

RISK BASED AUDIT APPROACH

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Agenda

- 1 Risk Based Audit Overview
- 2 Maturity Assessment and Audit Plan
- 3 Sampling
- 4 CAAT

Risk Based Audit

- Risk Assessment before Audit Plan
 - Financial reporting risk
 - Business risk

- Financial reporting risk
 - Financial statements don't reflect true and fair view
- Business risk
 - Review of the company's Industry, Regulations and Technology.
 - Operational risk
 - Going concern?



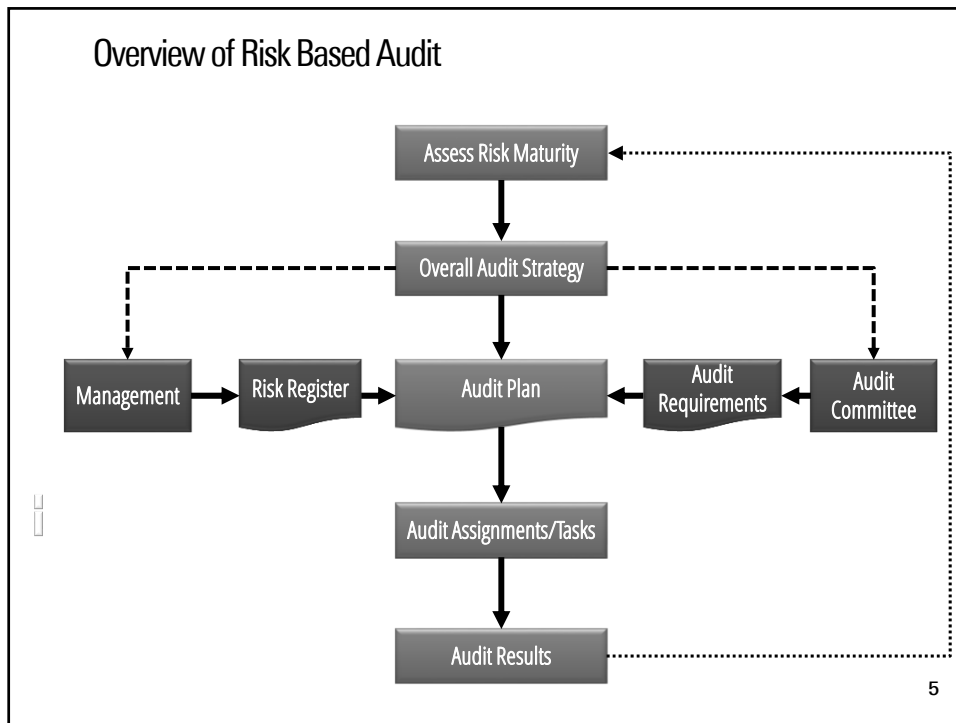
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Stages of Risk Based Audit

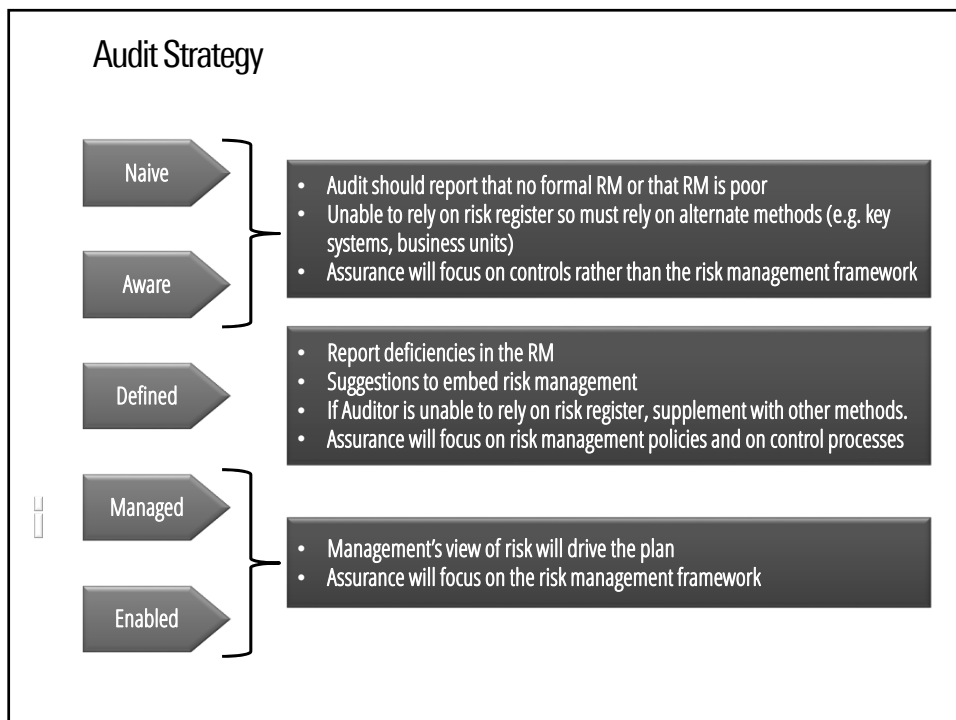
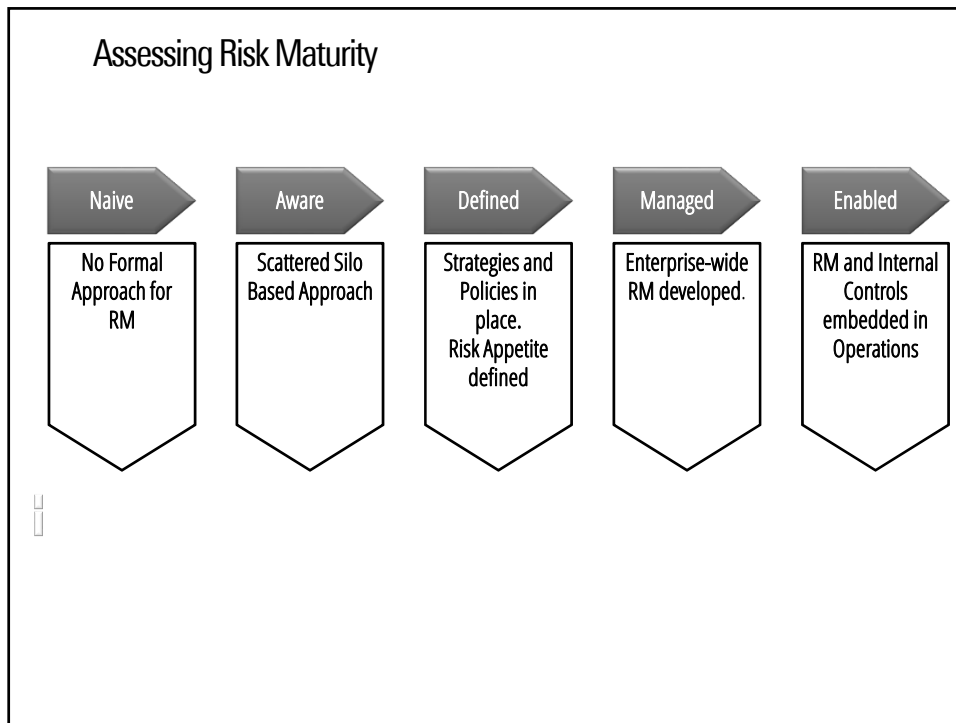
- Assessing Risk Maturity
 - Extent to which management determine, assess, manage and monitor risks
- Audit Plan
 - Identifying and prioritising all those areas on which the board requires objective assurance
 - The management of key risks
 - Recording and reporting of risks
- Individual Audit Assignments/Tasks
 - Risk based assignments to provide assurance on part of the risk management framework



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Risk Control Matrix (Risk Register)

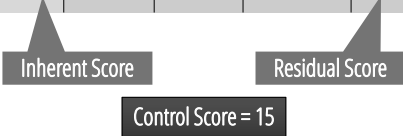
Threat Identification			Risk Evaluation				Risk Control			
Activity / Asset	Threat	Loss	Existing Controls	Severity	Likelihood	RPN*	Additional Controls	Severity	Likelihood	RPN*

RPN=Risk Prioritisation Number

		SEVERITY				
		Critical (5)	Very Serious (4)	Serious (3)	Marginal (2)	Negligible (1)
LIKELIHOOD	Frequent (5)	25	20	15	10	5
	Moderate (4)	20	16	12	8	4
	Occasional (3)	15	12	9	6	3
	Remote (2)	10	8	6	4	2
	Unlikely (1)	5	4	3	2	1

Risk Control Matrix (Risk Register)

Threat Identification			Risk Evaluation				Risk Control			
Activity / Asset	Threat	Loss	Existing Controls	Severity	Likelihood	RPN*	Additional Controls	Severity	Likelihood	RPN*
A	B			5	5	25	C	5	2	10



- A** Purchase of Raw Material
- B** Supplier of Key Raw Material is not able to deliver
- C** 1 Key Raw Material sourced through two suppliers.
2 Additional Stocks to cover two months production. Production Dept. to monitor stocks

Risk Based Audit Plan

Business area or activity	Key risk description	Inherent Risk	Treatment	Monitoring and/or 2 line Assurance	Residual Risk	Responsibility	Date of last audit	Audit Narrative	Plan Allocation
A	B	25	C1	C2	10	D	Ref No.	E	2 Days

- A Purchase of Raw Material
- B Supplier of Key Raw Material is not able to deliver
- C 1 Key Raw Material sourced through two suppliers.
2 Additional Stocks to cover two months production. Production Dept. to monitor stocks
- D Purchasing Manager
- E Auditor to review list of Key RM and presence of two suppliers. And evidence of Prod. Dept monitoring stocks.

Audit Plan

ID	Task	Start	Finish	April								
				2	3	4	5	6	7	8	9	
1	Task 1	2-Apr	5-Apr	█	█	█	█					
2	Task 2	2-Apr	8-Apr	█	█	█	█	█	█			
3	Task 3	5-Apr	9-Apr				█	█	█	█	█	
4	Task 4	9-Apr	9-Apr									█
5	Task 5	2-Apr	9-Apr	█	█	█	█	█	█	█	█	
6	Task 6	5-Apr	6-Apr				█	█				
7	Task 7	6-Apr	9-Apr					█	█	█	█	
8	Task 9	8-Apr	9-Apr									█

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Sampling

- **Statistical Sampling**
 - Objective method of determining the sample size and selection criteria
 - Random and Systematic
- **Non-Statistical Sampling**
 - Subjective method of sampling
 - Judgment and Haphazard
- **Classification**
 - Attribute Sampling - Compliance Testing
 - Variable Sampling - Substantive Testing

Attribute Sampling

- **Attribute Sampling**
 - Estimate the rate (percent) of occurrence of a specific quality (attribute) in a population
- **Stop-or-Go Sampling**
 - Prevent excessive sampling of an attribute by allowing an audit test to be stopped at the earliest possible moment.
- **Discovery Sampling**
 - When expected occurrence rate is extremely low



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Variable Sampling

- **Monetary Unit Sampling**
 - Estimate of overstatement in an account balance.
- **Stratified Mean per unit**
 - Population is divided into groups and samples are drawn from the various groups.
- **Unstratified mean per unit**
 - Sample mean is calculated and projected as an estimated total.
- **Difference estimation**
 - Total difference between audited values and book (unaudited) values based on differences obtained from sample observations.



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Statistical Terms

- **Confidence Coefficient/Level**
 - Probability that the characteristics of the sample are a true representation of the population
 - The greater the confidence coefficient, the larger the sample size.
- **Sampling Risk**
 - 1-CL
- **Precision**
 - Acceptable range difference between the sample and the actual population
 - Auditor's tolerance for exceptions in the sample.
 - Related to the accounting concept of materiality
- **Expected Error Rate**
 - Estimate of the errors that may exist
- **Tolerable Error Rate**
 - Maximum misstatement or number of errors that can exist without an account being materially misstated.

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Computer-Assisted Audit Techniques

- Advantages
 - Reduced level of audit risk
 - Enhanced sampling
 - Greater independence from the auditee
 - Broader and more consistent audit coverage
 - Faster availability of information
 - Improved exception identification
 - Greater opportunity to quantify internal control weaknesses



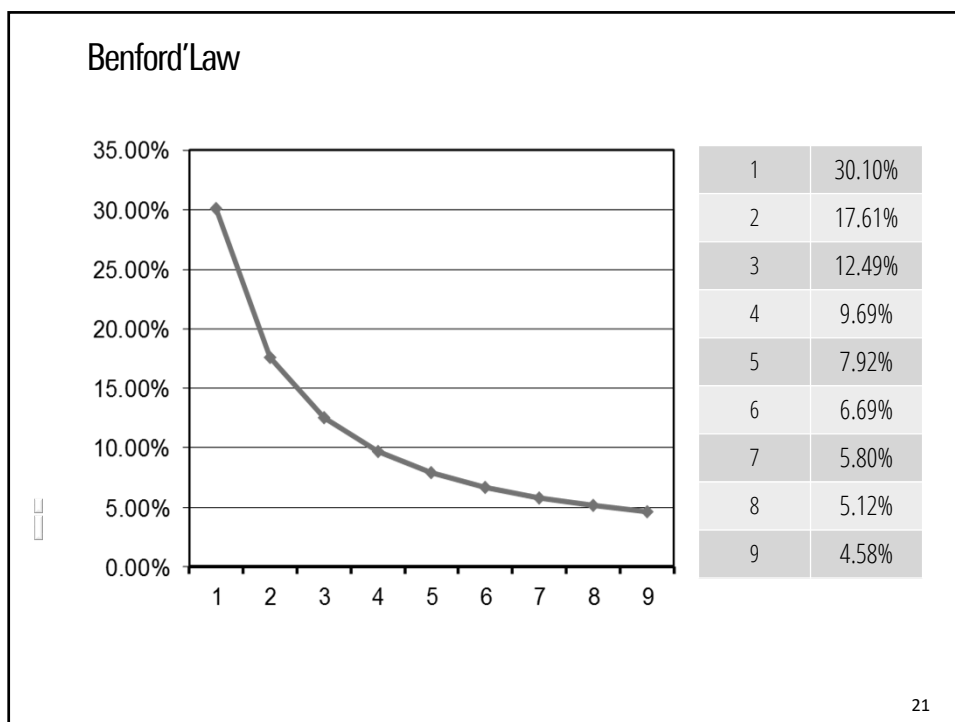
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Typical Operations of CAAT

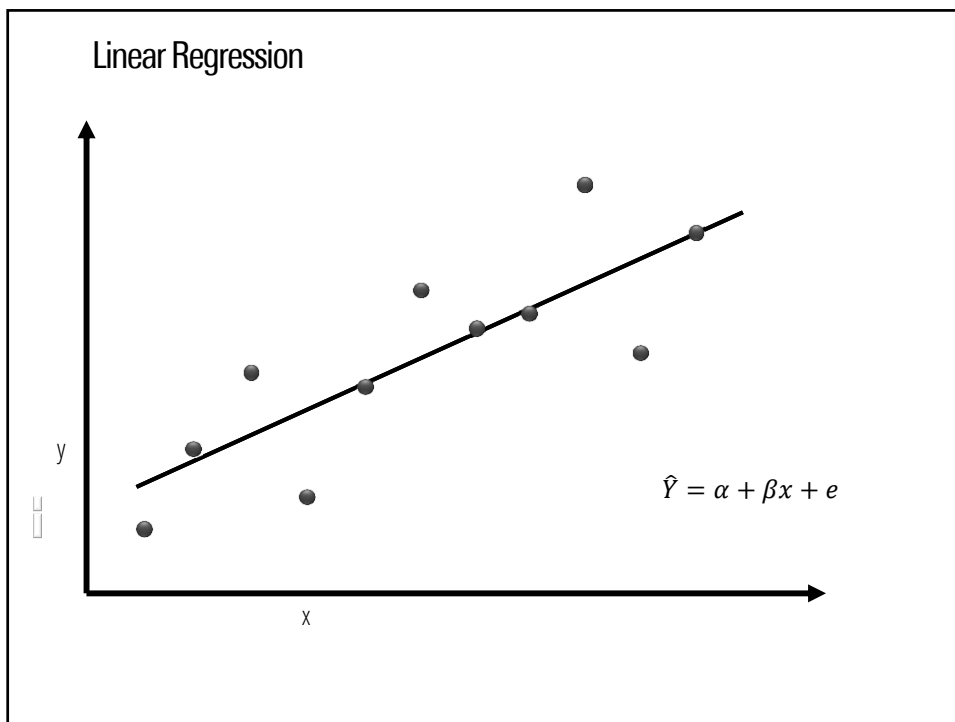
- Viewing and Extracting Data
 - Sampling
 - Filter/Display Criteria
 - Sort/Index
 - Stratification
 - Summarization
- Basic Analysis
 - Aging
 - Gaps
 - Duplicates
- Advanced Analysis
 - Trend Analysis
 - Regression Analysis
 - Benford's Law



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- ### Conditions
- The data must represent the size of similar phenomena.
 - The numbers should be free of artificial limits and allowed to take any value naturally.
 - The numbers in the dataset should not be deliberately assigned.
 - The data should not consist of numbers that are influenced by human thought
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Linear Regression

- Analytical Review Procedures**
 - Evaluations of financial information through analysis of plausible relationships among both financial and non-financial data
 - Trend Analysis
 - Ratio Analysis
 - Reasonableness Testing

- Sanity Check**

Inventory to sales
Week: 30 : 2.23

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Discriminant Analysis

- Identify the variables that discriminate the outcome variable
- Discriminant function
 - Linear combination of the predictors that best characterizes the differences among the groups
 - Rule to predict group membership
- Objective of DA
 - Build linear function(s) of multiple X variables to discriminate between groups and make predictions



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Discriminant Analysis

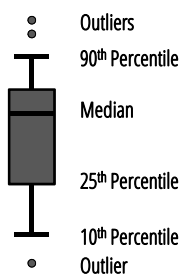
- Audit & Finance
 - Altman's Z-Score model has a 70%-80% reliability
 - $Z = 1.2T1 + 1.4T2 + 3.3T3 + 0.6T4 + .999T5$
 - $T1 = \text{Working Capital} / \text{Total Assets}$
 - $T2 = \text{Retained Earnings} / \text{Total Assets}$
 - $T3 = \text{Earnings Before Interest and Taxes} / \text{Total Assets}$
 - $T4 = \text{Market Value of Equity} / \text{Total Liabilities}$
 - $T5 = \text{Sales} / \text{Total Assets}$
 - Z Score Bankruptcy Model:
 - $Z > 2.99$ - "Safe" Zones
 - $Z < 1.81$ - "Distress" Zones



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Anomaly(Outlier) Detection

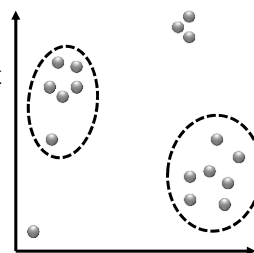
- Data objects with behaviors that are very different from expectation.
- Applications
 - Fraud detection, industry damage detection, sensor/video network surveillance, and intrusion detection.



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Types of Outliers

- Global Outliers
 - Deviates significantly from the rest of the data set
 - Intrusion detection in computer networks
 - Trading transaction auditing systems
- Contextual Outliers
 - Outlier depends on the context (date, location, etc.)
 - Conditional outliers
- Collective Outliers
 - When data objects as a whole deviate significantly from the entire data set. The individual data objects may not be outliers



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Conclusion

- Risk Based Audit
 - Risk Assessment before Audit Plan

- Audit Risk
 - Reduced through Sampling
 - CAAT, Analytical Review Procedures



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THANK YOU

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