

Unit 1 Assessment

1. Risk-averse $\rightarrow$ minimize losses $\rightarrow$ differentiate
Risk-neutral $\rightarrow$ searches for ~~minimized~~ opportunities that have gains with minimized losses
Risk-seeking $\rightarrow$ maximize value, no loss minimization
2. ~~direct~~ risk some chance of ^{loss} risk, no gain
3. activities to reduce or mitigate risk
4. repackaging of risk to sell it to the capital markets
5. liability risk, brand risk, FX risk, PR risk, credit risk, reputation risk
6. diversifiable has idiosyncratic characteristics and can be diversified ~~to~~
undiversifiable is systemic and cannot be insured
7. asset risk, operational risk, product risk
8. $C + F$
9. causes of loss
10. Stormwind, natural ~~combustion~~ combustion, disease
11. War, epidemic, radioactivity, terrorism
12. these ~~cause~~ increase loss by frequency, severity,
13. that a person will act ~~against~~ ~~the~~ unlawfully to obtain a reward involve negligent, dishonesty, activities that border on criminality
14. slippery roads, old electric wiring

1. VaR is Value at Risk and is the maximum probable amount of money a company might lose ^{with} at a given ^{confidence} probability level. This is a financial measure. Maximum probable annual loss is the same, but only usable for pure risks. This is a variant insurers apply.

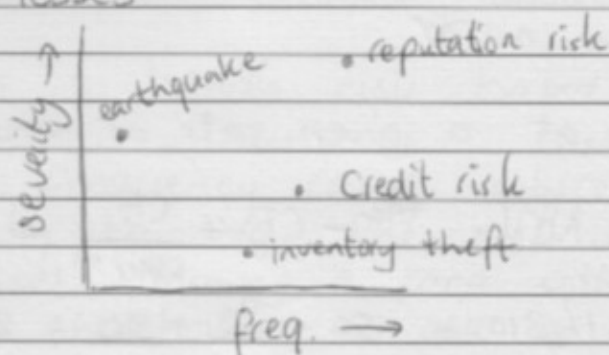
2. That ~~there is~~ a 1% of all ~~possible~~ days the company might loose \$10 mil. in 1 day.

3. cum. prob. of 2.5% is 2 std. dev. away from mean.
Return = $10\% - 60\% = -50\%$ $\rightarrow$ Var = $200 \text{ mio} \cdot \frac{1}{2} 50\% = -100 \text{ mio}$
Portfolio has a Var of \$100 mio. at 2.5%

$$4. \quad E(x) = \cancel{\alpha} + \cancel{\beta_x(r_f - r_x)} R_f + \beta (E(R_M) - R_f)$$

ships between the risks

A typical risk map plots the probability of occurrence against the magnitude of possible losses.



Out of risk mapping strategies will be derived, based on risk appetite and culture.

First step is always to estimate firm's loss exposure and forecast frequency and severity of the potential risks.

Sample risks, such as natural disasters, can be plotted to ~~pre~~serve as a risk-tolerance boundary. They have high severity and low frequency, ~~and~~ can help to determine what the risk threshold is.

Financial risks arise from, prices, volatilities, liquidity, credit risk, FX risk and general market recession.

Business risks include reputational risks

Operational risks are those related to day-to-day business activities.

4.3 Projected frequency and severity and Cost-Benefit Analysis - Capital budgeting

Use risk management matrix when focussing on one risk. This is a table with frequency and severity. ~~and losses~~ Forecasting involves projecting the frequency and severity to the future, based on data.

When mitigating, ~~show~~ the cost-benefit analysis should show that the cost of mitigation outweigh the potential loss.

- unbearable
- difficult to bear
- relatively unimportant.

- show relation different risk and their interrelations
- provide clear way to ~~select~~^{decide} best risk man. strategy.
- compare and evaluate current strategies and select appropriate strategy
- show leftover risk after all mitigating actions.
- easily communicate risk management strategy to all employees and management.

Unit 4 Assessment

- ~~identify~~ determine risks
- establish best risk management strategy
- ~~identify~~ compare and ~~select~~ strategies to current strategy and select appropriate strategy
- determine the risk that's leftover after mitigation
- communicate strategy to employees

5. insurance, futures contract $\mathbb{C}$

- Coll. data, slice and dice in order to evaluate data, estimate frequency, prob. distr., trend analysis.

2 Collecting data on events has to be able to determine the frequency and severity of losses, and storage for strategic analysis and operations.

~~the~~ Manufacturers also have an advantage as they know what they'll be able to sell in the future $\Rightarrow$ Guaranteed revenues



Swaps are used to trade a floating price / fx exposure for a fixed price / fx exposure. Also used for long vs. short interest rate exposures

Options are agreements that give the buyer the right to sell/buy. The option writer has the obligation to buy/sell. Calls and puts are used to ~~an~~ arrange for a cap or floor in the exposure.

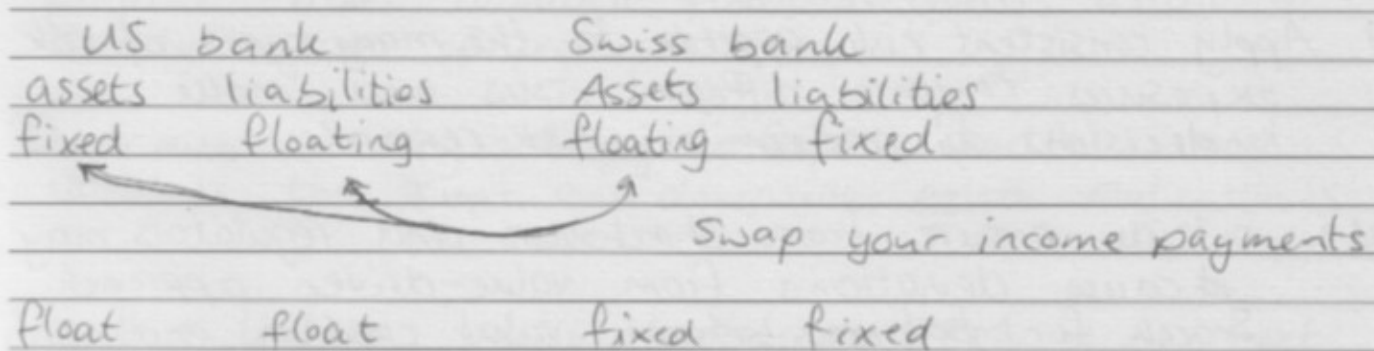
A premium is given to the writer as he incurs risk.

Securitization = packaging and transferring insurance risk to capital markets. Risky cash flows are bundled and sold

Catastrophe bonds help hedge insurers against a great single peril.

CDO's (Collateralized Debt Obligations) are securities backed by a pool of diversified assets (loans or bonds).

Swaps are useful to swap out the differences in maturity between assets and liabilities.



ERM firstly focusses on risk mitigation and eventually will be focussed on value creation. → optimize risk

Self-assessment 5

1. CRO considers all risks from a holistic view, both risk mitigation and opportunity risk.
2. Brand equity is the strength and good name of the company. What it's known for.
3. No, for not acting on identified risks and uncertainty
4. The firm ~~re~~wants to start a project, while the RM is not convinced about the value creation or that risks are well covered
5. Knowledge about financial position/health, ~~and~~ financial resources, credit lines, assets, insurances.
6. It shows the assets of the company, and the way they've been ~~fin~~funded.
7. balance sheet, profit/loss, cash flow statement.

Risk Modelling in a new paradigm



2008 crisis was poorly handled by risk models. McKinsey designed a new approach ~~to~~ built around:

- improved transparency, understanding and modeling of risk
- clear decision which risks to own and transfer or mitigate
- creation of more resilient organization and processes that help to be proactive in risk mitigation
- development of a true risk culture
- new approach to regulation

Old models overemphasized historical data, therefore failed to detect warnings. Moreover, risk managers placed excessive confidence in the models.

Some slack in the models had been reduced by using mark-to-market valuation $\rightarrow$ future and forward markets are expected to have better forecasting abilities, though this is not foolproof.

Human judgement had also been minimized, this proved to be ~~an~~ a mistake

Basel II failed in the crisis as it was procyclical, moreover banks exploited the rules

Basel III will further increase regulatory scrutiny

New regulations will not provide enough protection for banks. Winners should do more than comply.

Risk managers should use insight and foresight to identify and mitigate emerging risks. → Strategic and proactive approach.

This comprises of 4 steps:

- understand risks: identify and quantify structural risk drivers. Determine impact in mild to severe scenarios.
- decide which risks to own: determine risk appetite and firm's risk position. Discern between different levels of uncertainty for the risk drivers. Also consider interdependencies. Focus on P&L and balance sheet impact.
- anticipate new risks: focus on detecting ~~early~~ early-warnings to respond sooner. Continuously measure levels of risk drivers, derive early-warning indicators,

- know how and when to act to mitigate risks: Stick to your plans ~~with~~ when you see early-warnings and monitor how the mitigation scenarios work out. Most managers see the signs, but don't decide to mitigate, despite the plans.

6.3 A Board Perspective on ERM

A board should go further and ensure that the ERM capabilities are at the level of best practices and well adapted for the risks the company faces.

- 1 risk transparency and insight
- 2 risk appetite and strategy
- 3 risk-related business processes and decisions
- 4 risk organization and governance
- 5 risk culture.

Firms mostly miss large company-wide risk in their risk assessments. Thereby missing the fundamental drivers and interdependencies. Thus the board lacks the proper insight to act on.

The company should have:

- a prioritized risk ^{heat} map: a risk heat map with key risks that have a high impact on P&L or balance sheet.

Also consider indirect effects of prices ~~is~~ from suppliers and competitive disadvantages to other players.

