

Implementing Enterprise Risk Management at MOL Group

- a case study -

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Group Risk Management

MOL –Hungarian Oil & Gas Company



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Agenda

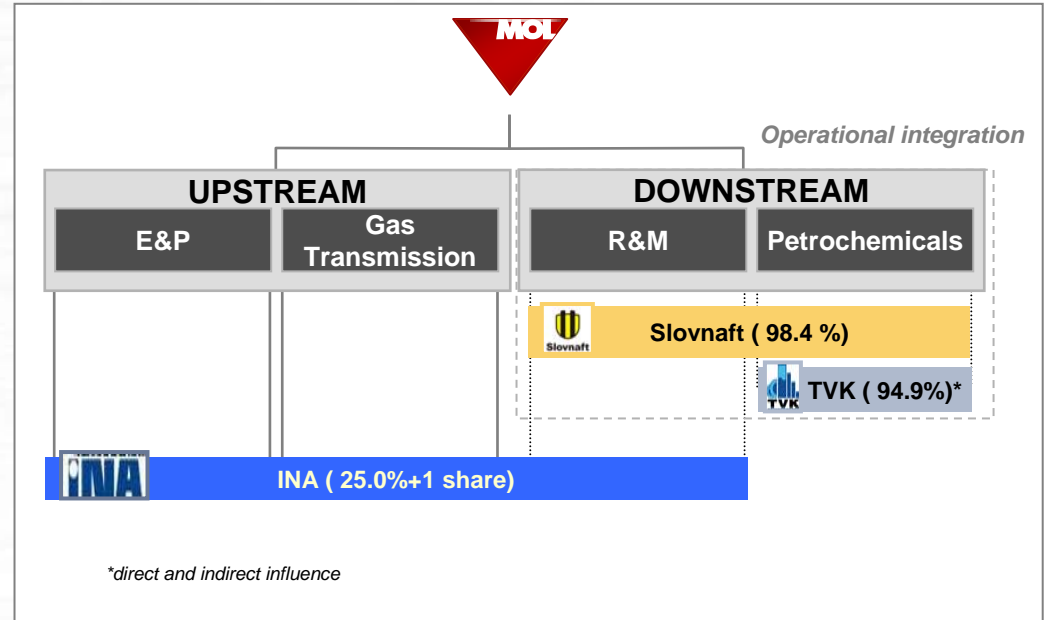
- ▶ Introduction of MOL Group and the evolution of risk management
- ▶ Mapping, measuring and reporting Financial, Operational and Strategic risks at Group level
- ▶ Risk Simulation and Risk Reporting with ERM Model
- ▶ How to use Enterprise Risk Management (ERM) results in key decision making processes (i.e. capital allocation, KPIs, strategic planning)



Introduction of MOL Group and the evolution of risk management

MOL is a leading Central European integrated oil and gas company...

- ▶ One of the best performing integrated energy companies in the region
- ▶ Leader in core markets of Hungary, Slovakia and in Croatia via INA
- ▶ State of the art asset base serving a high growth downstream region
- ▶ Highly successful regional partnerships: Slovnaft (it was one of the first successful cross-border acquisition and integration in CEE), TVK (petrochemicals) and INA
- ▶ Several years of significant efficiency improvement was the major basis of good financial performance

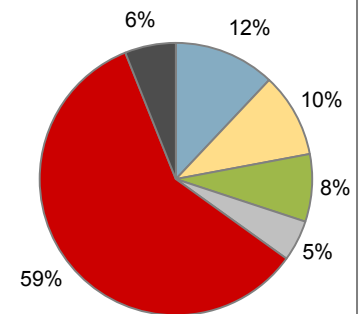


- ▶ First national oil and gas company in Central and Eastern Europe to be privatised
- ▶ Shares listed on Budapest, Warsaw and Luxembourg Stock Exchanges and traded on IOB (London)
- ▶ Capitalization of the company is above 13 Bn USD

Shareholding structure

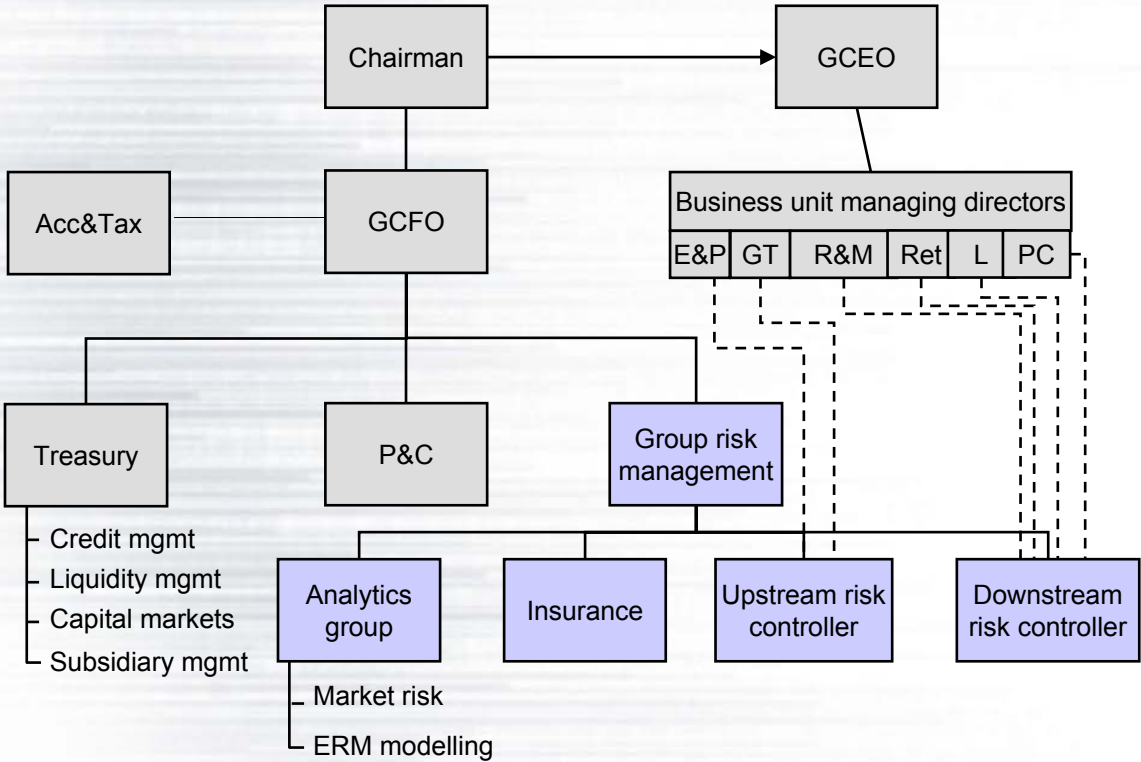
(approx., April .2006)

- Hungarian State
- OMV
- BNP Paribas
- Magnolia Finance Ltd
- International Institutional Investors
- Domestic or domestic depository



Such a complex organisation as MOL with diverse activities and geographies requires a consolidated risk management function

The new Group Risk Management (GRM) organisational unit established in January, 2006



- Current „Risk management” group is moved from Treasury to „Group Risk Management”
- Risk controller is a new function with each controller assigned to multiple business units
- Prepare monthly, quarterly and annual risk reporting to senior management and Audit Committee members
- Ensure risk quantification metrics are integrated within core decision making processes (i.e. strategic review process, capital allocation)
- Ensure that mitigation activities and best practice knowledge is optimised across business units

Group Risk Management directly reports to the GCFO
 Previously Risk Management (dealing mainly with market risk and insurances) belonged to the Treasury

The GRM function has 3 main tasks but must also ensure that support for Group and BU decision-making is considered

MOL Group Risk Management overview

Financial Risk Management

(transactional)

Process Steps:

- Prepare financial risk management strategy, policy
 - Collect and review data
 - Review of financial risk, sensitivity analysis
 - Define limit and strategy
- Hedge proposals, analyse deals
 - Initiate hedge transactions based on risk management model (To be executed by Treasury)
 - Initiate hedge transactions based on coordination with business unit (To be executed by Treasury)
 - Analyse the hedging of transactions
 - Compile business proposal

Insurance

(transactional)

Process steps:

- Risk retention analysis
- Define insurance renewal strategy
- Manage insurance renewal across all insurance products for MOL Group (property damage, business interruption, liability insurance)
- Control insurance broker
- Manage captive insurance company (MOL Re)
- Assist BUs in claim handling

New roles due to implementing Enterprise Risk Management at MOL

Risk Measurement & Reporting

(consolidated – financial, strategic and operational - risk management)

Process steps:

- Measure, model and analyse risks
 - Collect and review market and plan data for financial risks (price, volume, premise, mark to market)
 - Compile market analysis and proposals (monitor market, premise, select interest period)
 - Collect probability and impact data on Strategic and Operational risks from risk owners
 - Model (integrate data into model, run CF@R)
 - Update risk pyramid
- Compile report
 - Give information on completed transactions (approver, client)
 - Prepare monthly report (for management, for each AC) on financial risks
 - Prepare quarterly report for BU management, EB, Audit Committee on all risks
 - Make proposals to EB and BU management

**Mapping, measuring and reporting
Financial, Operational and Strategic risks
at Group level**

Spread of Risk Awareness Culture

Implementation process of Enterprise Risk Management has already significantly increased risk awareness culture in MOL Group...

- ▶ More than 50 interviews with
 - ▶ senior management and
 - ▶ experts of the Business Units

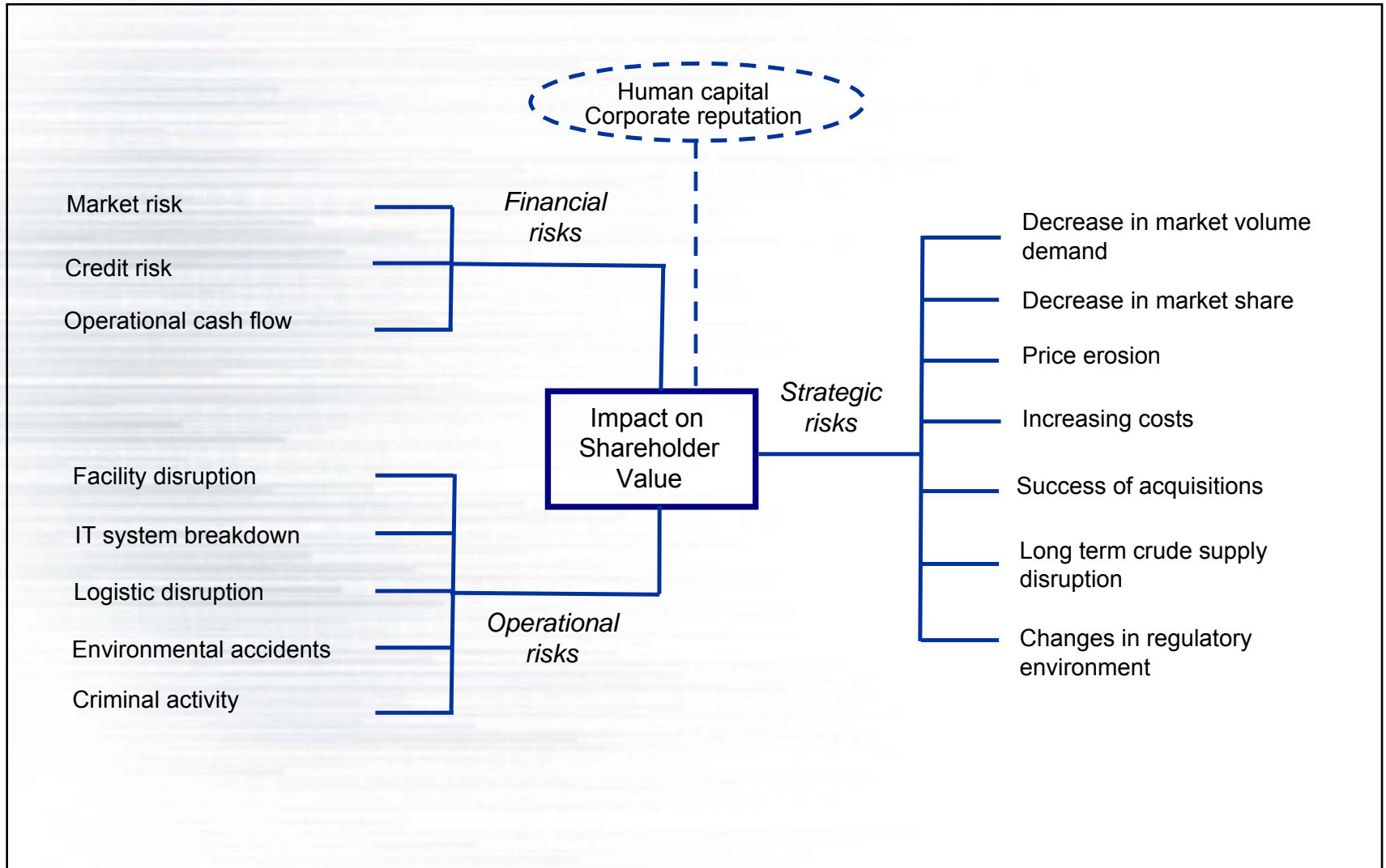
 - ▶ Not only MOL, but its subsidiaries (TVK, Slovnaft) were involved in the process.

 - ▶ At least 2 workshops with each Business Unit (kick-off, final validation, and in some cases additional mid-term validations also)

 - ▶ During the interviews, discussions and workshops Group Risk Management explained in details the importance of Risk Management.

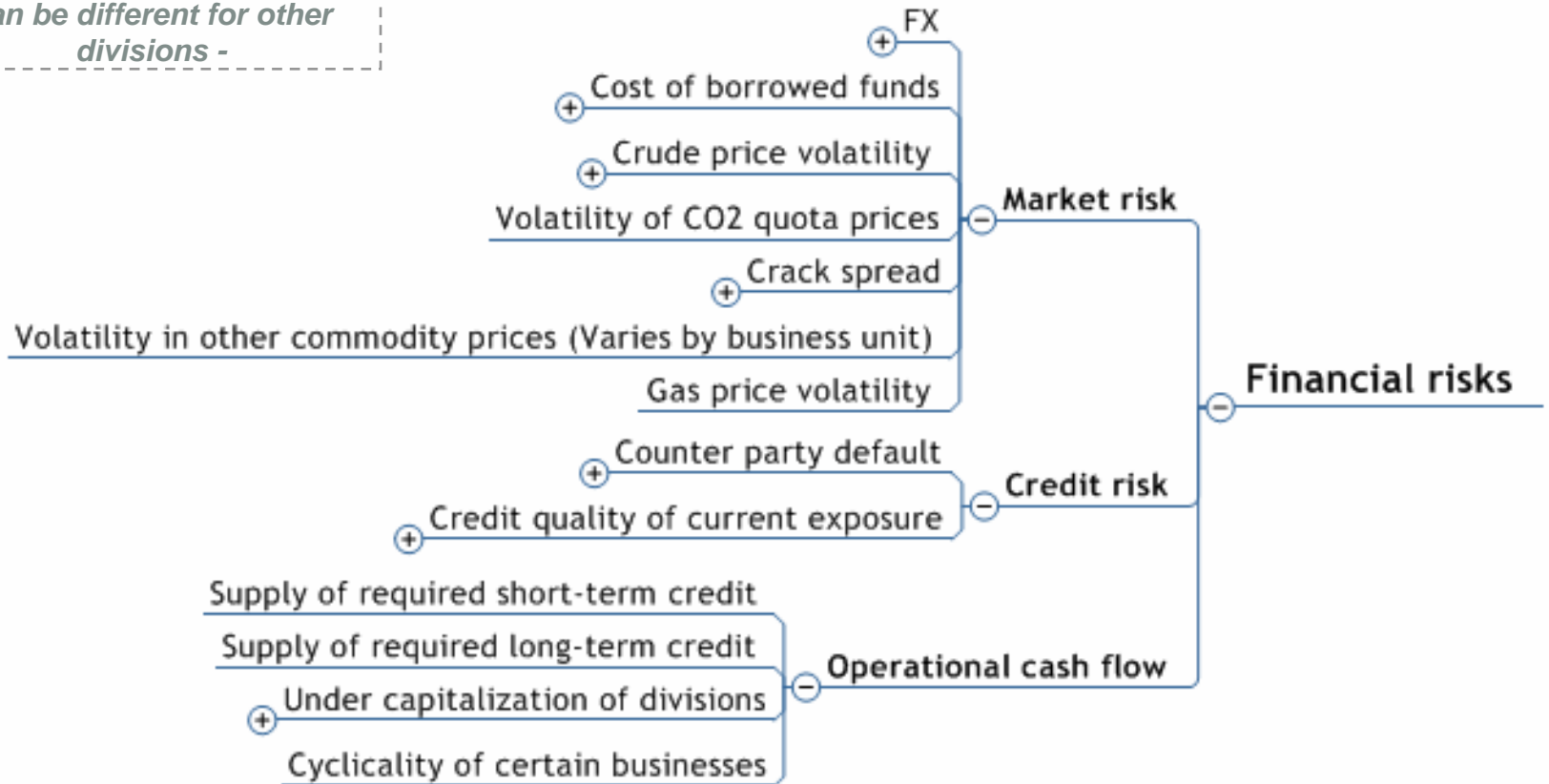
 - ▶ In the process of Business Continuity Management (i.e. elaboration of Crisis Management and Contingency Plans) further experts are involved.
- ...further improvement expected as risk measurement, reporting and regular discussions about mitigation actions become part of the „standard” work of senior management, responsible risk owners and field experts.

Scope of Enterprise Risk Management (ERM) is grouped around three key areas



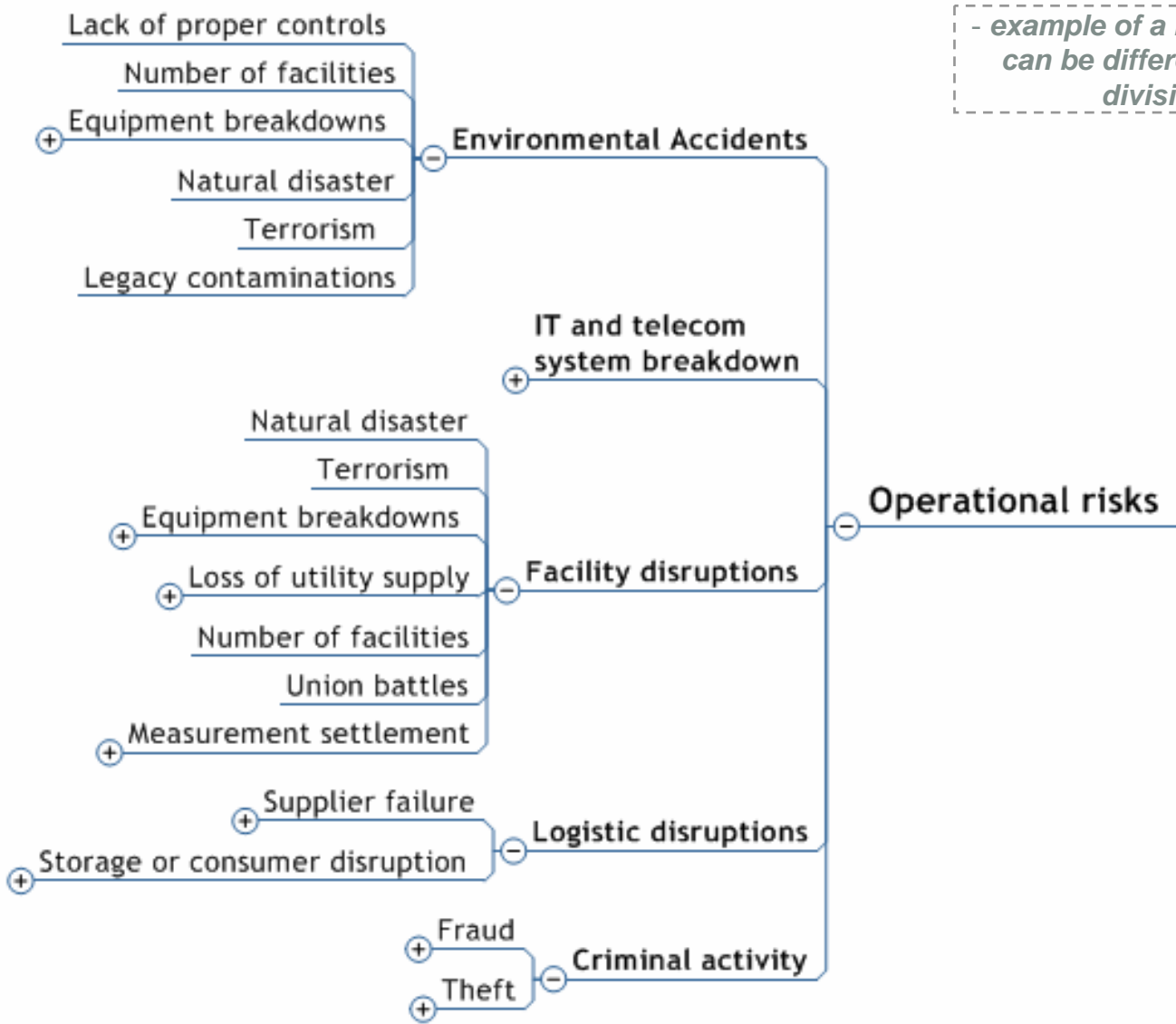
Split of financial risks into underlying risk drivers (risk pyramid)

- example of a Business Unit, can be different for other divisions -



As financial risk (especially market risks) are the most „obvious” for being subject of measurement and mitigation, methodologies for these are the most „mature”

Split of operational risks into underlying risk drivers (risk pyramid)



- example of a Business Unit, can be different for other divisions -

Explanation of some operational risk types and parameters to be quantified

- *example of a Business Unit, can be different for other divisions -*

Risk types for quantification	Examples (risk drivers)	Potential parameters to discuss
Facility disruption	Fire in a unit Loss of utilities	How many days breakdown does have a significant impact to the Division's result?
Environmental accidents	Because of flash flood Danube will be contaminated	Number of events, probability and effects
Logistic disruption	Lack of material or lifting capacity causes shortfall in production and sales	Number of events, probability and effects, how many days are critical
IT and telecom system breakdown	Because of non-operating IT system customers have to be refused and we loose market share	Number of events, probability and effects
Criminal activity	White collar criminal activity in contracting Blue collar criminal activity in production or supply	Number of events, probability and effects

Split of strategic risks into underlying risk drivers (risk pyramid)

- example of a Business Unit, can be different for other divisions -



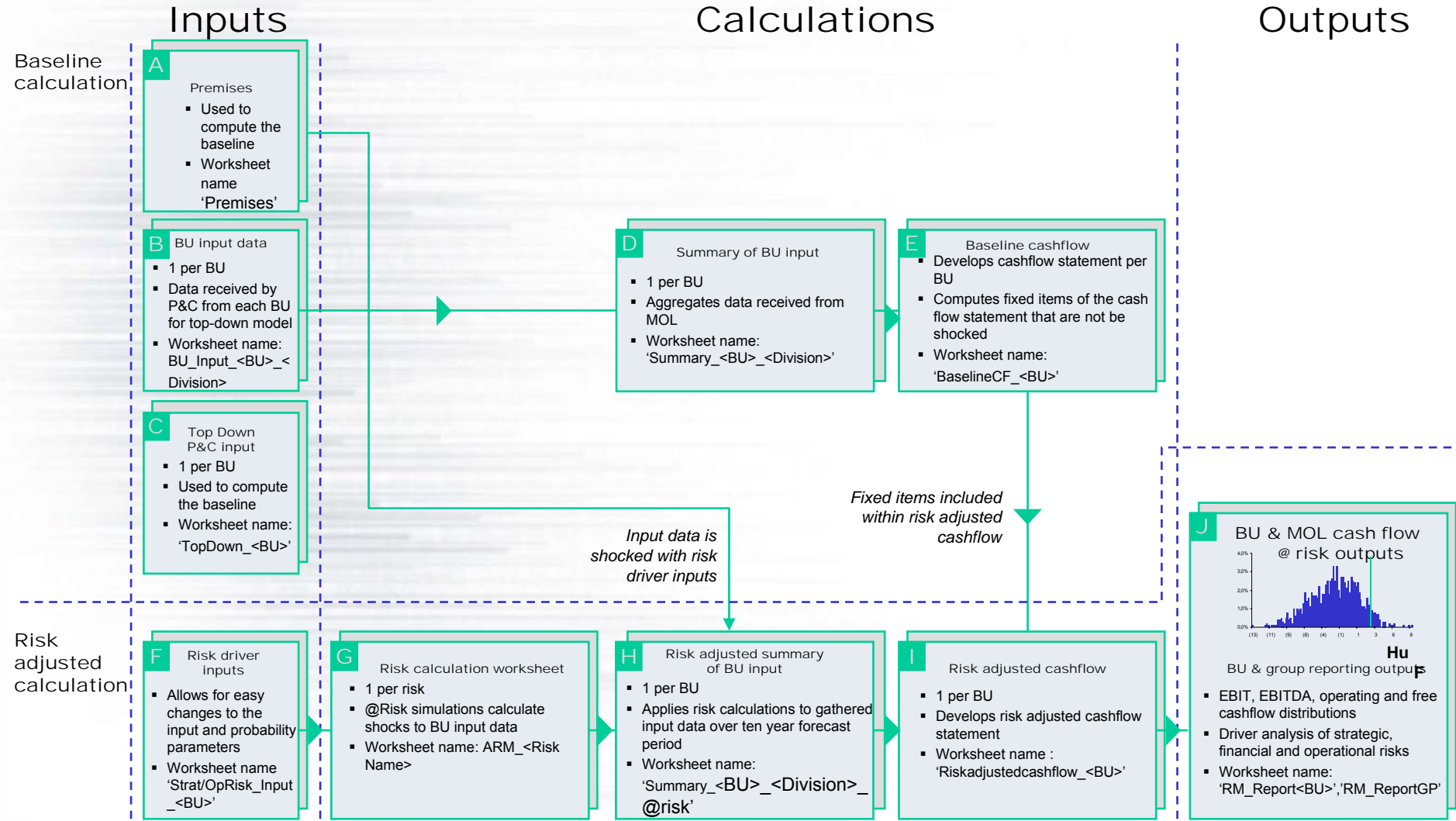
Explanation of some strategic risk types and parameters to be quantified

- example of a Business Unit,
can be different for other
divisions -

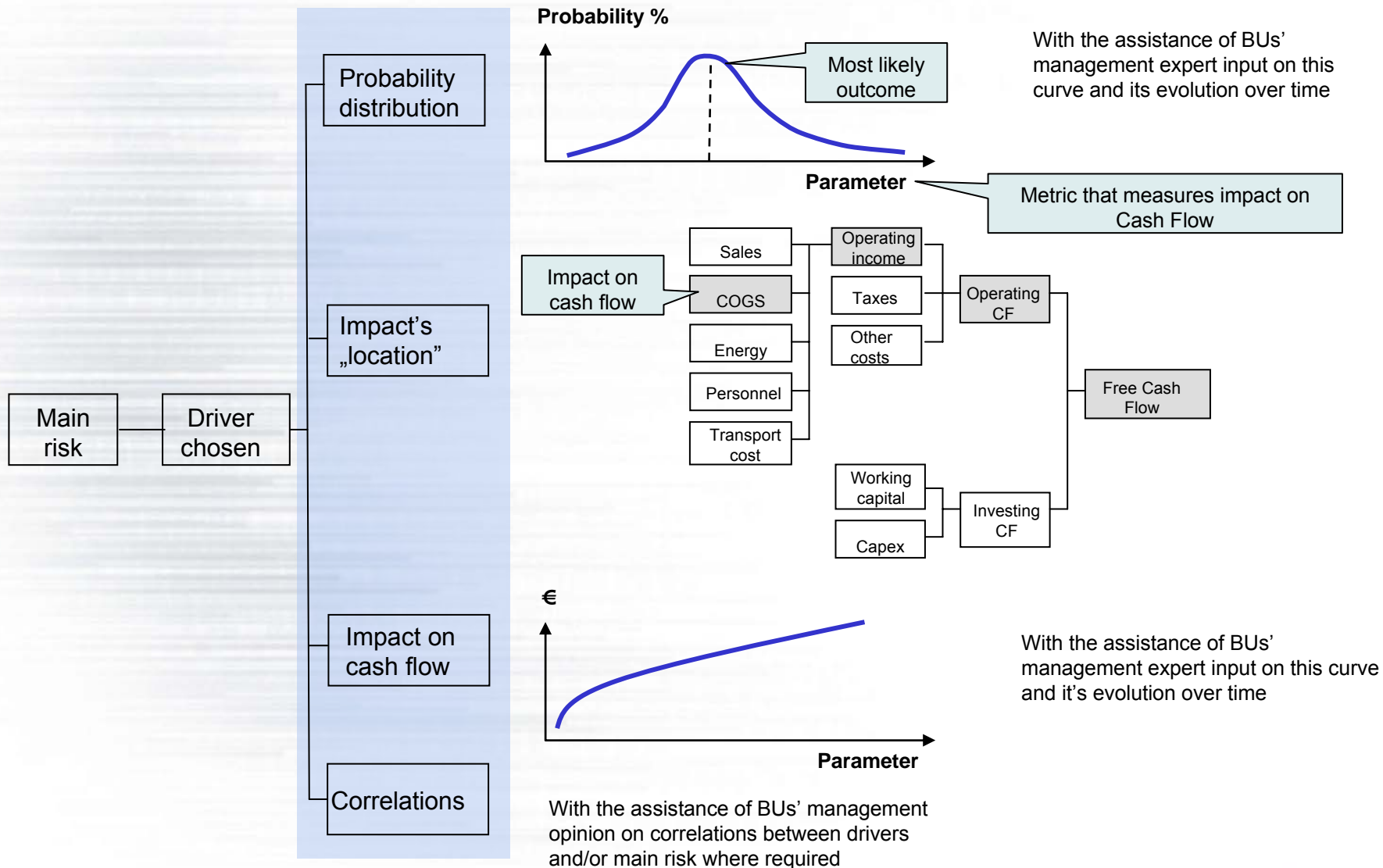
Risk types for quantification	Examples (risk drivers)	Potential parameters to discuss
Adverse government actions	To hike the environmental protection fee by government	Probability, % of hike
Decrease in market share	Illegal copying MOL's product	Loss in market share, volume
Price erosion	Due to bad positioning or strong competition we loose market	Loss in market share, volume
Increasing costs	Our cost structure is more rigid than our competitors'	Loss in margin
Decrease in market volume demand	Shrinking market causes higher costs	Loss in margin, volume

A detailed overview of the entire model is accompanied by specific directions for its key functionality

Overview of MOL risk model



To quantify overall risks, probability distribution and impact on cash flow for each relevant risk drivers should be identified



Risk Quantification Methodology – A relatively straightforward process with active participation of the Business Units

Information required / Activities

Step 1 Identify all material risk drivers

Step 2 Selection of quantification path

Step 3 Estimate probability of the drivers

Step 4 Assess impact of drivers

Step 5 Simulate on cash flow

- Industry analysis, management interviews
 - Validated group risk pyramid showing main risks and drivers
 - Main risks with impact on financial metrics chosen
 - Quantification paths defined for main risks
 - Relevant correlations defined
-
- Use historical data to provide basis for discussion and support findings
 - Gather management opinion on selected parameters
 - Define probabilities
 - Define impact on cash flow (or other chosen metric)
 - Define correlations
-
- Risk modelling tool used to generate risk exposure distributions
 - MOL planning and controlling data serves as the baseline for the calculations
 - Aggregation of all risks and business units occurs through definition of correlation

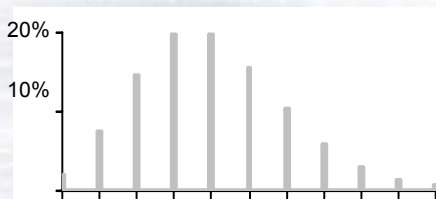
Quantification results (example: one of the operational risks – „Facility disruption”)

- Illustrative -

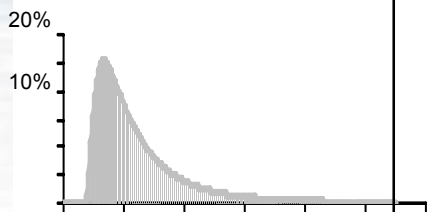
Business interruption period for 2006 \times Production loss per day = Financial Impact

Facility disruption – Risk drivers

1. Equipment Breakdown



Number of equipment breakdowns in 2006

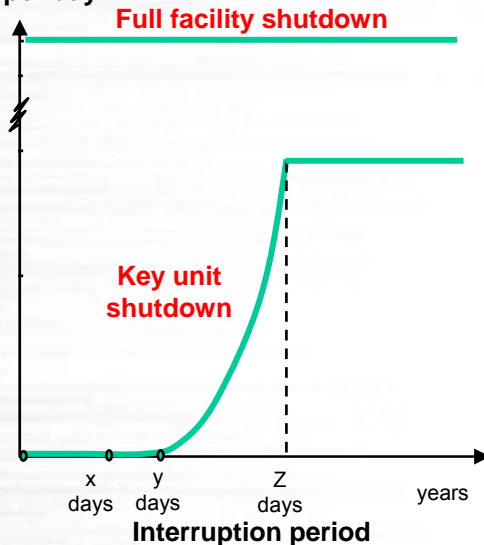


Number of interruption days per event

2. Natural Disasters
3. Loss of Power
4. Loss of Gas and Steam
5. IT System Breakdown

Similar BI event distributions prepared for other facility disruption risk drivers and combined with the Production loss per day

Production lost per day



P&L forecast statement

- Forecast 2006 – 2015

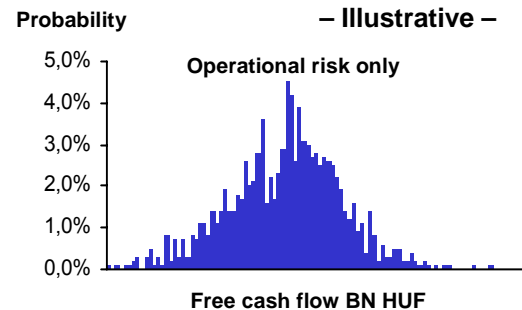
Inputs:

- Volumes & prices – Product, Raw Material, Transportation, Utilities

Outputs:

- EBIT, EBITDA, Operating Cashflow, Free Cashflow

BU cash flow volatility



- Mitigating effect of insurance programs is incorporated within the risk adjusted cashflow calculation

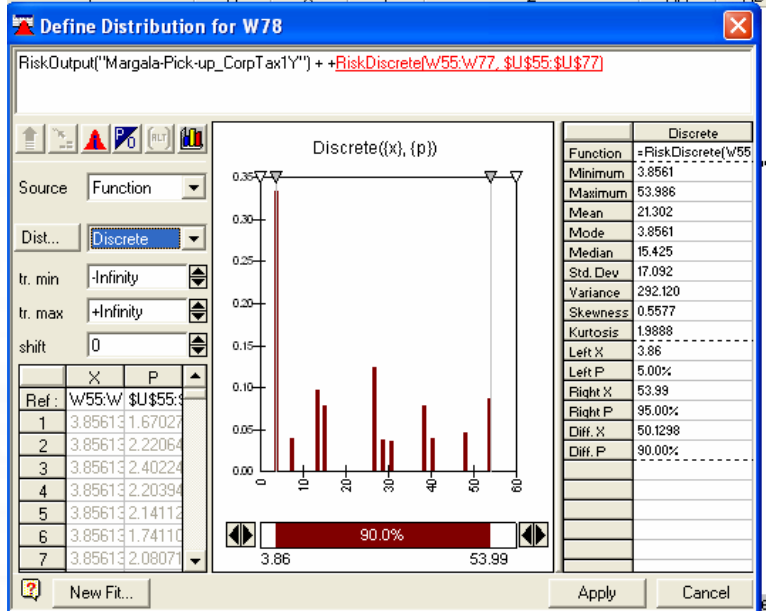
Political risk modelling –using Global Insight for inputs

RUSSIA			
Oil & Gas Upstream			
<i>(Risk = a loss in real return in US\$ terms)</i>			
Immediate Risk Sources by Type	Severity Weight	Subjective Probability 5 Years	Contribution to Risk 5 Years
Investment/Maintenance Risk:	20		4
(8) Enforceability of Government Contracts	25	15	0,8
(10) Ownership of Business by Nonresidents	35	27	1,9
(12) Regulations -- Environmental	10	12	0,2
(14) Regulations -- Imports	5	25	0,3
(28) Import Disruption (Sanctions/Trade Conflict)	5	14	0,1
(29) Infrastructure Disruption or Shortage	5	35	0,4
(32) Losses and Costs of Physical Hazards	15	11	0,3
Input Risk:	10		3
(4) Import Taxes	10	10	0,1
(5) Labor Taxes	5	10	0,1
(8) Enforceability of Government Contracts	10	15	0,2
(14) Regulations -- Imports	10	25	0,3
(19) Currency Appreciation	5	66	0,3
(23) Factor Costs -- Wages	5	80	0,4
(28) Import Disruption (Sanctions/Trade Conflict)	15	14	0,2
(29) Infrastructure Disruption or Shortage	25	35	0,9
(30) Losses and Costs of Corruption	5	50	0,3
(31) Losses and Costs of Crime	5	45	0,2
(33) Skilled-Labor Shortages	5	20	0,1
Production Risk:	25		4
(8) Enforceability of Government Contracts	20	15	0,8
(12) Regulations -- Environmental	15	12	0,5
(15) Regulations -- Other Business	25	34	2,1
(32) Losses and Costs of Physical Hazards	40	11	1,1
Sales Risk:	35		9
(3) Export Taxes	10	14	0,5
(8) Enforceability of Government Contracts	15	15	0,8
(13) Regulations -- Exports	10	25	0,9
(26) Domestic Demand	5	52	0,9
(27) Export Disruption (Sanctions/Trade Conflict)	20	25	1,8
(29) Infrastructure Disruption or Shortage	25	35	3,1
(30) Losses and Costs of Corruption	5	50	0,9
(32) Losses and Costs of Physical Hazards	10	11	0,4
Revenue/Repatriation Risk:	10		1
(2) Corporate Taxes	40	8	0,3
(8) Enforceability of Government Contracts	35	15	0,5
(16) Transferability of Funds	20	14	0,3
(17) Real Currency Depreciation (vs. US\$)	5	38	0,2
Overall Risk Score	100		22

Selected events from immediate risk scores that GI assumes are relevant for oil& gas

GI assigns probability estimates to a range of events that may impact cash flows or asset values
 Probabilities are independent of type of business and investment
 All events are clearly defined and stated

“Severity weights” indicate relative importance to the investment and is used to weight probabilities
 (these are the same for all countries)



Set the correlations

- *example*

Commodity Products				
MRCorrelation1 (11x11)	BRENT DTD	GASOIL FOB ROTT	GAS PANRUS PURCHASE PRICE	EN590 CRACK SPREAD
BRENT DTD	1			
GASOIL FOB ROTT	0.82	1		
GAS PANRUS PURCHASE PRICE	0	0	1	
EN590 CRACK SPREAD	-0.106656524	0.12	0	1
BRENT URAL SPREAD	0	0	0	0
GAS 15oC SALES PRICE	0	0	0	0
NAPTHA CIF MED	0.826156089	0.74	0	-0.030122457
PP KOPOLYMER	0.26264642	0.33	0	0.195373578
PROPAN	0	0	0	0
PUN FOB ROTT CRACK SPREAD	0.174931121	0.4	0	-0.043136572
BUTAN	0	0	0	0

- ▶ Correlations have been defined between the underlying variables behind the risk drivers
- ▶ Correlations are stored and can be changed within the worksheet '@RISK_correlations' within ERM_calcbook.xls
- ▶ If entered correlations are not consistent within a given correlation matrix, @Risk will prompt an error message and only run the simulation with an adjusted correlation based upon the entered correlations
- ▶ New correlations can be entered using the '@RISK – Model' window to link dependent @risk calculation cells



Risk Simulation and Risk Reporting with ERM Model

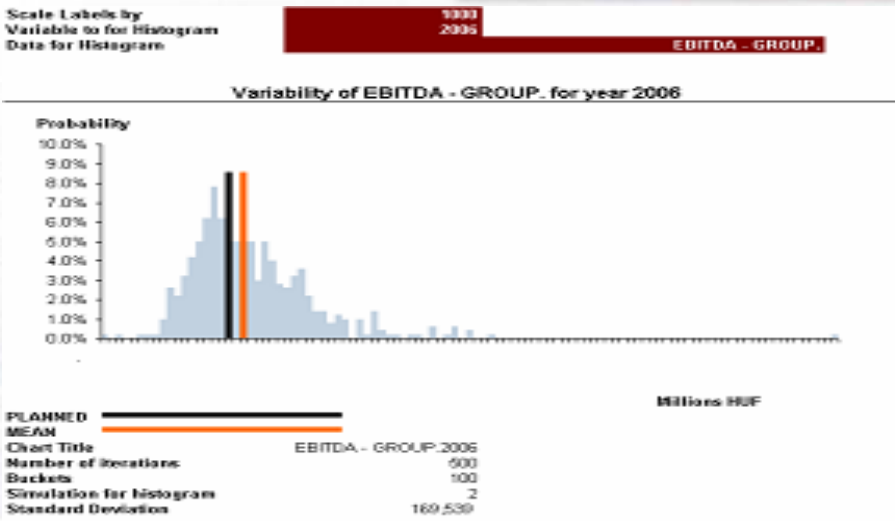
Selection of the risk drivers to be simulated

DRIVERS			Range Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
MARKET RISK																								
Market risk	Brent, Naptha & Crack Spreads	No	RM_MR_CrudeCrack	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Market risk	FX	No	RM_MR_FX	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Market risk	Other Market risks	No	RM_MR_Others	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OPERATIONAL RISKS																								
FACILITY DISRUPTION																								
Natural disasters	Natural disasters	No	RM_OR_ND	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Terrorism	Terrorism	No	RM_OR_Terr	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Equipment breakdown	Employee Error	No	RM_OR_Emp	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Equipment breakdown	Lack of proper equipment	No	RM_OR_Equ	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Equipment breakdown	Inadequate maintenance	No	RM_OR_Mn	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Equipment breakdown	Poor processes	No	RM_OR_PP	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Equipment breakdown	Poor supplier performance	No	RM_OR_Sup	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Loss of utility supply	Power	No	RM_OR_Pow	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Loss of utility supply	Gas	No	RM_OR_Gas	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Loss of utility supply	Steam	No	RM_OR_Steam	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Union battles	Union battles	No	RM_OR_Uni	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
IT SYSTEM BREAKDOWN																								
Poor supplier performance	Poor supplier performance	Yes	RM_OR_ITSup	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Lack of required IT professionals	Lack of required IT professionals	Yes	RM_OR_ITPro	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Use of group wide networks	Use of group wide networks	Yes	RM_OR_ITNet	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Poor hardware	Poor hardware	Yes	RM_OR_IHHard	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
ENVIRONMENTAL ACCIDENTS																								
SUPPLY DISRUPTIONS																								
Raw material supply disruption	Political / Country Risk	No	RM_OR_RMPolit	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Raw material supply disruption	Pipeline technical failure	No	RM_OR_RMPipe	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Raw material supply disruption	Terrorism	No	RM_OR_RMTerr	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Customer supply logistics	Disruption at customer	No	RM_OR_RM Cust	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Customer supply logistics	Distribution disruption	No	RM_OR_RMDist	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
CRIMINAL ACTIVITY																								
Theft	Theft	No	RM_OR_Theft	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Fraud	Fraud	No	RM_OR_Fraud	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
INSURANCE PROGRAMMES																								
		Yes	RM_OR_Ins																					

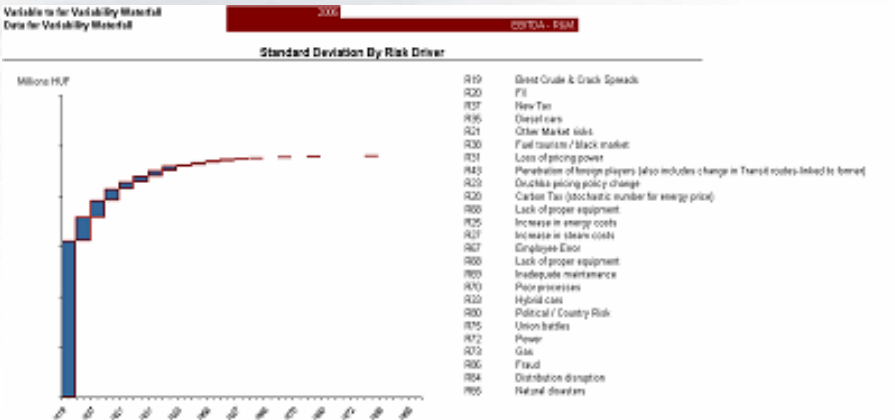
- ▶ Set drivers to “0” (off) or “1” (on) in the circled columns of the Calculation workbook “RM_SIMControl” sheet to isolate and analyse the impact of specific risks and consider groups of related drivers (e.g. all strategic, market and operational risk)
- ▶ Each column of zeros and ones corresponds to one simulation scenario for which many iterations will be performed
- ▶ For accurate calculations, use 2,000 iterations, which takes a few minutes per simulation to run
- ▶ For rough tests, use 500 iterations
- ▶ Insurance programmes and the Market risk mean reversion functionality can be turned on (“Yes”) and off (“No”) (see bottom of risk driver worksheet)

Excel screenshot may not reflect latest version of model

View simulated risk profiles and extract simulated data



- After the simulations have been completed, the outputs can be viewed with the following worksheets
- **RM_Histogram** :- Presents a probability distribution of risk adjusted metrics together with the mean and planned P&C data. Capable of changing (i) the year (ii) metric (i.e. EBIT, EBITDA etc.) and (iii) business unit or Group
- **RM_DriverReportVariance** :- Presents a waterfall diagram indicating individual contribution of top 25 drivers to overall volatility. Capable of changing (i) the year (ii) metric and (iii) business unit or Group

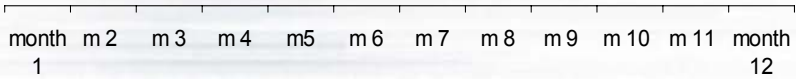


- Other reports include:
- **RM_TimeVariation** :- For a selected metric and business unit/Group, time variation of mean, planned, 5th percentile and 95th percentile values are plotted
- **RM_RiskReportVariance** :- Similar to RM_DriverReportVariance but plotted at the Risk level (i.e. Decrease in market share, Adverse Government Action etc.)
- Analysis with these workbooks can be conducted provided the simulation is conducted with the same workbooks as the analysis and that both of these workbooks are open

NB: Excel screenshot may not reflect latest version of model

Risk Management framework – Reporting structure & objectives

▶ **Financial risk Management**
Short term – 12 months horizon



Reporting frequency and receivers

- Monthly update
- Report to the BoD and EB
- Yearly update of model inputs, quarterly progress report on risk mitigation activities, ad-hoc analysis in case of acquisitions
- Report to the BoD, EB, Financial and Risk Management Committee, on relevant issues to the Internal Audit and Head of BUs

Key risk drivers concerned

- Commodity risk
- FX risk
- Interest rate risk

▶ **Enterprise Risk Management**
Strategic term – 10 years horizon



- Strategic risks
(but financial and operational risks are also covered)

Operational Risk Management

▶ **Insurance Management**

- Yearly renewal
- Property Damage / Business Interruption
 - Liability Insurance (Third Party, Product, Pollution and Aviation Product)
 - Wells insurance
 - Personal type insurance
 - Other types (Director & Officer Liability Insurance, Fidelity (Crime) Insurance, etc.)

- Yearly information on the renewal conditions
- Report to the BoD and EB

- Operational risks

▶ **Business Continuity Management**

- ▶ Crisis Management
- ▶ Contingency Planning

- Reports / information as necessary
- BUs, FUs are involved
- Report to the EB and BMT

- Operational risks

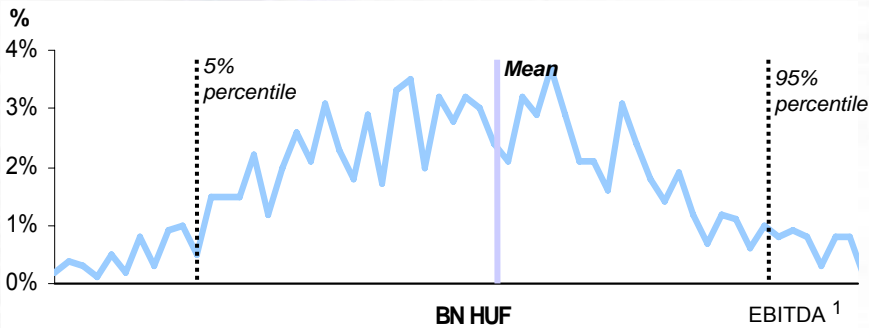
Risk Controlling Process



Example for planned layout of regular risk reporting to the senior management of the company

- Illustrative -

Group EBITDA @ risk (2006)

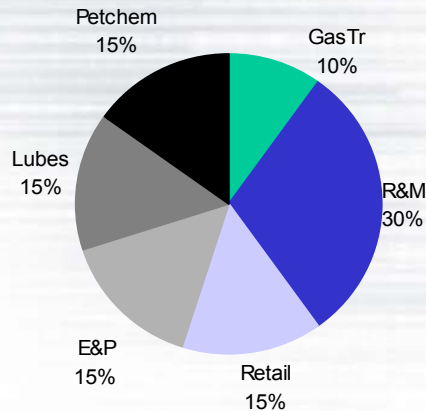


Risk driver contribution to Group risk (2006)³

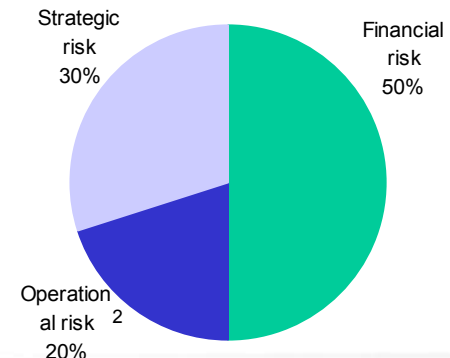
Category	Risk	Risk driver	Relative contribution
Financial	Market risk	Crude & Crack spread	25,00%
Financial	Market risk	FX	10,00%
Financial	Market risk	Gas price	10,00%
Strategic	Commercial risk	Counterparty risk	6,00%
Strategic	Adverse government action	Revocation agreements	6,00%
Strategic	Geological uncertainties	Overestimation of Reserves	6,00%
Strategic	Market volume demand	Miles driven	6,00%
Operational	Operational disruption	Lack of proper equipment	8,00%
Operational	Operational disruption	Inadequate maintenance	8,00%

Others: 15% Threshold: 3 %

Contribution to Group risk by BU³



Contribution to Group risk by risk type⁴



- 1 All key metrics can be calculated (i.e. OCF, FCF, EBIT)
- 2 Operational risk calculated post insurance
- 3 All contribution calculations based upon the distance between the 5th and 95th percentile of the EBITDA distribution

The risk driver contribution analysis supports the prioritisation of key mitigation activities

- Illustrative -

Risk driver prioritisation & Mitigation tracking

- The risk driver analysis can be used to identify risks that are either exceeding limits or where planned return does not justify the level of risk
- The risk owners and Group Risk Management can together perform cost benefit analysis to determine optimised mitigation activities
- These activities can then be tracked in the regular risk reports



Risk category	Risk	Risk driver	Risk owner	Actions to be taken	Progress report
Financial	Market risk	Crude & Crack Spreads		"Naturally" hedged by R&M division	
Financial	Market risk	FX		Hedging	
Financial	Market risk	Gas price		Government lobby	
Strategic	Commercial risk	Counterparty risk		Partner rating policy review	
Strategic	Adverse government action	Revocation agreements		Government lobby, negotiated agreements	
Strategic	Geological uncertainties	Overestimation of reserves		Better processes and technologies	
Strategic	Market volume demand	Miles driven		Looking for growing markets	
Operational	Operational disruption	Lack of proper equipment		Better procurement and control processes	
Operational	Operational disruption	Inadequate maintenance		Improved control processes	

- **Not all risks should be mitigated – some of them may be chosen to be kept by the strategy of the company**
- **Risks should be managed at Group level and portfolio effects should be taken into account – as some of the risks (e.g. oil price risk) are counterbalanced by other Business Units**

**How to use Enterprise Risk Management
(ERM) results
in key decision making processes
(i.e. capital allocation, KPIs,
strategic planning)**

Limit setting: Risk Management limits are linked to Financial & Strategic objectives

Besides systematic risk monitoring and elaboration of mitigation actions, some „simpler” rules provide framework for decisions

Financial ratios and covenants

Loan Agreements contain the following measures

- ▶ Net debt / EBITDA
 - ▶ EBITDA / Total Interest
 - ▶ Financing Headroom
 - ▶ Tangible Net Worth
- a max. value of ratio is set
- min. values are set

Other limits and guidelines

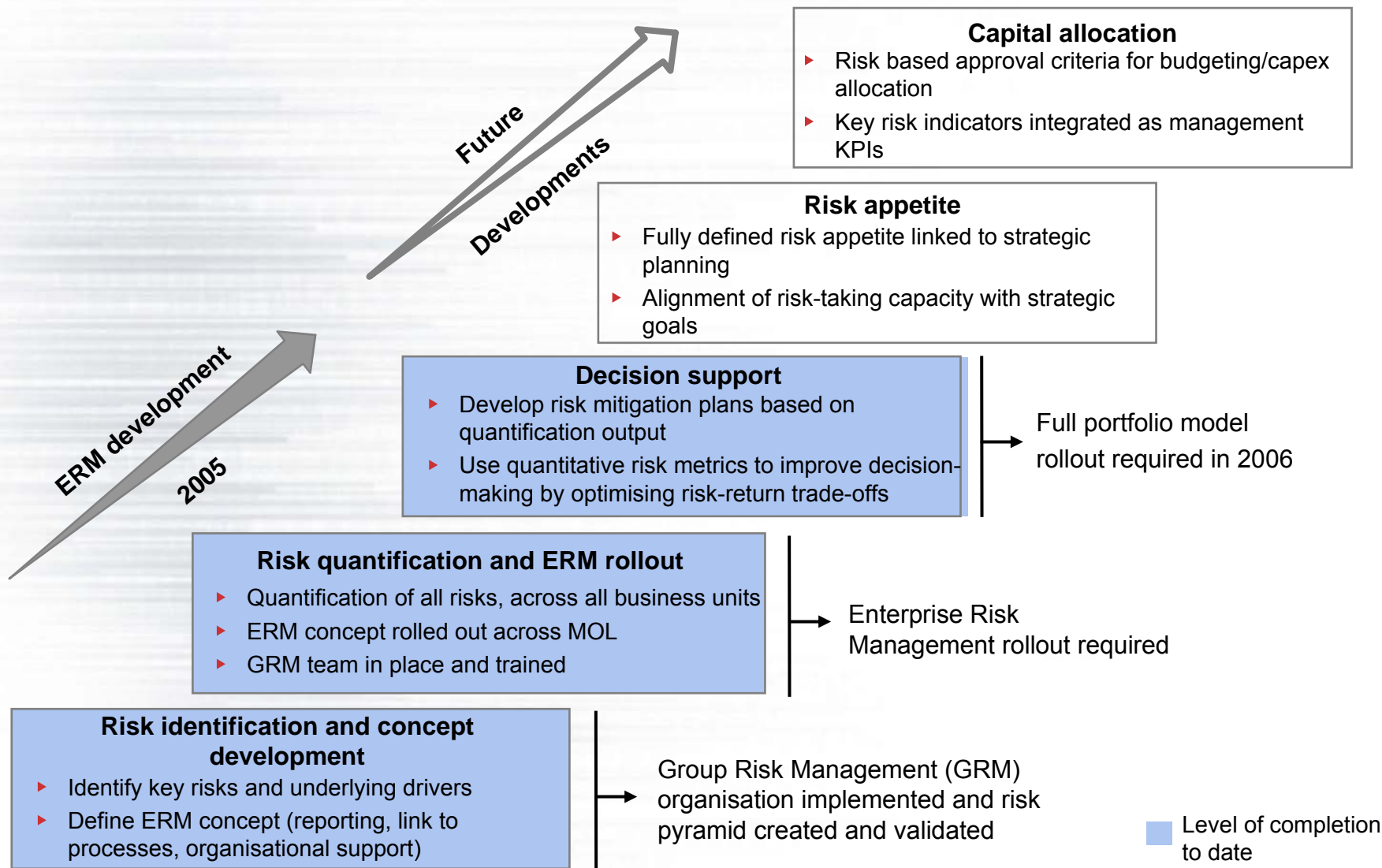
- ▶ Currency denomination of debt
A threshold for min. ratio of € debts is set
- ▶ Fixed/floating ratio of debt
A threshold for max. ratio of fixed debts is set
- ▶ Country limits (especially for E&P projects)
For each country a maximum of value of capital employed is set (however, there can be exemptions if meet predefined requirements, like risk mitigations i.e. partner involvement)

Roles of Group Risk Management

- calculates the above mentioned limits (on a 12-month forward basis)
- monitors the market and its impact on the covenants and limits
- calculates the probability of breaching any covenant for the next couple of quarters
- above the „natural” hedge, GRM proposes the necessary transactional steps (i.e. options, swaps) and executes the transactions
- prepares monthly reports to the senior management
- report guidelines (e.g. for country limits) are elaborated by Group Risk Management

One of the future results of ERM project can be the inclusion of some new limits

MOL started its ERM project in 2005, is well on track with sound quantitative capabilities required for future strategic applications



Risk quantification outputs can be used to support enhanced decision making and performance optimisation

Enhanced decision-making at group level

▶ Risk appetite & group level portfolio optimisation

A company requires a clear understanding of the earnings volatility it will accept and its overall risk taking capacity and link this with risk-return portfolio optimisation to optimize capital allocation

▶ Balance sheet management

Optimal financing structure can be determined, given the strategy and risk appetite

▶ Risk adjusted WACC/KPI

Business unit risk metrics should be used to more effectively determine the contribution of each business unit to shareholder value

Optimised mix of assets,
appropriately funded

Improved performance at business unit level

▶ Business Unit portfolio optimisation

The same portfolio optimisation and risk appetite tools can be used to manage risk-return position of individual BUs (especially for International Upstream projects)

▶ Mitigation optimisation

Translate risk quantification from the Risk Pyramid into operational improvements and improved mitigation actions that will improve the risk-return position of the affected BU

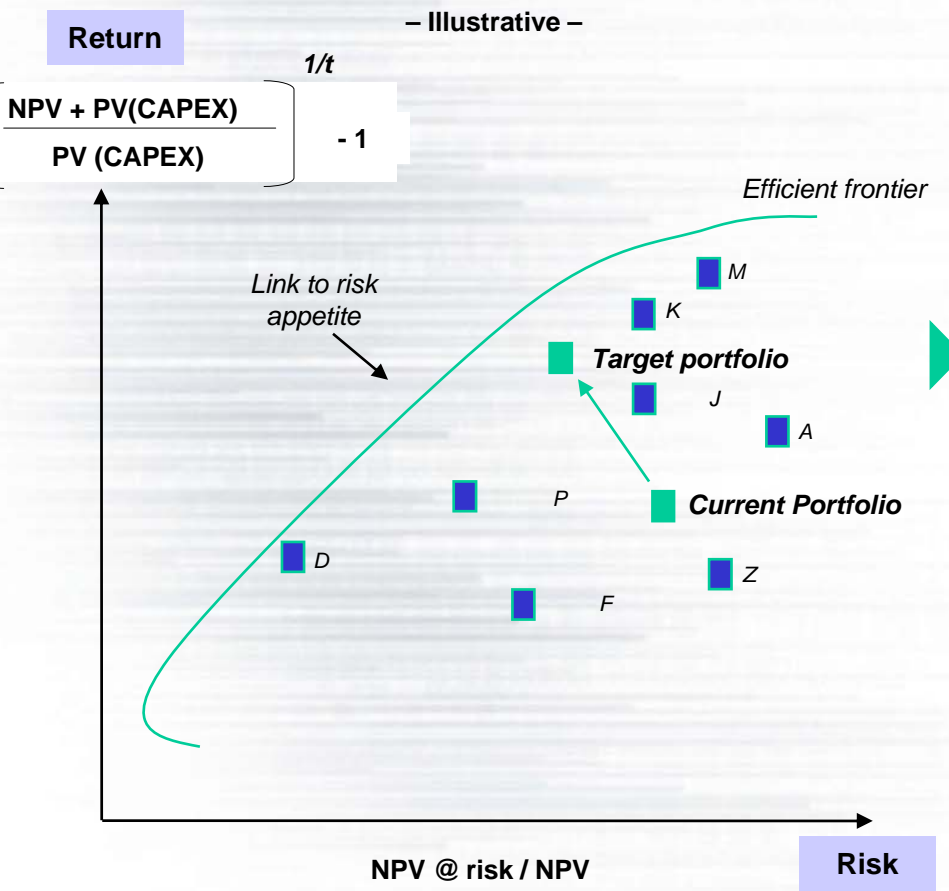
▶ Risk adjusted performance measurement

Develop and incorporate risk based key performance indicators (KPI) to ensure that risk-return decision-making is employed at the group, business unit and individual level

Value of each individual
asset optimised

Results of risk quantification can be used both at group-wide and at separate Business Unit (especially E&P) portfolio development

Risk-return portfolio optimisation of different projects



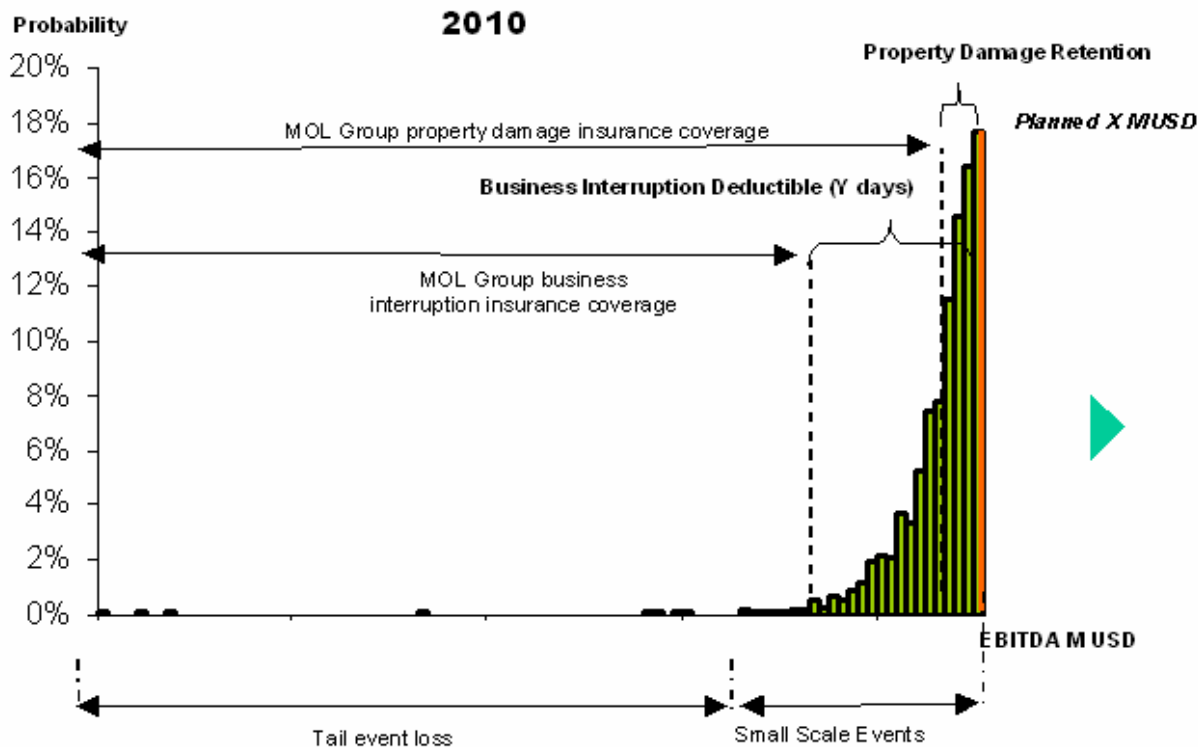
- ERM model can calculate risk metrics for each project across all relevant risks from the Risk Pyramid
- Current projects can all be positioned within the risk-return portfolio – Project groupings (e.g. regions) can be used
- Integrate risk adjusted project NPV as part of valuation process

Outcomes:

- Ensures a consistent approach to determining risk in project valuations
- Define proper limits
- Risk based hurdle rate for each project to improve selection
- Ensure a risk-return portfolio optimisation approach to projects (i.e. only selecting high return projects does not necessarily mean a good portfolio)

Tail end losses mitigated by insurance program while small scale losses are typically below deductible and retention

Group EBITDA Volatility – Operational Risk Based on ERM Model



The distribution does not take into account insurance programs

- Small scale losses driven by key unit breakdowns and frequently occurring events (i.e. 1-2 day shutdowns)
- Tail event losses: up to USD X million corresponding to the occurrence of tail events – Current insurance programs cover USD Y million across the group
- EBITDA does not fall below USD Z million with 95% probability

Learnings of ERM rollout process - so far so good

- ▶ During 2005 extensive knowledge transfer has taken place (via Pilot phases) as the new Group Risk Management team has worked closely with the ERM risk model and has actively been involved in the risk quantification methodologies process (elaboration of the model and processes was supported by a consulting firm last year)
 - ▶ ERM roll out has commence in Q1, 2006 and focuses on quantifying operational strategic risks across all business units (one-by-one, now we are at the 3rd division after evaluating R&M and E&P)
 - ▶ Financial (especially market) risks had been handled already before implementing ERM at MOL, so bulk of work in that field was „only” incorporating such risks into the unified ERM concept
 - ▶ ERM risk reporting at Group and business unit level will begin in H2, 2006
 - ▶ Our experience working with the business teams has shown that the interactive and inclusive style of risk quantification and input/methodology validation is very successful in gaining confidence
- ▶ A successful rollout program ensures:
 - ▶ Confidence and acceptance by the businesses of the risk metrics
 - ▶ Once the basis risk quantification approach is 'bedded down' it can serve as the foundation for applications focussed on optimising the risk-return trade-off
 - ▶ The continued culture shift within the company MOL towards 'risk-return' decision-making at all levels

Conclusions – Main benefits of implementing ERM

ERM ...

- ▶ ... spreads Risk Management knowledge and awareness („risk culture”) across all Business Units
- ▶ ... helps senior management, Board and BU executives to focus on main risks and mitigants
- ▶ ... provides a systematic review (quarterly reports) to monitor progress
- ▶ ... can be integrated into decision making processes (e.g. capital allocation, portfolio building, performance management) in order to increase shareholder value

Thank you for the attention !