principle Three: Ongoing Education and Development
- Principle Four: Compensation Architecture
- Principle Five: Independence of Key Parties
- Principle Six: Risk Appetite
- Principle Seven: External Validation
- Principle Eight: Clear Accountability
- Principle Nine: Disclosure and Transparency
- Principle Ten: Trust, Honesty and Fairness of Key People

These principles are applied in the following areas: Board and Audit Committees, Risk Management Infrastructure and Financial Accounting and Reporting Infrastructure and the Corporation as a Whole.

Actions

The essence of good corporate governance is a deliberate and sustained effort to adhere to the principles defined above. The areas covered provide an introductory checklist to the major areas in which the PRMIA Standards of Corporate Governance should be applied for Boards and Audit Committees, the Risk Management Infrastructure, the Financial Accounting and Reporting Infrastructure and the Organization as a Whole.

PRMIA STANDARDS OF BEST PRACTICE, CONDUCT AND ETHICS

It is the duty of every PRMIA member to know and abide by standards of conduct that reflect positively on our profession, instill confidence from our colleagues and employers and that are consistent with local rules, regulations and cultural standards. This document has been prepared by the members of the PRMIA Ethics Committee.

Learning Outcome Statement

The candidate should be able to:

- Describe the Purpose of Professional Standards
- Describe the Guidance on Best Practices
- Describe the Guidance on Professional Conduct
- Describe the Guidance on Ethical Behavior

Objectives

This document sets out minimum qualifications and conduct standards for risk professionals. These standards will promote the highest levels of ethical conduct and disclosure with respect to methods of analysis.

- It is the duty of every PRMIA member to know and abide by these standards and the applicable local rules and regulations. When local rules and regulations conflict with these standards, the PRMIA member must respect local rules and regulations.

Guidance on Best Practices

Best practices for risk managers are a minimum set of guidelines for which each PRMIA member should be expected to be accountable.

- Basic Knowledge
- Rules and Regulations
- Generally Accepted Risk Practices
- Advances in Risk Management
- Honesty and Integrity
- Diligence
- Independence

Guidance on Professional Conduct

Professional conduct by a risk manager is consistent with a minimum set of guidelines described below, for which each PRMIA member should be expected to be accountable.

- Rules and Regulations
- Clarity and Accuracy
- Suitability
- Presentation of Results
- Disclosure of Limits
- High Level of Professionalism
- Supervision of Others
- Departure from Accepted Practices
- Conflicts of Interest
- Confidentiality
- Respect Laws and Regulations
- Respect for Local Customs

Guidance on Ethical Behavior

Guidance on Ethical Behavior and Ethical conduct by a risk manager is consistent with a minimum set of guidelines described below, for which each PRMIA member should be expected to be accountable.

- Personal Behavior
- Responsibility
- Judgment and Independence
- Use of Risk Services
- Respect Laws and Regulations
- Respect for Local Customs

Guidance on Conflict Resolution

PRMIA Members should carefully assess an apparent conflict with or violation of these standards and attempt to resolve any dispute, conflict, or violation in the most direct and efficient manner appropriate, being mindful of the legitimate rights of all parties concerned, and apply the following hierarchy of determinants:

- The laws of the country
- Guidelines from regulators in which the organization operates (e.g. the FSA in the UK)
- These PRMIA Standards
- The decision of a superior within the organization

PRMIA BYLAWS

One of the criteria of the PRM designation is that the recipient must be a member of PRMIA. Every PRMIA member must be aware of and understand the articles of incorporation of PRMIA.

Learning Outcome Statement

The candidate should be able to:

- Describe Article 1: Name, Corporate Offices and Official Language
- Describe Article 2: Mission Statement and Purpose
- Describe Article 3: Membership
- Describe Article 4: Meetings of Members and Regional Directors
- Describe Article 5: Board of Directors
- Describe Article 6: Officers and Duties
- Describe Article 7: Committees
- Describe Article 8: Regional Chapters
- Describe Article 9: Finances
- Describe Article 10: Indemnification
- Describe Article 11: General Provisions
- Describe Article 12: Amendments

STUDY QUESTIONS

CASE STUDIES

Barings

Q: Which position would have partially hedged Nick Leeson's primary option position at Barings?

a) Long futures
b) Short Strangle
c) Long Strangle
d) Total Return Swap

The option positions were due to sales of puts and calls on the Nikkei 225 index. A long strangle is a position that gives a positive return if the price of the underlying goes up or down, a small loss if not (V shape, but with a flat bottom). Total return swaps, which are credit derivatives, apart from the fact that they did not exist at this time, would not have protected him. Long futures would not have protected in case of drop in the index: c).

Metallgesellschaft

Q: What caused the losses for Metallgesellschaft?

a) At the final maturity date the price in the futures was well below the market price
a) To hold the position, they assumed a constant interest rate to invest the proceeds
a) At the final maturity date the price in the futures was well above the market price
a) To hold the position, they assumed an unbounded pool of resources

What went wrong was during the hedge. Answers a) and b) assume this was not a hedge but a speculation. Interest rates played a lesser role in the story, while the covering of the unrealized losses during the operation was what made the parent company to unwind the positions, judged to show too deep losses: d).

Long Term Capital Management

Q: LTCM's balance sheet as of August 31, 1998 showed the following (USD):

a) 100 billion in assets, -0.5 billion in equity
b) 125 billion in assets, 2.3 billion in equity
c) 400 billion in assets, 4.0 billion in equity
d) 125 billion in assets, 6.1 billion in equity

Although answer a) would probably have meant liquidation, this is really a question of knowing the degree to which LTCM leveraged their balance sheet, which was approximately 60:1: b).

STANDARDS OF BEST PRACTICE

Group of 30 Report

Q: According to the G-30, derivative credit exposure should be measured by:

a) Current Exposure

b) Potential Exposure

c) a) plus b)

d) a) plus b) minus Posted Collateral

This is principle 10, although collateral is mentioned in recommendations 7 and 14. Current exposure includes the credit exposure should the position be unwound, potential exposure includes exposure due to future market fluctuations. Collateral protects its owner against the impact of credit risk: d).

PRMIA GOVERNANCE

PRMIA Bylaws and Code of Conduct

Q: Which of the following is NOT part of PRMIA's guidance on Best Practices?

a) Only standard methods of assessing risk should be used

b) PRMIA members must possess, be under the supervision of someone who possesses, or inform their supervisor of the lack of required skills and/or certification to complete their risk assessment work.

c) PRMIA members must not intentionally deceive others

d) PRMIA members must value validation of their work by peers

Innovation is always required in the new discipline that is Risk Management. Competence and ethics are always required in financial professions. The Risk Management profession progresses because owing to discussion with peers and cross-validation of work. Fortunately, PRMIA does not prescribe orthodoxy, and encourages members to use sound practices rather than use, let alone blindly use, standard methods: a).

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