

# Forward Looking Aspect of Stress Testing

Cem OKAT, FRM  
Ziraat Bank



*Disclaimer: The views expressed are those of the presenter and do not necessarily reflect those of the Ziraat Bank.*

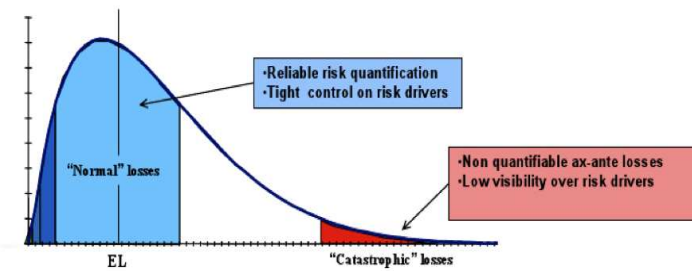
# Categories of Stress Tests

---

- **Sensitivity Analysis** (*large shift in one factor*) vs. **Scenario Analysis** (*simultaneous large shifts in multiple factors*)
- **Historical Scenario** (*actual event, crises period, ...*) vs. **Hypothetical Scenario** (*plausible, relevant, ...*)
- **Portfolio Driven** (*mortgage, foreign trade, ...*) vs. **Event Driven** (*event independent of portfolio*)
- **Market Event** (*interest rate, credit spread, FX, ...*) vs. **Macroeconomic Event** (*CCAR, DFAST, ...*)
- **Worst Case Event** (*adverse regulatory change, geopolitical, ...*) vs. **Reverse Scenario** (*gone concern, backward induction*)

# Some Features of Stress Testing

improves tail risk management



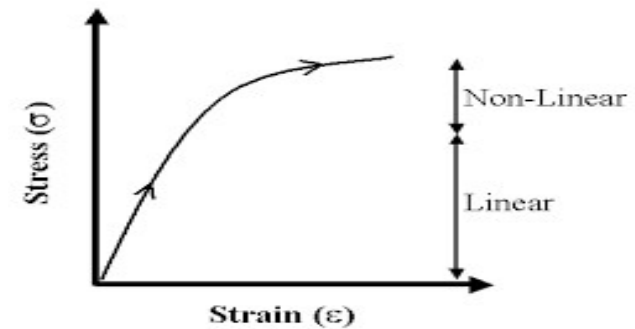
takes the correlation breakdown during crisis into account



is part of the optimization process in risk management



estimates non-linear behaviour of risk factors



# Benefits of Forward Looking Approach (FLA)

---

## for Regulators

FLA improves **macroprudential policies**.

Unlike backward looking, forward looking helps to **decrease the systematic risk**.

FLA increases the accuracy of **early warning systems**.

## for Directors

FLA increases the efficiency of **strategic decision process** of BoD.

FLA prepares the institution for future adverse events with the help of **Action Plans/Recovery Plans**.

FLA creates **some reserve area** to BoD/Top Management at adverse economic conditions.

## for Risk Managers

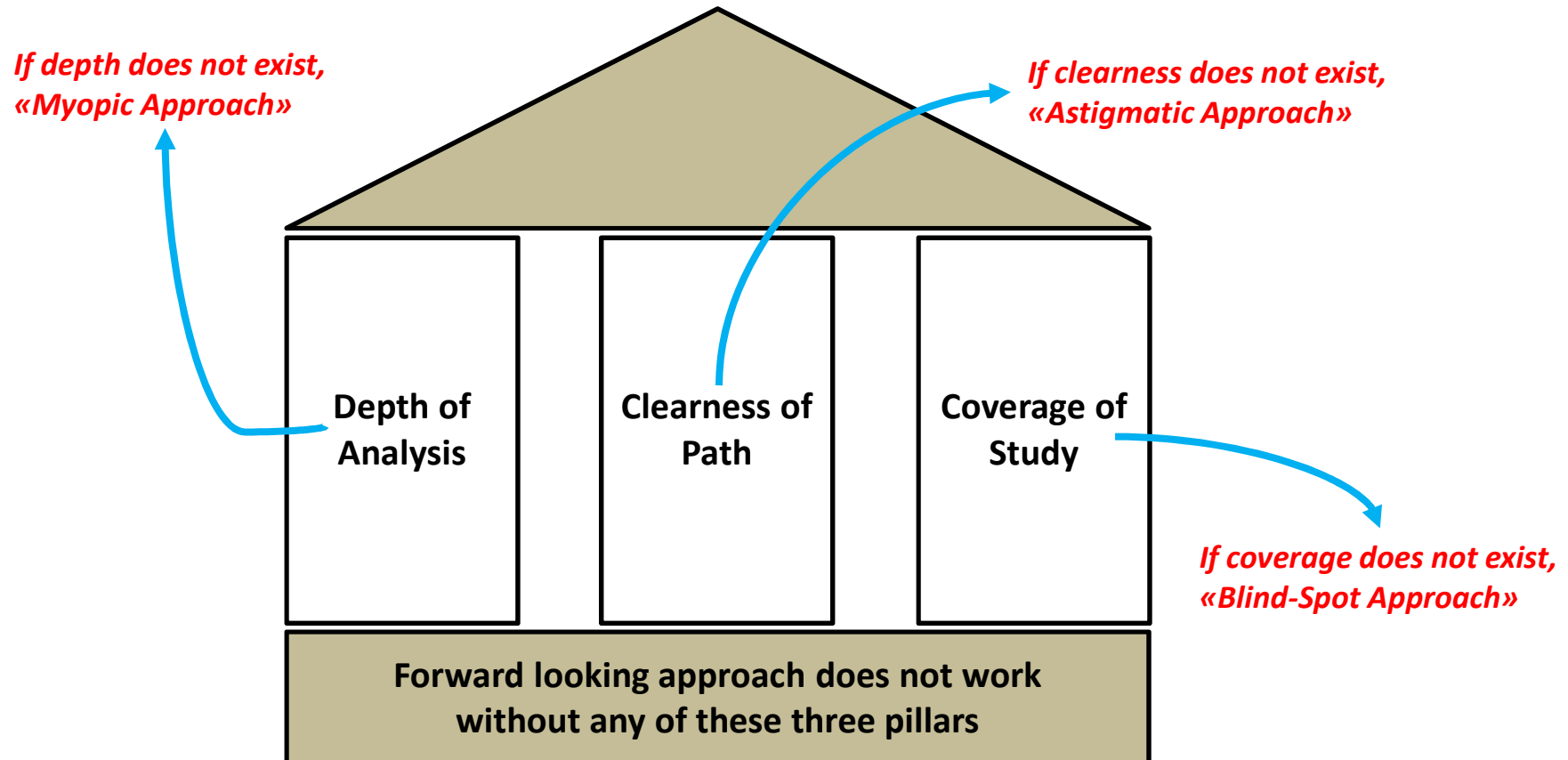
FLA decreases the volatility of **KPIs and KRIs**.

Model calibration process includes **adjustment** due to change in forward looking expectations.

FLA improves the **accuracy of financial models**.

# Pillars of Forward Looking Approach

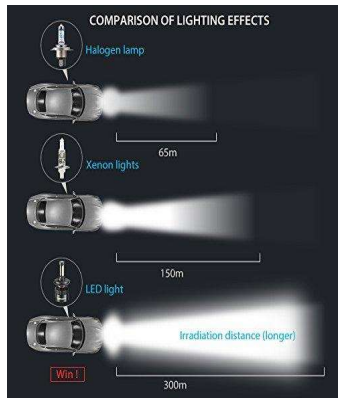
---



# Pillars of Forward Looking Approach

---

## Depth



*High Beam vs. Low Beam*

Maturity Horizon  
Stress Period  
Survival Analysis

## Clearness



*Led Beam vs. Halogen Beam*

Volatility Modelling  
Solid Assumptions  
Concrete Results

## Coverage



*Holistic vs. Atomistic*

Holistic View  
Risk Mind-Set  
Different Risk Types

# Problems in Stress Testing

---

**Main Difficulty:** Since banks are big players in the economy, their decisions effect the entire economic system. Therefore, any stress test must take the effect of banks' own decisions on the economy into account.

SOME OTHER DIFFICULTIES	EXAMPLE	TO OVERCOME
Lots of Parameters	Macroeconomic / Market Based Internal / External Quantifiable / Nonquantifiable	Big Data Applications Expert Judgement Past Experiences
Correlation Between Risk Factors	Correlation Breakdown Increase in Wrong Way Risks	Extreme Value Theory XVA Modelling MoC
Interaction Between Risk Types	Credit / Liquidity Market / Credit	Integrated Analytical / Business Platforms
Uncontrollable Factors	Random Walk Phenomenon Systematic Risk Variables	Stochastic Modelling Processes
Model Risk	Mark-to-Model Overestimation / Underestimation	Calibration Frequency Make the Framework Updated MoC

# Future of Stress Testing

---

**OLDIES**

*Analytical Approaches  
Parametric Methods  
Iterative Processes*

**TODAY**

*Simulation-Based Methods  
Big Data Applications  
Optimization Processes*

**NEXT  
GENERATION**

*Digitalization  
Automation in Data Management  
AI Technology and Machine Learning*



**Thank you**

**Cem OKAT, FRM**