



Prepare for the Risk Management Work Session

Provided to
Business Units

By
Enterprise Risk Management and Compliance (ERMC)

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Enterprise Risk Management Process and Role of ERMC Unit

- Structured and continuous process across the whole organization for identifying, assessing, and deciding on responses to risks that affect the achievement of its objectives.
- On-going risk monitoring and consolidated risk reporting.
- ERMC will work with business units to establish effective risk management. Business units remain responsible for risk management and compliance check within their areas of responsibility.



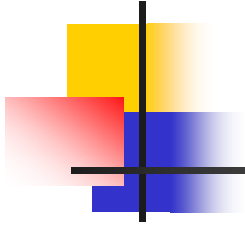
Why Develop/Update a Risk Management Plan?

- Need an on-going risk review process
 - Identify new risks.

 - Control activities originally established might become less effective with the changed environment.

 - If the review helps you identify one more risk that you did not identify in the past and the SBA is able to avoid some losses due to your effective management of the newly identified risk, this process will add value to the management of your area.

- Basis for company-wide risk management and cross-departmental coordination in risk management.



Risk Identification



Identification Technique 1 – Structured Discussions

- Draw on accumulated knowledge and experience of staff and other stakeholders through structured discussions.

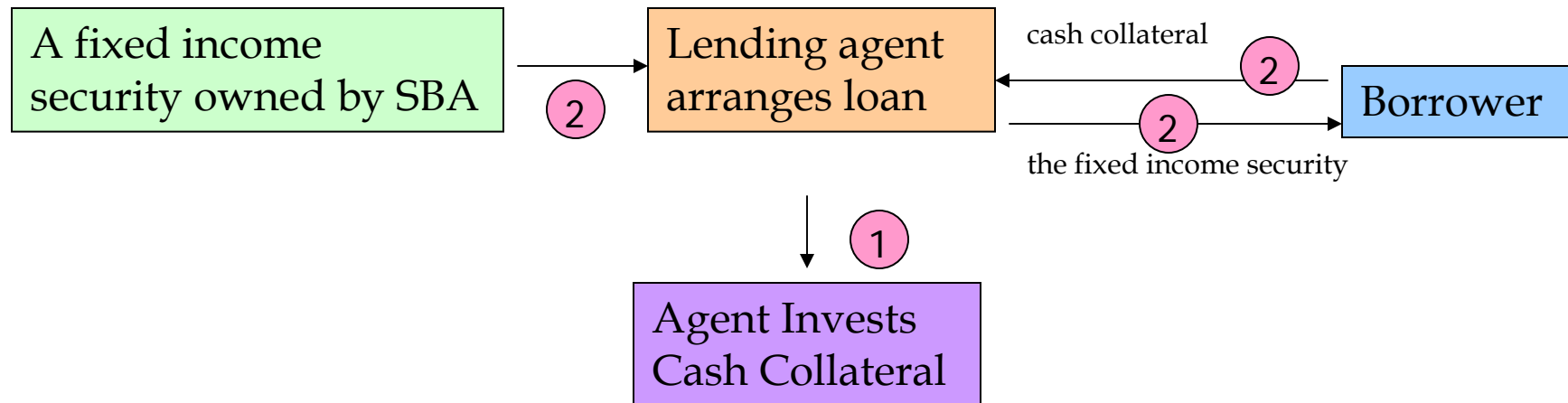


Identification Technique 2 – Process Flow Analysis

- Involves diagrammatic representation of a process, with the goal of better understanding the interrelationships of its components.
- Events can be identified and considered against process objectives.

Process Flow Analysis - Example

Security Lending Transaction Flow (Partial for Illustrative Purpose)



- ① Collateral Investment Risk
- ② Operational Risk (e.g. securities failed to be delivered due to operational failure; collateral was not received prior to transfer of security)



Identification Technique 3 – Peer Company Risk Events

“A smart man learns from his own mistakes
and a wise man from the mistakes of others.”

- What risk events occurred in our peer companies?
- Are these events likely to occur in your business unit?



Investment Risks - Examples

- Misfit risk
 - Implementation risk
 - Active management risk
 - Investment Guideline and Contractual Noncompliance Risk
 - Model risk
 - Market risk
 - Legal risk
-
- Interest rate risk
 - Credit risk
 - Currency risk
 - Country risk
 - Liquidity risk
 - Settlement risk
 - Leverage risk
 - Inflation risk
 - Prepayment risk
 - Reinvestment risk



Operational Risks - Examples

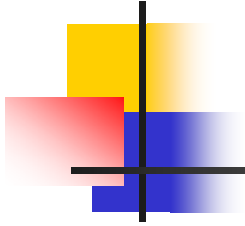
- Unidentified breach of trading limits
- Unauthorized trading
- Errors in execution of trades
- Risks related to new programs or products
- Unauthorized access to systems or models
- Dependency on key personnel for critical processes – no backup
- Failure in key systems required to support business activities
- Manipulation of data to defraud the organization

Source: Hussain A. 2000. Managing Operational Risk in Financial Markets.



Questions to Consider in Risk Identification

- This plan is a tool for the risk management in your unit. Questions you may ask yourself:
 1. Is this risk breakdown useful for my risk management?
 2. Have I covered all the material risks in my area?



Risk Assessment



Risk Assessment Scale Definitions - Example

Probability/Likelihood

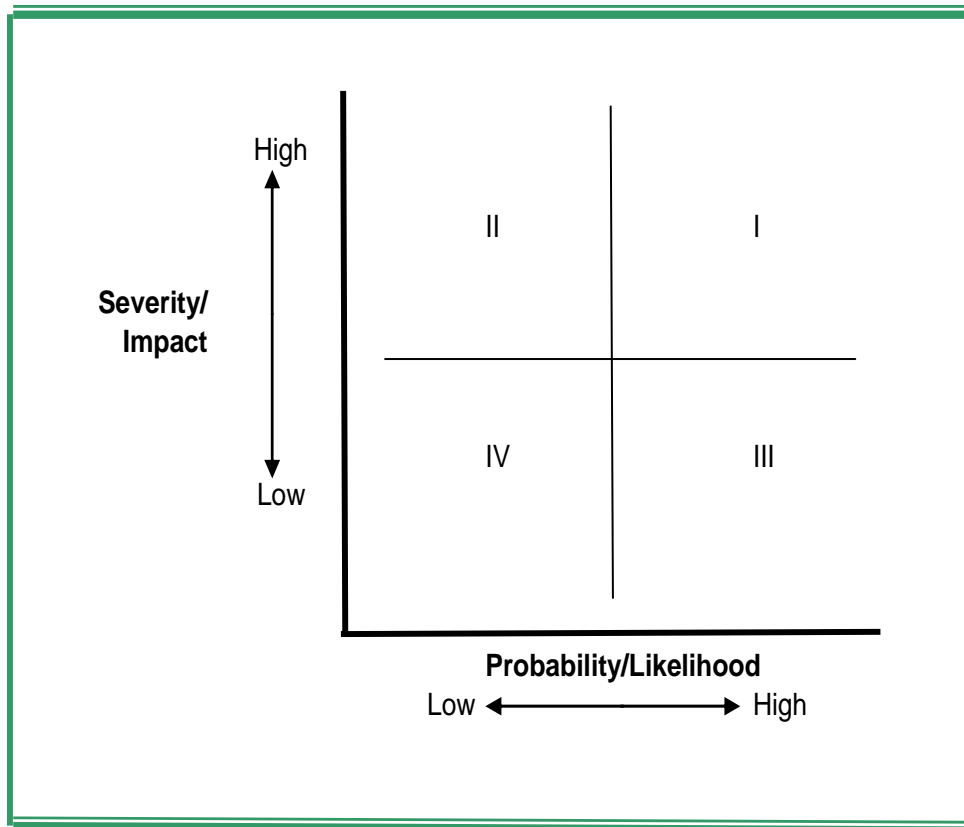
| Scale | Probability of Occurrence |
|-------|---------------------------|
| 4 | Almost Certain |
| 3 | Probable |
| 2 | Maybe |
| 1 | Improbable |

Severity/Impact

| Scale | Severity of Consequences |
|-------|--|
| 4 | Major. Losses would be major and not easily recoverable |
| 3 | Significant. Significant temporary losses that can, over an extend period of time, be recovered |
| 2 | Moderate. Temporarily disrupting to business, but recovery can be made |
| 1 | Minor. Temporarily distracting but recovery can be made quickly, with no long term negative impact |

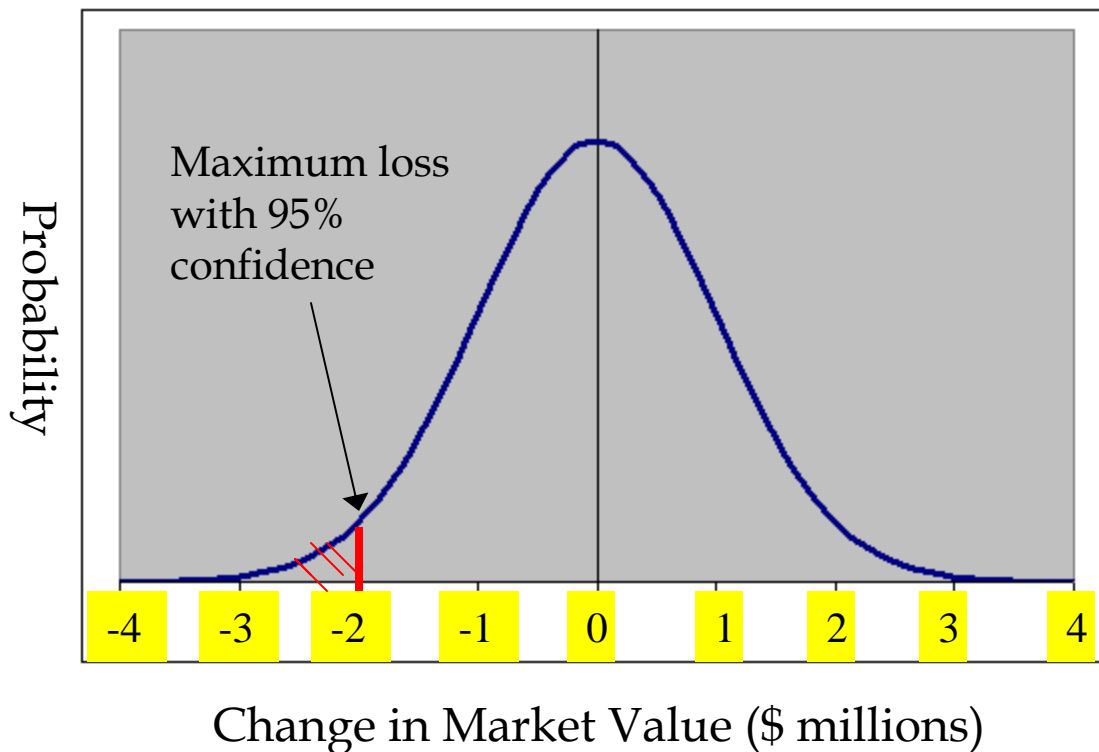
Note: You can use these scales for the plan or develop your own scale definitions.

Risk Assessment Tool – Risk Map

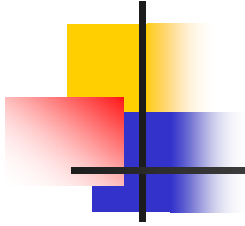


- Used to plot severity and probability of risks.
- Optimally allocate limited time and resource based on risk assessment.

Quantitative Assessment Using Value at Risk (VAR)



- VAR: an estimate of maximum loss
- Over a set time period
 - At a desired level of confidence



Risk Response



Risk Responses by Response Type

| Reduction | Sharing |
|---|---|
| <ol style="list-style-type: none">1. Diversification2. Establish risk limits3. Establish effective business process4. Portfolio risk management techniques | <ol style="list-style-type: none">1. Purchase insurance2. Outsource business processes |
| Avoidance | Acceptance |
| Decide not to engage in new activities that would give rise to the risks | <ol style="list-style-type: none">1. Accept risk as already conforming to risk tolerances2. Rely on natural offsets within a portfolio |



Risk Limits – An Integral Part of a Sound Risk Management Program

Financial Risk Limits

Examples:

- Value-at-risk limits
- Stop-loss limits
- Credit risk limits by counterparty, risk grade, industry and country

Operational Risk Limits

Examples:

- Minimum quality standards or maximum error rates
- Firm deadlines to resolve outstanding issues



System of Internal Control – A

Prerequisite of Effective Risk Management

- Check and balance: To prevent any individual, or group of individuals, from gaining excessive power to take risks on behalf of an organization.
- Lessons from the collapse of Barings Bank:
 - No segregation of duties: Both trading and back-office functions report to “rogue trader” Nick Leeson, enabling him to conceal mounting losses for over a year.



General Control Procedures

- Approvals/ Authorizations
- Verifications
- Reconciliations
- Segregation of duties
- On-going monitoring of performance/ risk indicators



Control Activities – Example for Front Office

A security lending agent used the following procedures to mitigate the credit risk of borrowers:

- Borrower credit limits are set by credit analysts and approved by senior credit approvers on an approval form.
- Credit limits are entered into the securities lending system by the compliance unit. Daily, the compliance unit monitors that outstanding loans do not exceed authorized limits.



Control Activities – Example for Back-Office

Risk: Wire transfers are not accurately processed.
What control procedures can help mitigate this risk?

- One person initiates the wire transfer and another person reviews and releases it.
- Approval procedures are in place for changes to user-defined system parameters (e.g. authorization limits)



Early Warning Signals for Risk Monitoring - Example

| <i>Business Unit Objective</i> | <i>Potential Risk Event</i> | <i>Tolerance</i> | <i>Indicator</i> |
|---|--|------------------|---------------------------------|
| Create and maintain strong security against external intrusion on systems | Unauthorized individual's access to the company's systems via Internet ports | 0 per month | Number of unauthorized attempts |

Risk Management Cycle

