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Layout & Distribution: Valéria Kozakova

Evaluating the Effectiveness of Risk Management

Gerhard Stahl

Cross-Sectional Supervision Activities by QRM

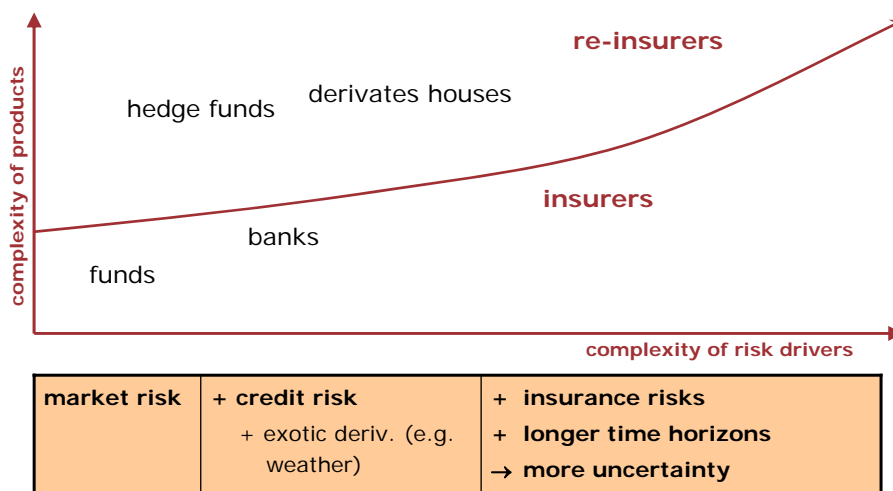
on-site examinations of internal models

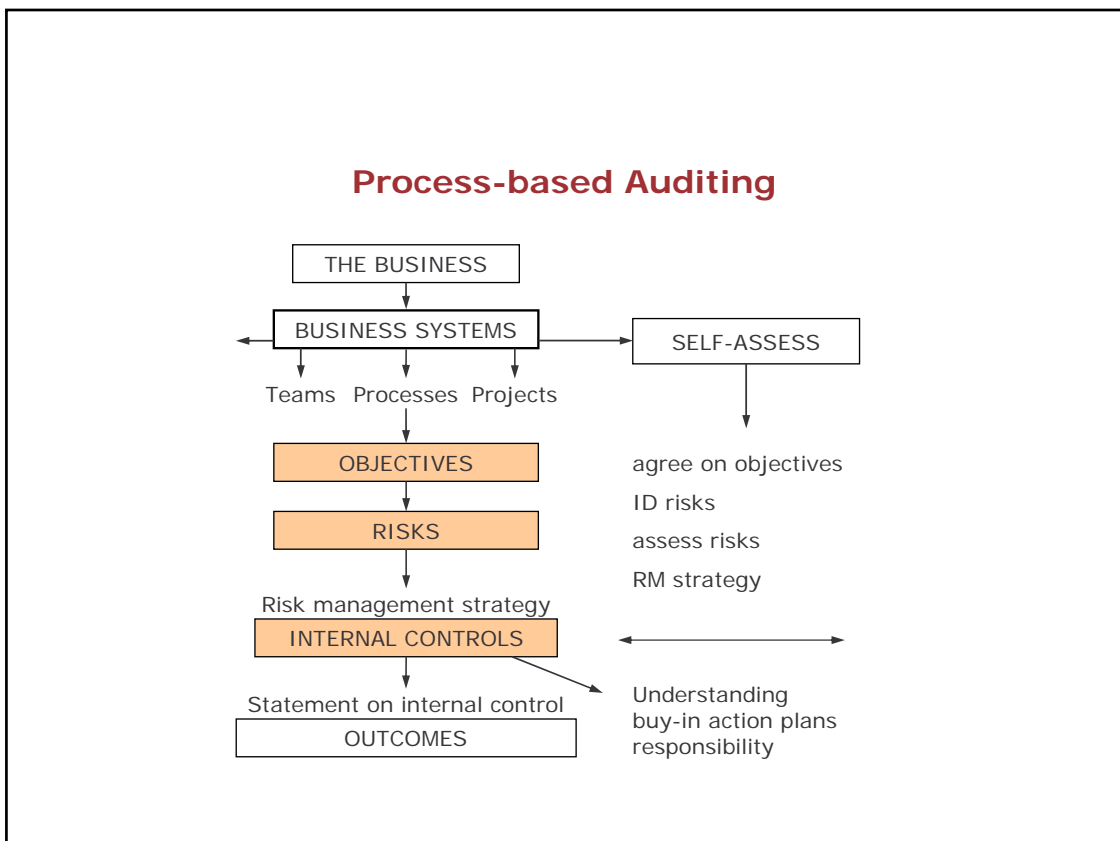
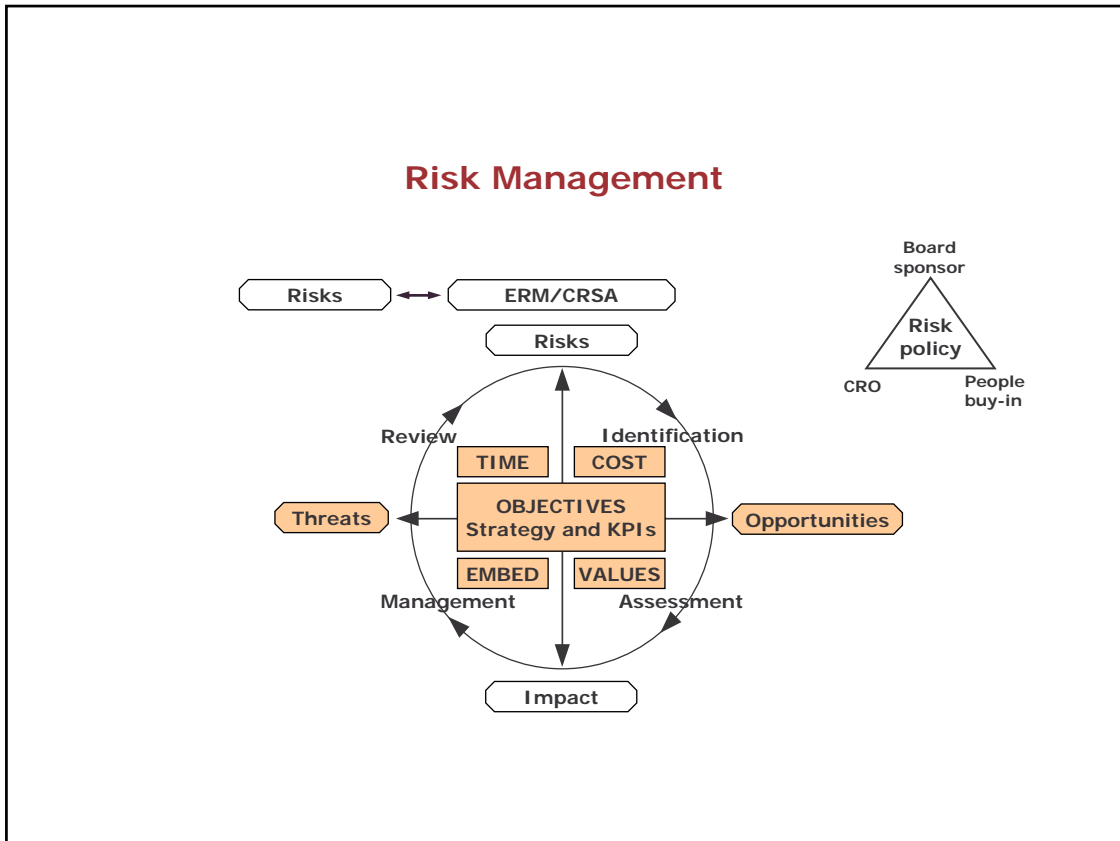
Banks	Funds	Insurers
<ul style="list-style-type: none"> • market risk models TB (Amendment of Basel I, since 1998) • interest rate risk banking book (since 2004) • internal ratings (Basel II IRBA, since 2005) • OpRisk (Basel II AMA, since 2006) 	<ul style="list-style-type: none"> • hedge funds (derivate V/OGAW-RL, since 2004) 	<ul style="list-style-type: none"> • since 2005 (pre-visits) • planned: Solvency II (starting 2008-2010)

Similarities and Differences

Similarities / Synergies	
similar products: <ul style="list-style-type: none"> • structured products • interest rate and credit derivatives 	similar tools and models: <ul style="list-style-type: none"> • market risk (Black-Karasinski) • credit risk (CreditMetrics)
Banks / Basel II	insurers / Solvency II
<ul style="list-style-type: none"> • input-oriented • partial models (market and ratings) • shorter horizons • aggregation of risk numbers • in market risk: thousands of risk drivers or simple „earnings at risk“ • absolute risk measure 	<ul style="list-style-type: none"> • output-oriented • holistic modeling • longer horizons • aggregation of distributions • the happy medium: small amount of accumulation events explaining losses at the group level • risk relative to a benchmark (RNP)

(b) Investment funds, banks, insurers

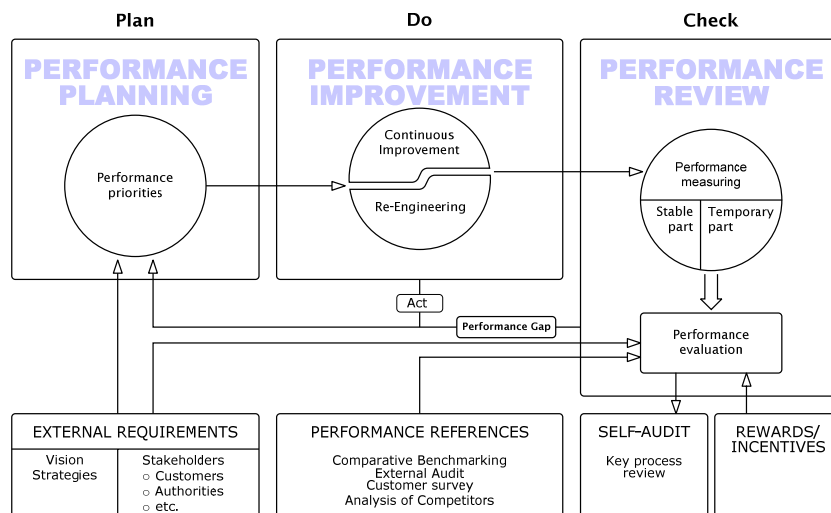




The Institute of Internal Auditors (IIA) Definition

“Internal auditing is an independent, objective assurance and consulting activity designed to add value and improve an organisation’s operations. It helps an organisation to accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control and governance process”

Plan, Do, Check, Act



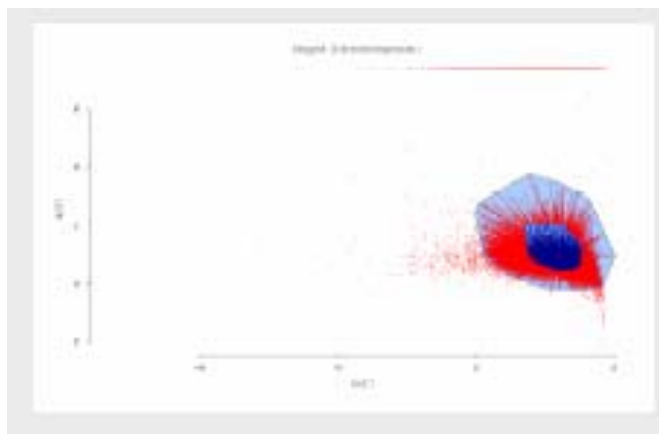
Audits are an Interactive Process between Institutions and Regulators

- starting point: the institution – understanding your customer
- the institution demonstrates the use test
- flexible audits, principles vs rules, no check lists
- process-oriented approach reduces follow-ups
- home / host

Pros of a BaFin Audit

- auditors are consultants (process-oriented regulation) **AKIM**
- **special know-how**
- **added value by audits**
- **COPULA approaches**

Bagplot of Balance Sheet Data

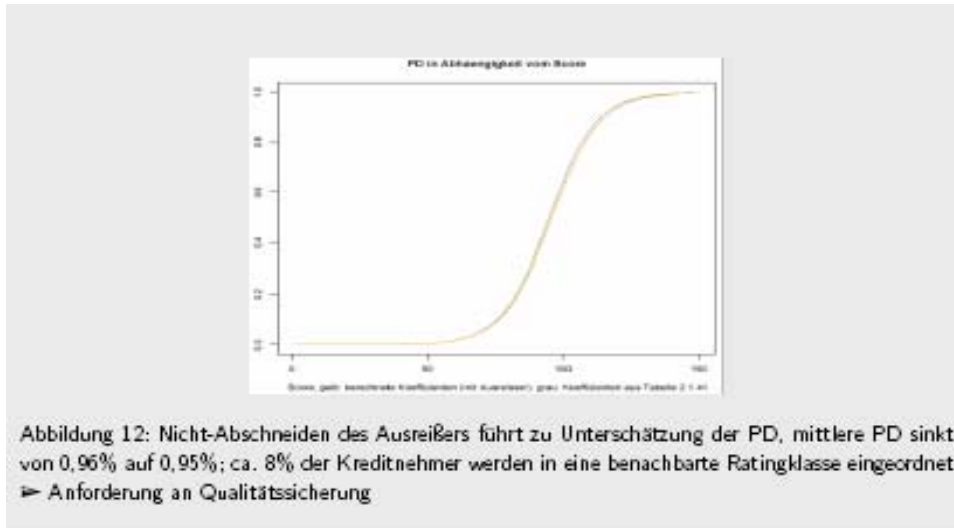


Estimates by QRM

Gesamtscore			
Merkmal	Q RM	Dokumentation	Abweichungen
quantscore	0,2545	0,2545	0,0095%
trend	0,0902	0,0902	-0,0308%
qual1	0,2667	0,2667	0,0075%
qual2	0,1391	0,1391	-0,0229%
qual3	0,0070	0,0070	-0,0564%
konjunktur	0,2425	0,2425	0,0080%

Schätzung der Ausfallwahrscheinlichkeit			
Merkmal	Q RM	Dokumentation	Abweichungen
(Intercept)	-10,8497	-10,8497	-0,0003%
Score	0,1144	0,1144	-0,0117%

Influence of Outliers on PD



Pros of Systems-based Auditing (SBA)

1/2

- positive and forward-looking instrument which considers the future strengths of control systems in contrast to isolating and reporting series of past errors.
- achieving participation by involving the client in the system and its objectives.
- constructive tool which aims to improve systems.
- Providing preventive steps and detecting errors due to error prevention rather than listing them for management
- It promotes respect by requiring the auditor to understand the systems and the client's needs.

Pros of Systems-based Auditing (SBA)

2/2

- auditors reveal as experts in control rather than checkers of management.
- acting as a vital aid to management with long-lasting effects in strengthening controls.
- allows very efficient use of audit resources, as it looks for origin of problems and not for subsequent errors.
- being not error-oriented, it is not treated as a negative issue by management.

BaFin versus S&P

Basically comparable: audit topics

BaFin (internal models)	S&P (ERM)
Structure and process of organisation ; change of organisation	Risk Management Culture
aggregation and reporting processes (bottom-up)	Risk Capital Models, Extreme Event Management
strategy and control of risk (top-down)	Risk Control Processes, Strategic Risk Management

Basically different: audit depth (previsit vs. audit) and supervisory tools