

# Market Risk Control

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Group Head of Market Risk*

# Key messages

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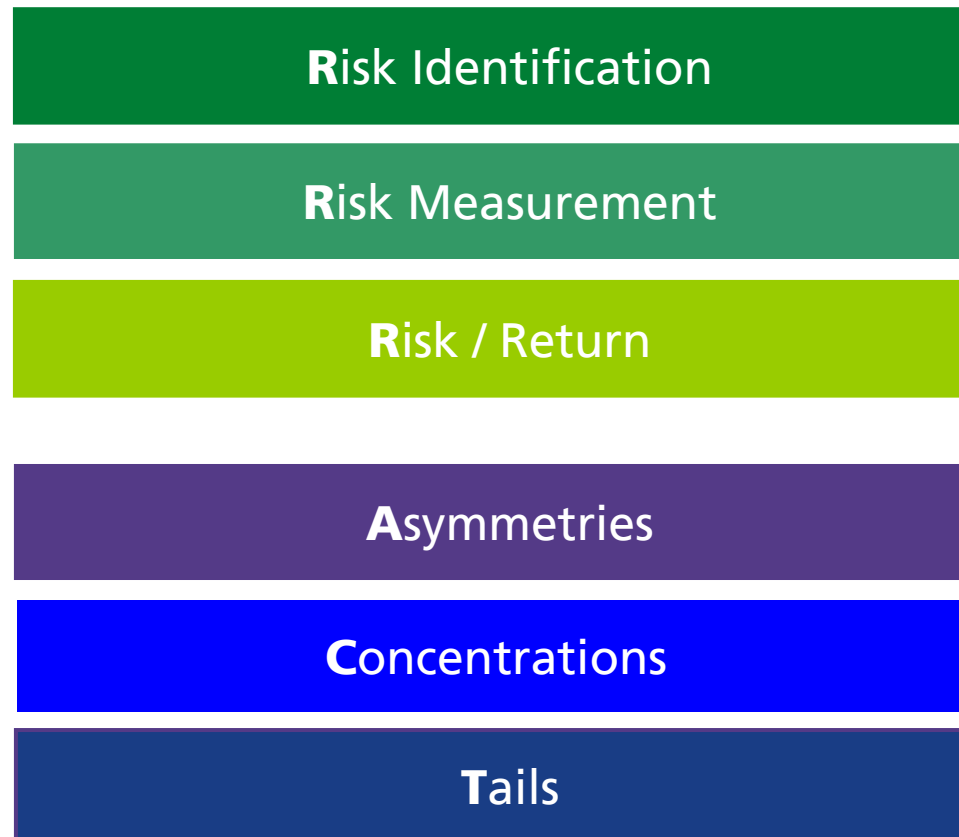
## **Strong risk management and control culture**

- ◆ Comprehensive framework of market risk controls
- ◆ Highly qualified risk control staff
- ◆ Not easy to compare risk measures across firms

# Philosophy of Market Risk Control

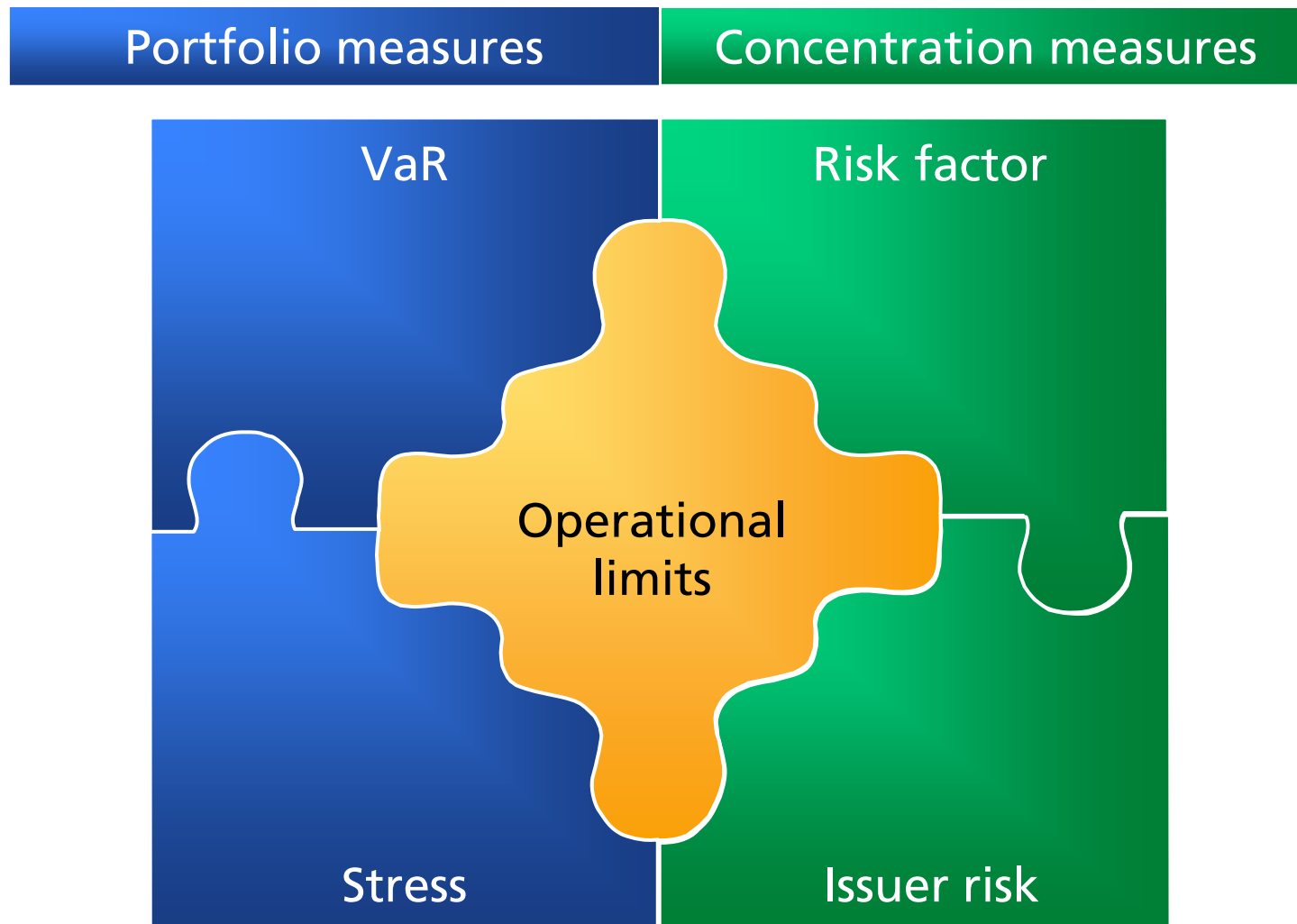
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## A sound foundation:



# Market Risk measurement and limits

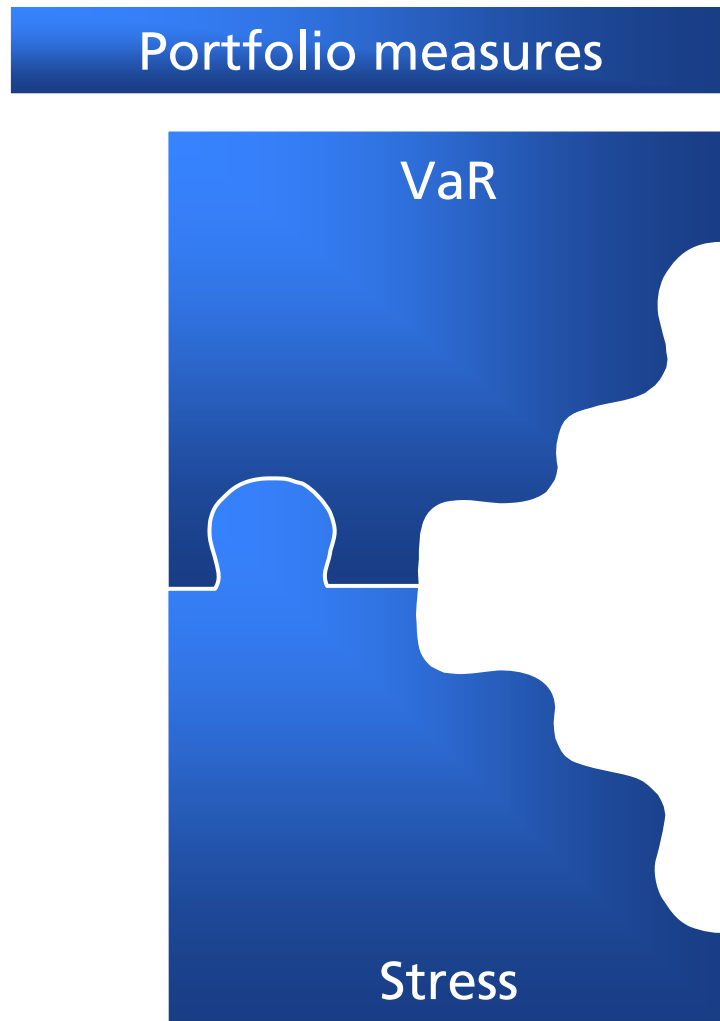
## Comprehensive framework of market risk controls



# Portfolio risk measures

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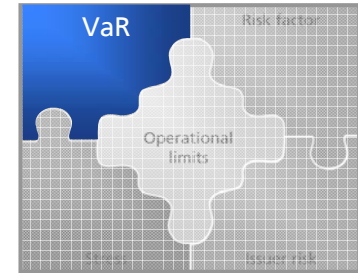
## VaR and Stress



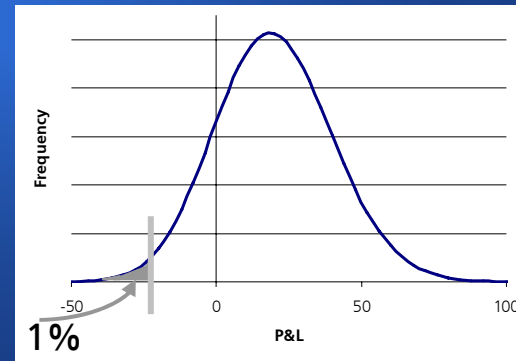
Note: these are both **net** risk measures

# Value at Risk: Internal & regulatory measure

## What is VaR?



Statistical estimate of the worst expected loss over a given horizon at a given confidence level



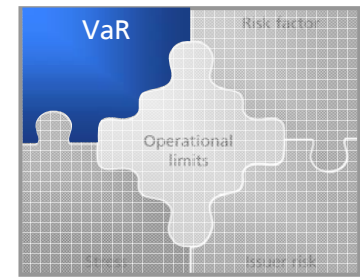
Internal

External

Regulatory

# Value at Risk at UBS

## Historical simulation



**Positions – full risk slides**

price

**5-yr historical price series**

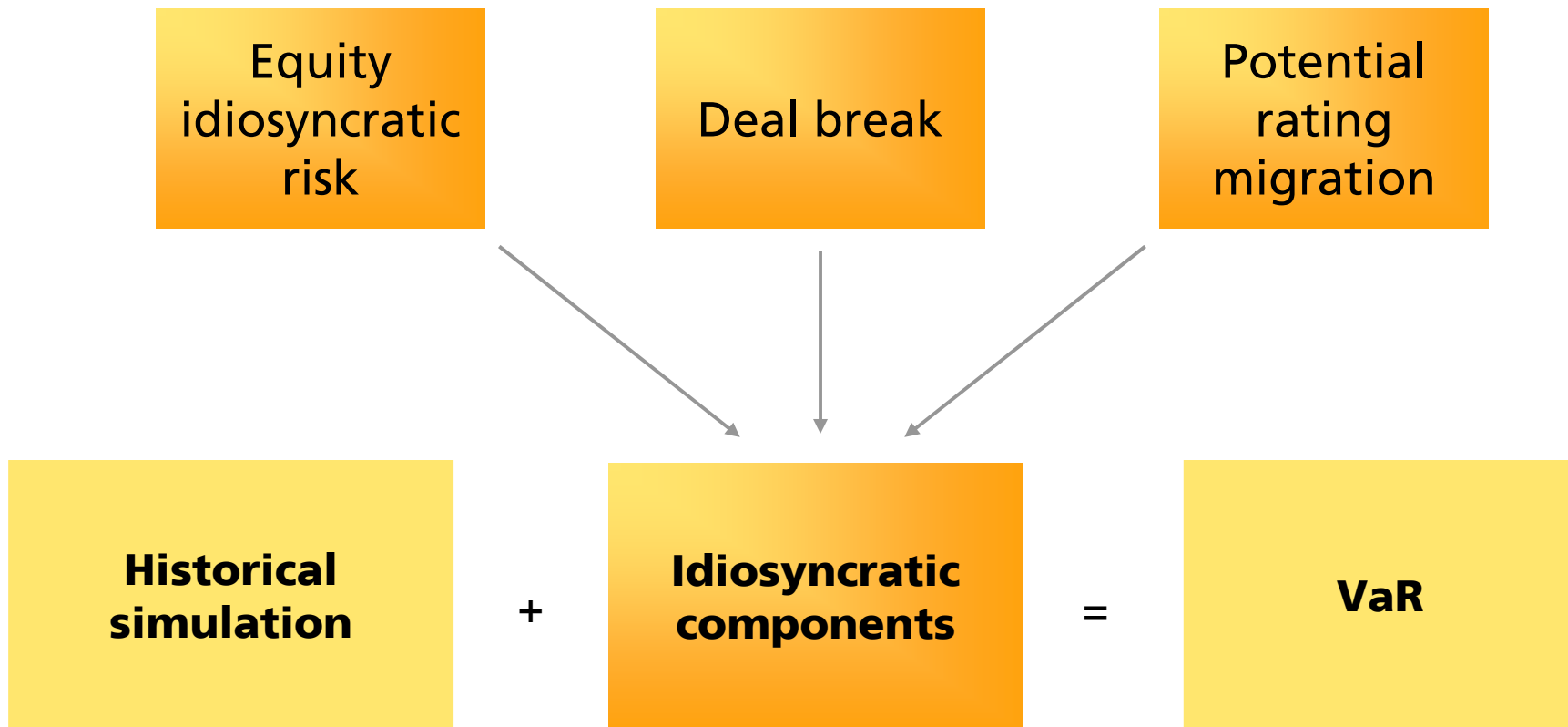
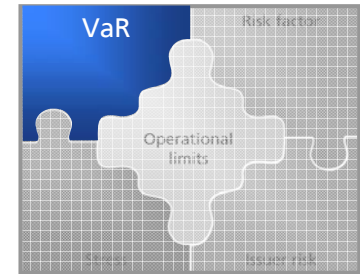
- over 9000 series of prices and volatilities

**Historical simulation**

- 5 yrs historical daily data
- 10 day horizon
- 99% confidence level

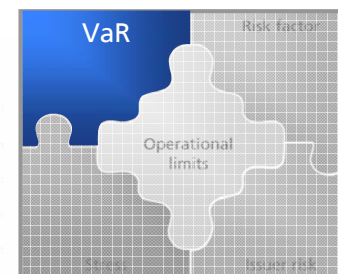
# Value at Risk at UBS

## Idiosyncratic components





# UBS VaR disclosure



## UBS: Value at Risk (10-day, 99% confidence, 5 years of historical data)

CHF million	Limits	Quarter ended 31.3.07				Quarter ended 31.12.06			
		Min.	Max.	Average	31.3.07	Min.	Max.	Average	31.12.06
<b>Business Groups</b>									
Investment Bank <sup>1,2</sup>	775	416	674	517	582	331	493	391	473
Global Asset Management <sup>3</sup>	30	3	10	7	3	9	13	10	10
Global Wealth Management & Business Banking	25	3	5	4	3	4	10	7	5
Corporate Center	100	20	41	32	24	25	43	34	27
Diversification effect		<sup>4</sup>	<sup>4</sup>	(45)	(48)	<sup>4</sup>	<sup>4</sup>	(47)	(52)
<b>Total</b>	850	407	686	516	564	336	491	395	464

<sup>1</sup> Includes risk managed by Dillon Read Capital Management. <sup>2</sup> Includes Pactual from 1 December 2006. <sup>3</sup> Only covers UBS positions in alternative and quantitative investments. During first quarter 2007 seed money and co-investments in these funds were reclassified as financial investments and they are no longer included in reported VaR. <sup>4</sup> As the minimum and maximum occur on different days for different Business Groups, it is not meaningful to calculate a portfolio diversification effect.

## Investment Bank: Value at Risk (10-day, 99% confidence, 5 years of historical data)

CHF million	Quarter ended 31.3.07				Quarter ended 31.12.06				
	Min.	Max.	Average	31.3.07	Min.	Max.	Average	31.12.06	
<b>Risk type</b>									
Equities	154	306	218	216	154	234	176	232	
Interest rates	367	574	443	474	323	516	406	405	
Foreign exchange	15	73	33	39	19	64	31	40	
Energy, metals and commodities	32	83	49	43	28	59	40	44	
Diversification effect		<sup>1</sup>	<sup>1</sup>	(225)	(191)	<sup>1</sup>	<sup>1</sup>	(262)	(248)
<b>Total</b>	416	674	517	582	331	493	391	473	

<sup>1</sup> As the minimum and maximum occur on different days for different risk types, it is not meaningful to calculate a portfolio diversification effect.

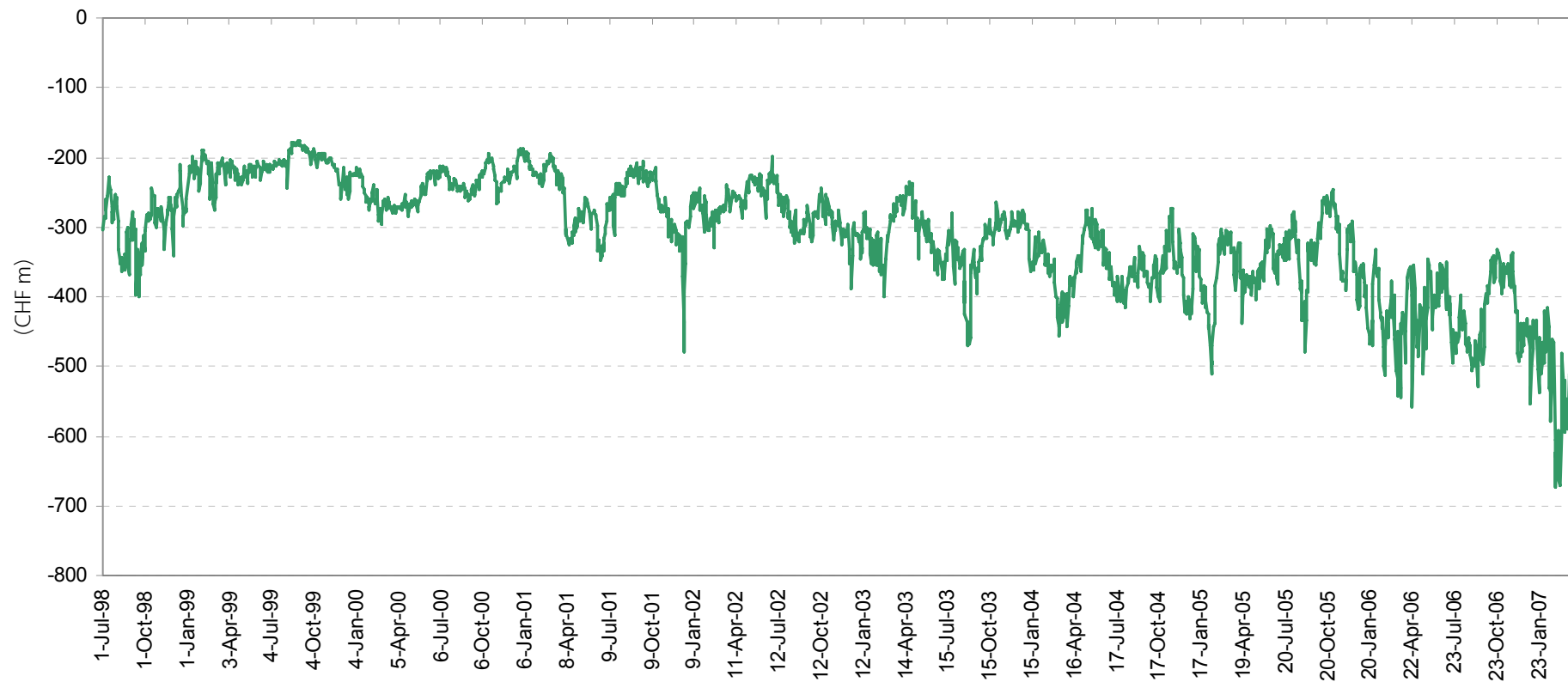
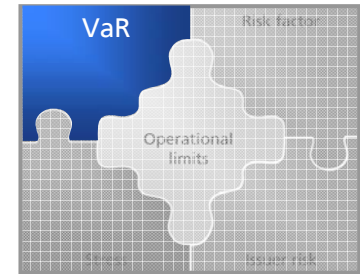
## UBS: Value at Risk (1-day, 99% confidence, 5 years of historical data)<sup>1</sup>

CHF million	Quarter ended 31.3.07				Quarter ended 31.12.06			
	Min.	Max.	Average	31.3.07	Min.	Max.	Average	31.12.06
Investment Bank <sup>2</sup>	141	253	183	206	129	185	150	160
<b>UBS</b>	145	254	184	206	131	191	151	162

<sup>1</sup> 10-day and 1-day VaR results are separately calculated from underlying positions and historical market moves. They cannot be inferred from each other. <sup>2</sup> Positions in the Investment Bank subject to market risk regulatory capital contributed average VaR of CHF 178 million in first quarter 2007 and CHF 149 million in fourth quarter 2006.

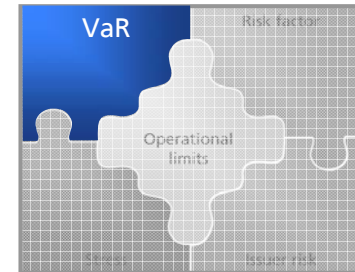
# Value at Risk - A long term view

## 10-day 99% confidence VaR



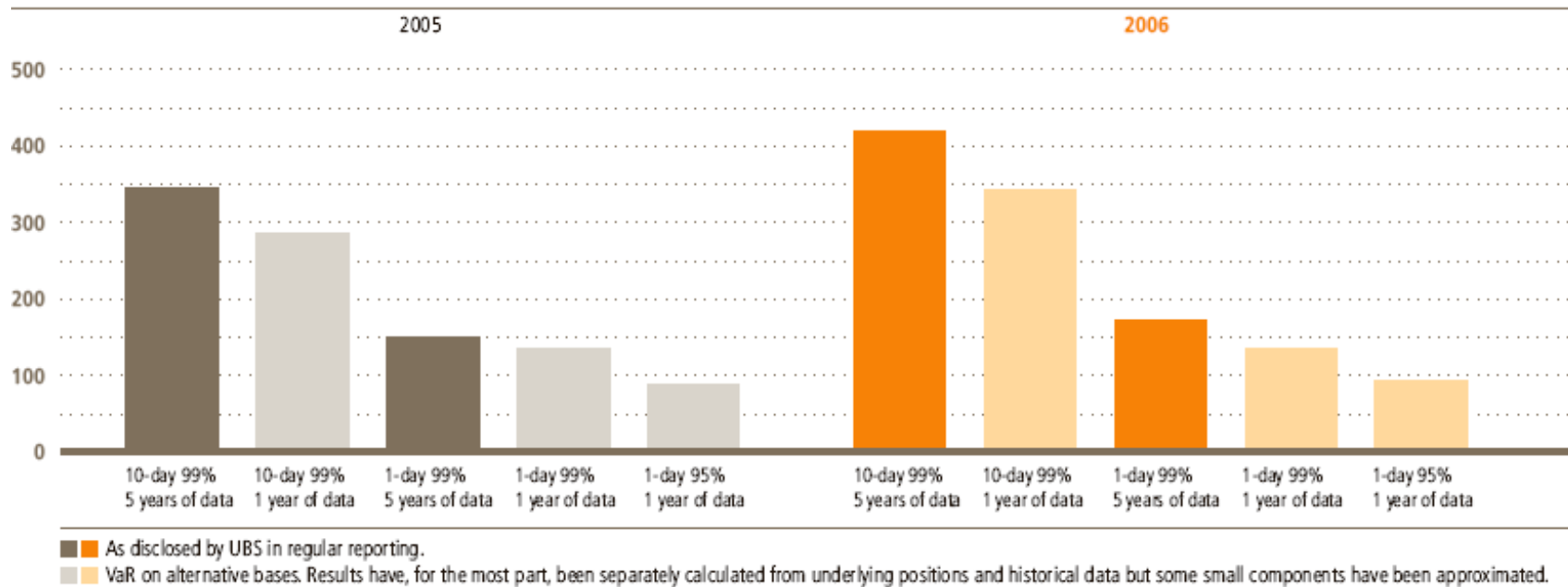
# Value at Risk

## Comparability of VaR numbers



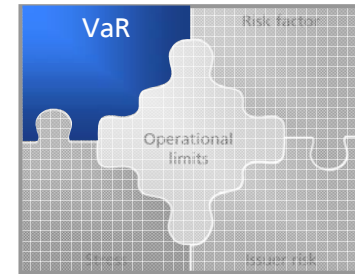
### Investment Bank: VaR on various bases

CHF million

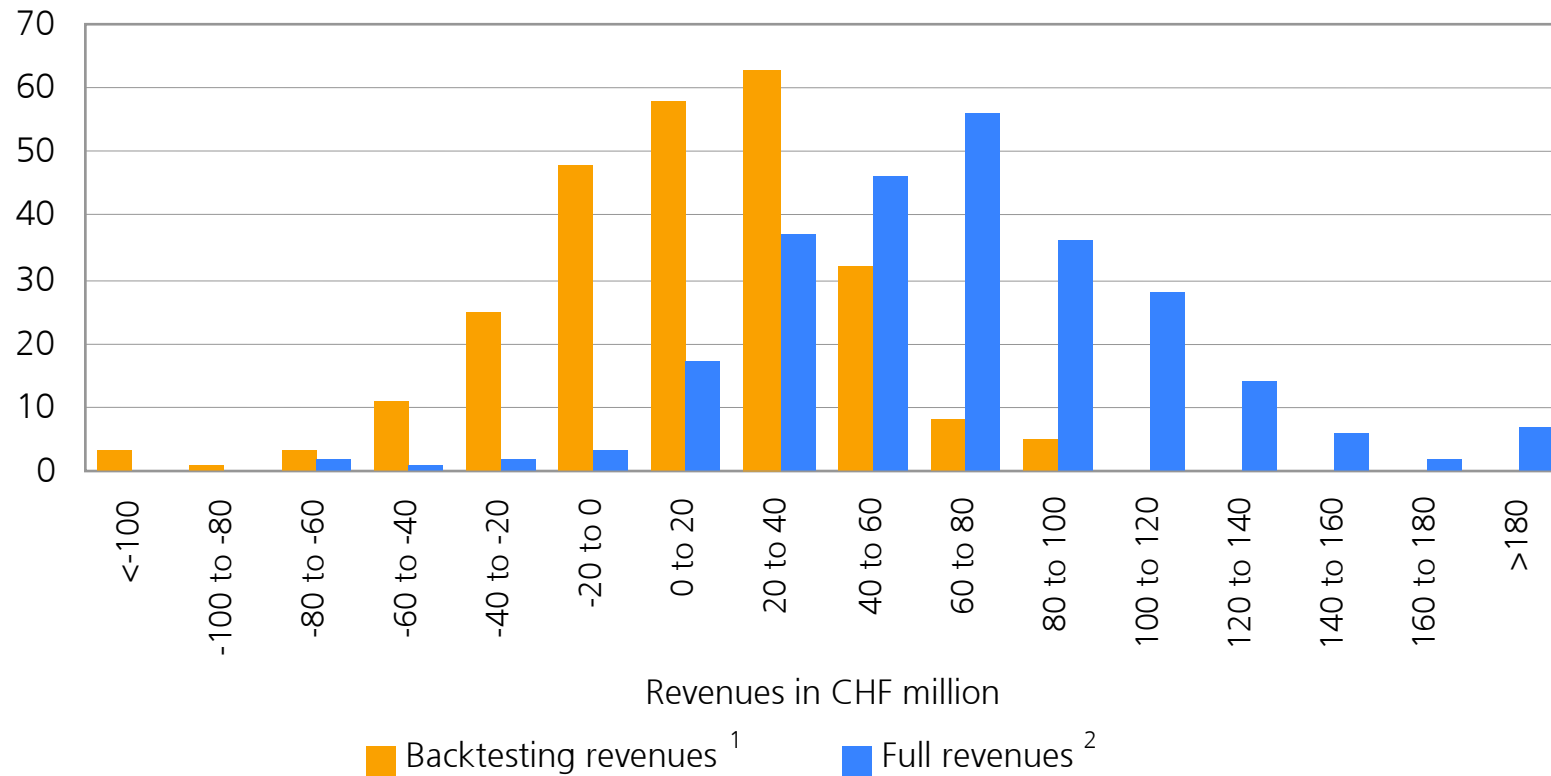


# Value at Risk

## Investment Bank: revenue distribution 2006



Frequency in number of days



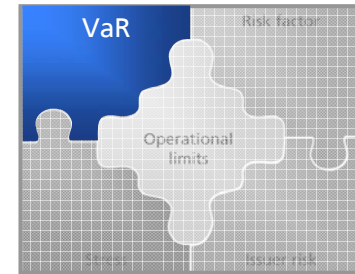
Source: management accounts

- 1 Backtesting revenues exclude non-trading revenues, such as commissions and fees, and revenue from intra-day trading
- 2 Full revenues include all revenues from business areas which have trading activities

# Value at Risk

## UBS VaR history

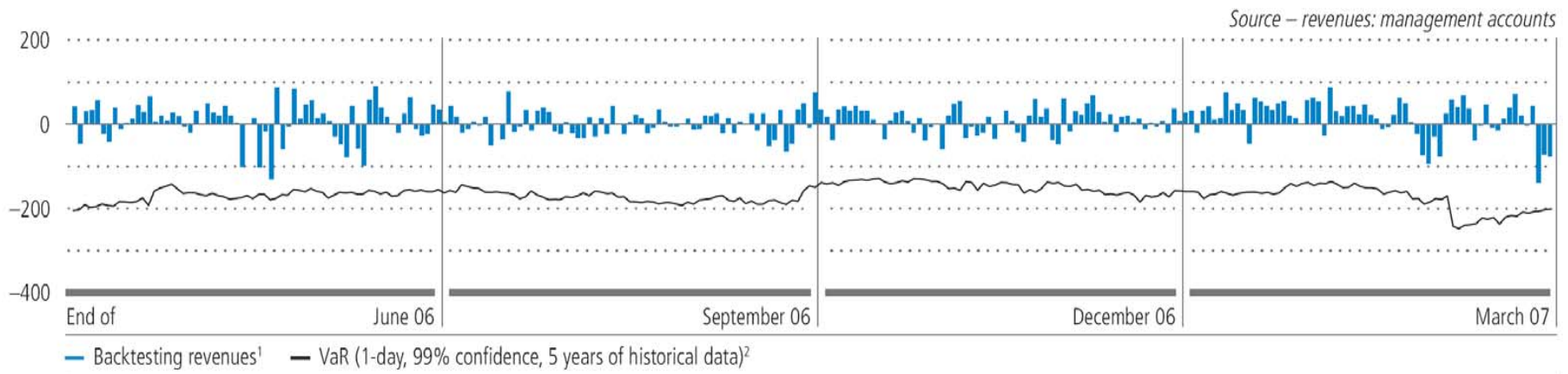
This graph shows the 1-day 99% VaR, and the comparable backtesting revenues over 1 year to 30<sup>th</sup> March 2007



### UBS Investment Bank: backtesting revenues and VaR

CHF million

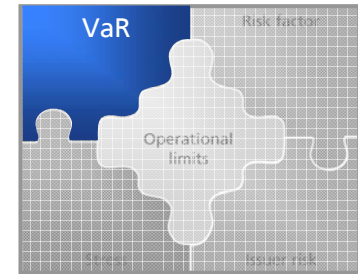
3 April 2006 – 30 March 2007



<sup>1</sup> Excludes non-trading revenues, such as commissions and fees, and revenues from intra-day trading. <sup>2</sup> Only includes positions subject to market risk regulatory capital.

# VaR summary

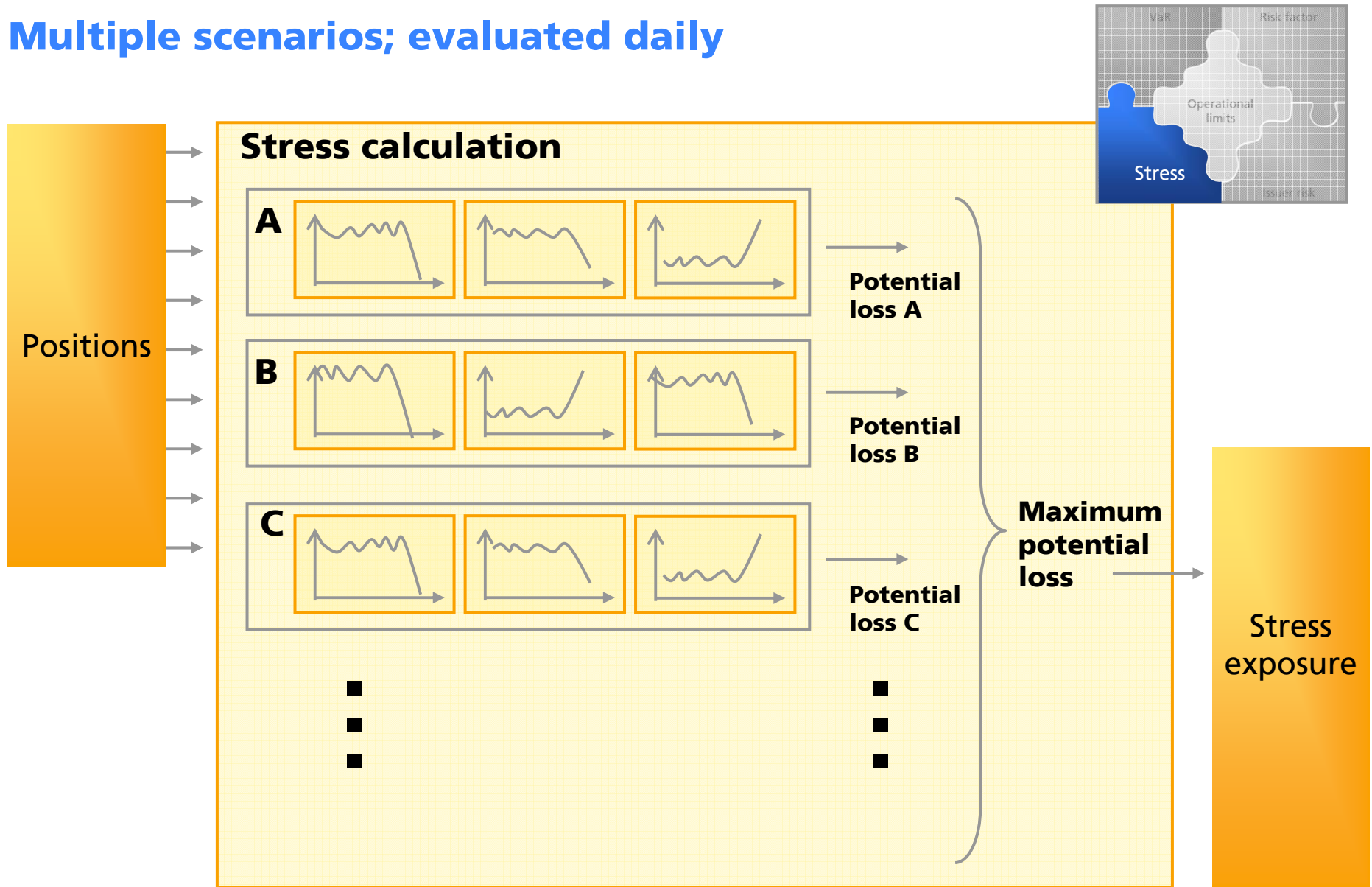
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- ◆ Robust process based on 5 years of history
- ◆ Add-ons make it conservative in a statistical sense
- ◆ Difficult to compare even with alternative calculations
- ◆ Backtesting revenues are disclosed

# Stress

## Multiple scenarios; evaluated daily



# Stress testing framework

## Types of stress test



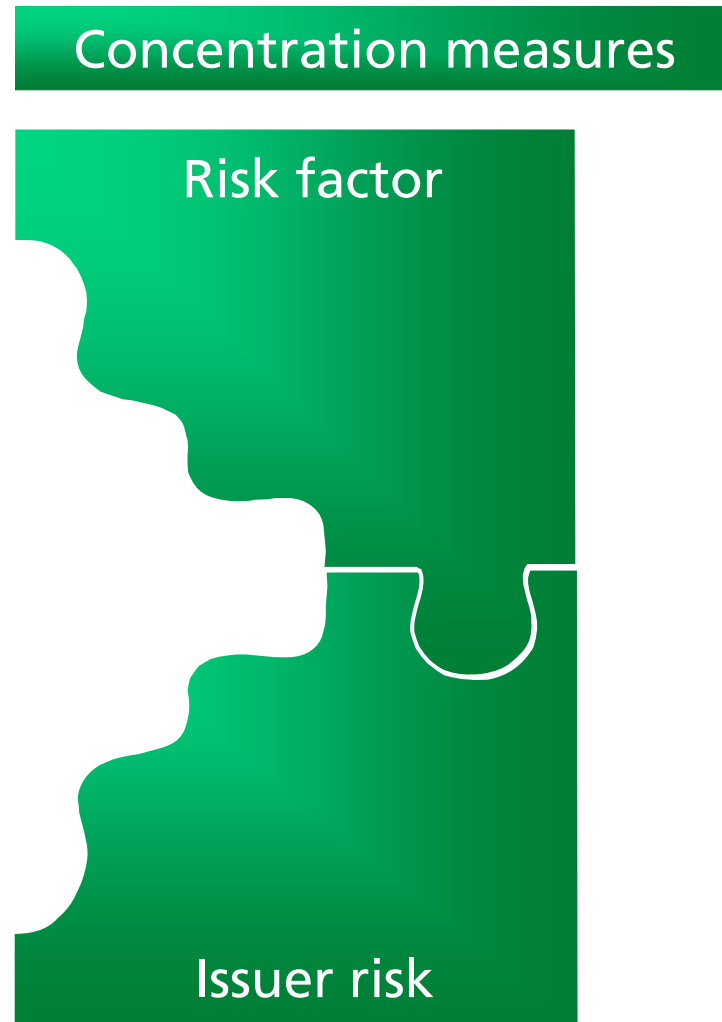
	For LIMITS	For INFORMATION
CORPORATE level	Standard scenarios	Additional standard scenarios
BUSINESS level	Specialised scenarios	Ad-hoc scenarios



# Concentration measures

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## Risk factor limits and issuer risk controls



# Risk factor limits

## Focus on managing and controlling concentration



### Risk factor limits

Limits applied at the level of the individual market variable or group of correlated variables, e.g.

US equity market level

Oil price

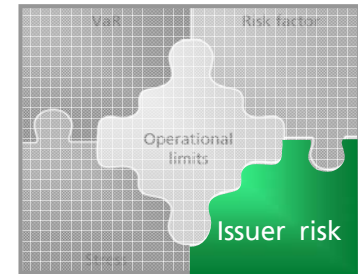
Exchange rates

UK interest rates

Credit spreads

# Issuer risk

## Focus on managing and controlling concentration



### Issuer risk controls

Controls applied to the potential loss from an event affecting a single issuing entity

Entities

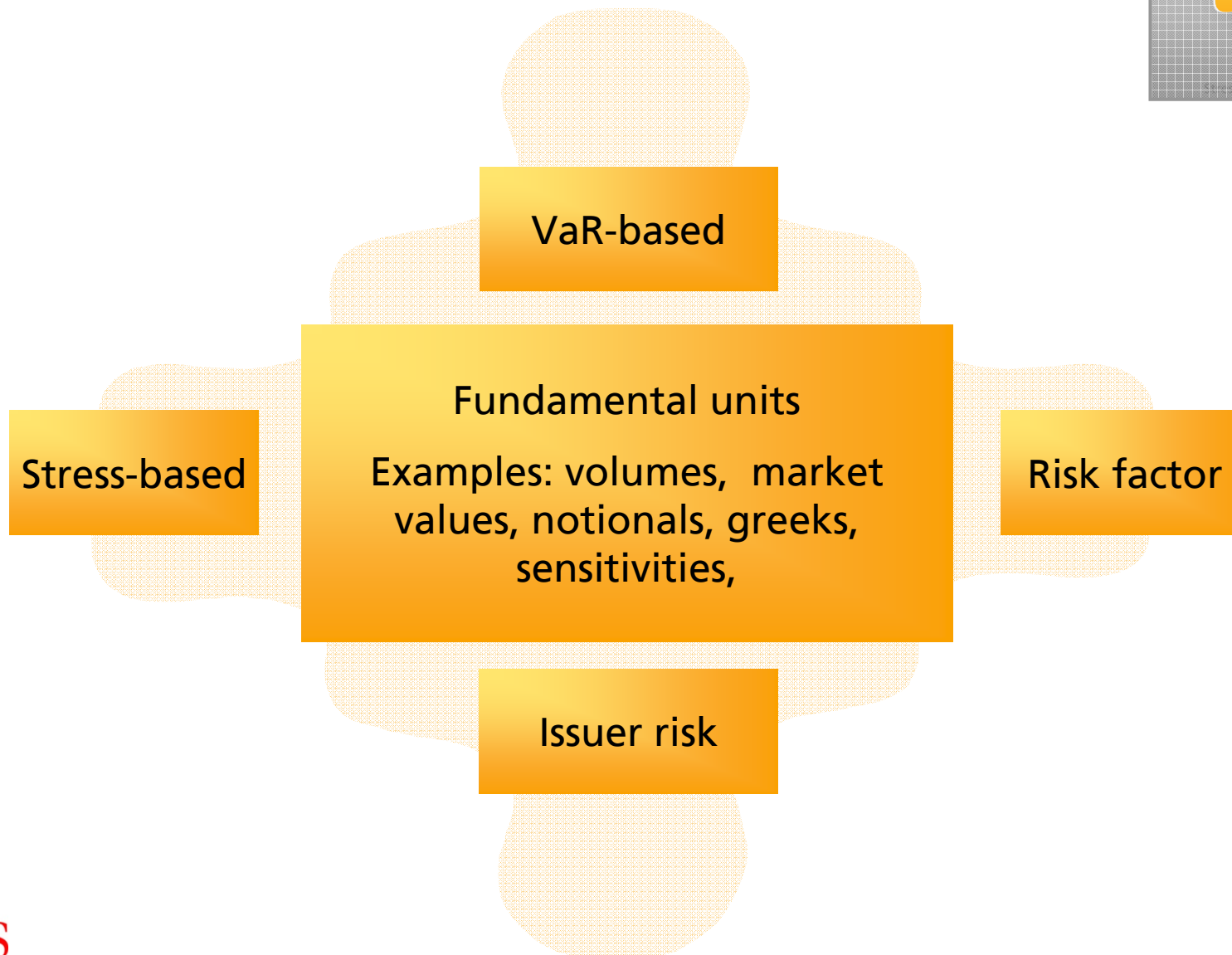
Families

Industries

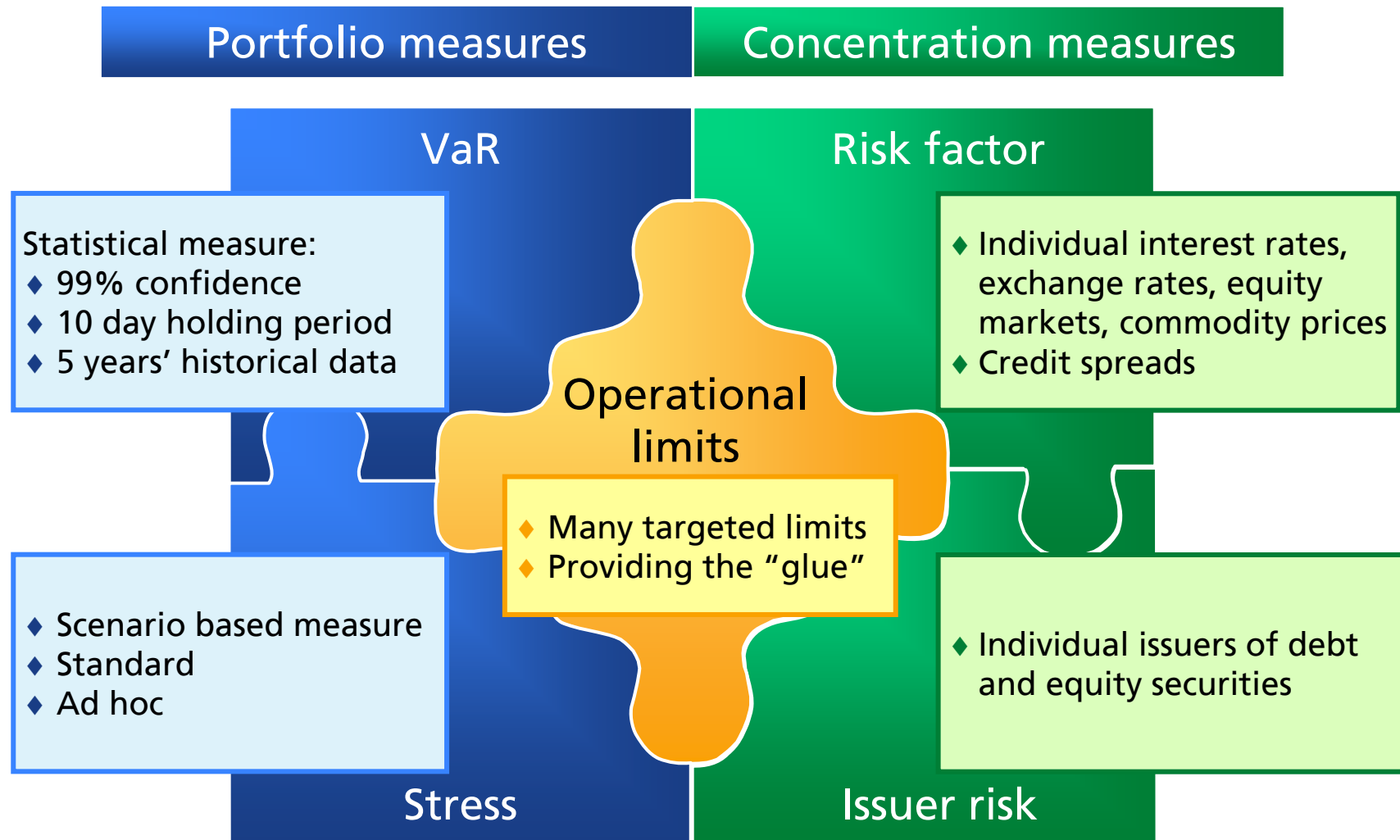
Countries

# Market Risk measurement and limits

## Operational limits - many targeted limits



# Summary



# Questions...

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