

SAS[®] GLOBAL FORUM 2019

USERS PROGRAM

APRIL 28 - MAY 1, 2019 | DALLAS, TX





Boaz Galinson

VP, Credit Model Risk Management, Leumi Bank

Mr. Galinson has 20 years of experience in risk management (Credit and Market Risk) for Leumi and for the Central Bank of Israel.

Boaz speaks frequently at professional risk conferences and lectures in the Executive MBA programs (including Kellogg) in Tel -Aviv University.

He holds MBA degree in Finance and B.Sc degree in Mathematics.

Outline

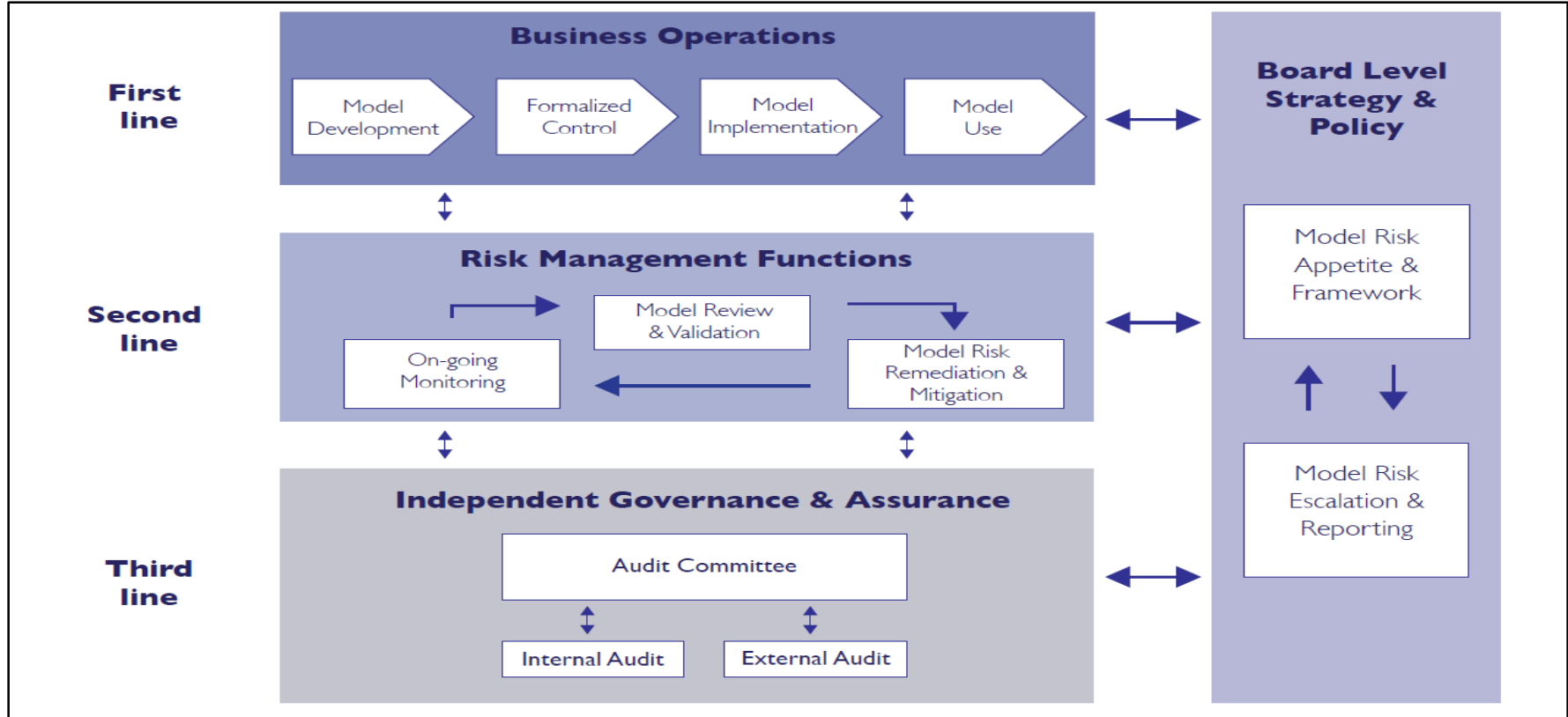
Model Risk Management and Corporate Governance of Models with SAS®

- **MRM -Four Lines of Defense.**
- Corporate Governance of Models - Our Story!
- What's next in Leumi MRM?
- MRM Project Architecture with SAS®
- Wrap up and Q&A

Disclaimer

This presentation presents the point of view of its author, which may differ from Leumi's. It supports an oral presentation and is incomplete without it. The information is supplied in summary form and is therefore not necessarily complete.

Stake Holders & Four Lines of MRM Defense



Courtesy: Chartis Research Ltd 2014.

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The MRM Committee is headed by the CRO.

Responsibilities:

- To periodically review the group model quality.
- To approve and monitor the **model group work plan** including setting handling priority and resources allocation.
- To grant approval for transferring significant models for production.
- To receive reporting for transferring non significant models for production.
- To discuss and make decisions when there is disagreement between the developer and the validator.
- To act when models deteriorate.
- To report to the BoD on significant models.
- To examine relevant changes of regulations.

Outline

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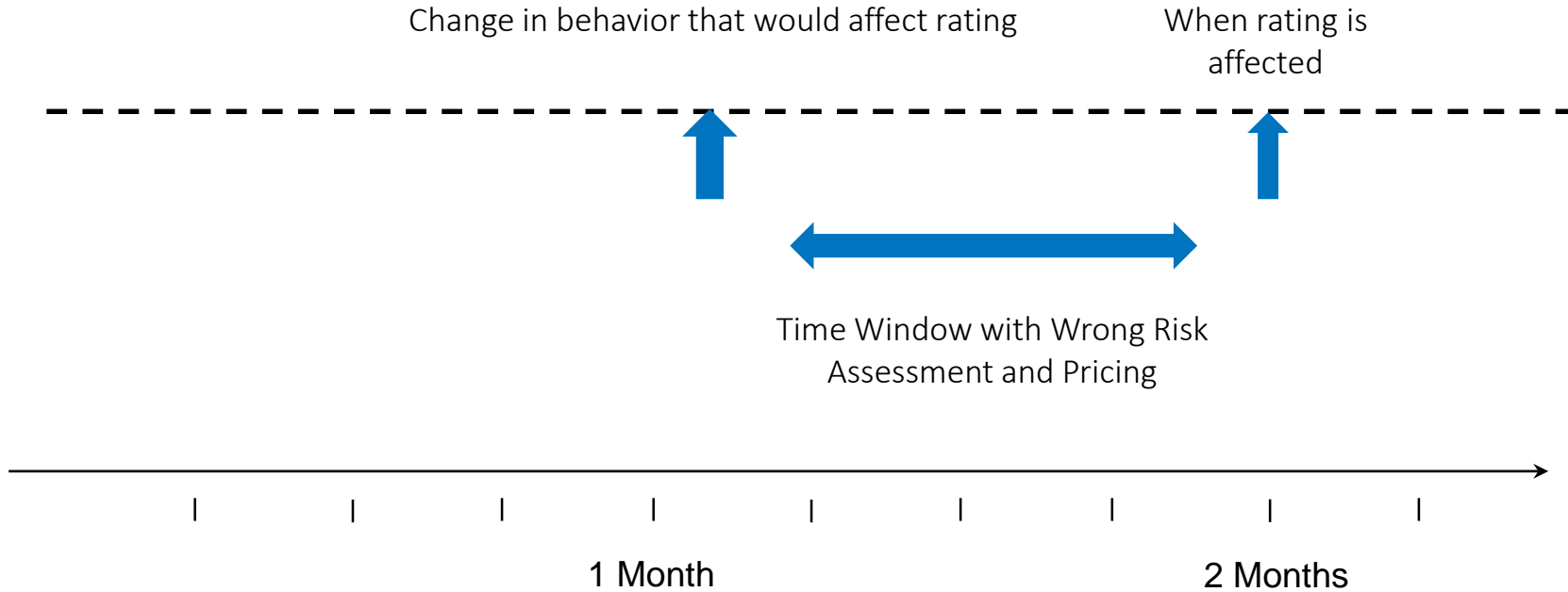
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What's Next?

1. Improving the SLA of building a model, validating and documenting.

What's Next?

2. Real Time Data and Real Time Model Decision Making.



What's Next?

3. MRM for all types of models.

How to validate ML/AI models?

“Machine learning gives computers the ability to learn without being explicitly programmed.”

Arthur Samuel

Traditional:	DATA Algorithm/program ->output
ML/AI:	DATA Output ->Algorithm/program

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Mitigating the Model Risk with SAS

#SASGF

MRM/Dashboard for
Models

Model
Monitoring

Model
Manager

Dynamic
ABT

SAS
VA

SAS Detail Data Store-
Credit data mart

Enhanced Model
Monitoring

Enhancing
Corporate
governance

Automated
validation

Quick
Model Deployment

Automated
documentation

Revealing new
relationships

Flexibility in
model
development

Automated
Documentation

Single Version of the Truth
Synchronized, Consistent, Competence

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Wrap up

- The use of models will increase (Digital Banks, Big Data, IOT).
- Decisions can be made by models without human intervention.
- Risk has been shifted to models. The cost of error may be huge.
- Strong corporate governance of models is crucial.
- Advance tools for models (Dynamic ABT, Model Monitoring & Manager, RTDM, MRM, SAS VA, SAS in Memory) are essential to develop, validate, monitor, deploy and reduce model risk.
- What's Next?
 - Real time scoring & Better SLA in the model life cycle.

Thank you!

Contact Information
boaz.galinson@bankleumi.co.il

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