

Risk Management

Impacts of the 2008 Financial Crisis

Risk Management – A World in Turmoil

When you are not sure what to do.....

Ask Alice

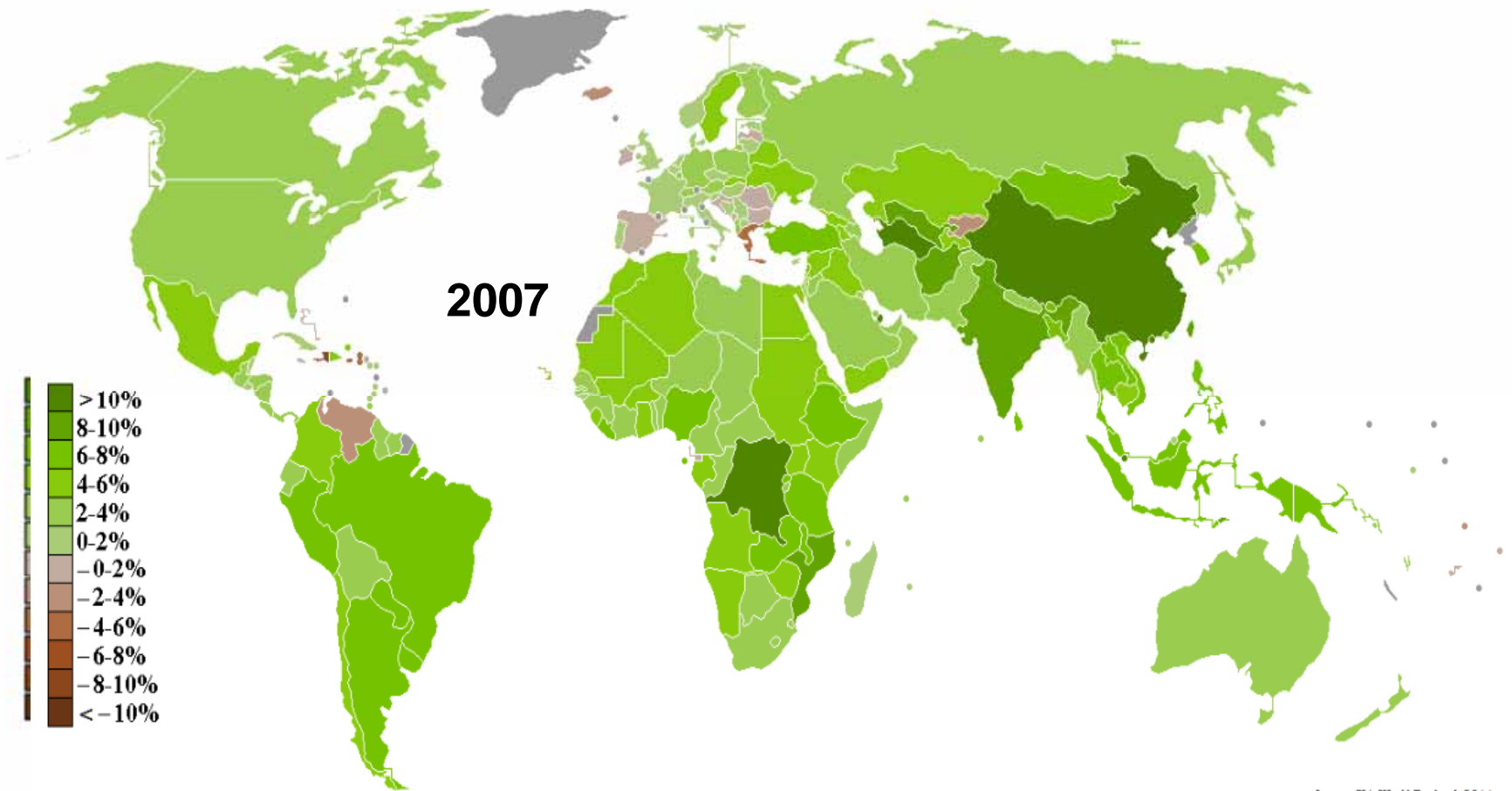


The Financial Crisis of 2008 has brought about significant change and the impacts continue to reverberate throughout the financial services industry

- US Lead Financial Crisis
 - Fannie Mae and Freddie Mac taken over by the US Treasury
 - Lehman Brothers files for bankruptcy
 - AIG received an \$85 Billion credit facility from the Federal Reserve
 - Goldman Sachs, Morgan Stanley, GE Capital, AMEX, GMAC convert to Bank Holding Companies
 - Wachovia, Merrill Lynch bought by Bank of America
 - TAR program
 - Restructuring of the US Auto Industry
 - Fortis semi nationalized received over \$11 Billion EUR
 - RBS takeover by the UK government
- European Debt Crisis
 - Greece
 - Ireland
 - Spain ??
 - Portugal ??
 - Italy ??
- BP Oil Spill
- Tunisian and Egyptian Revolutions

The impact of the crisis has been felt in almost every area of the world

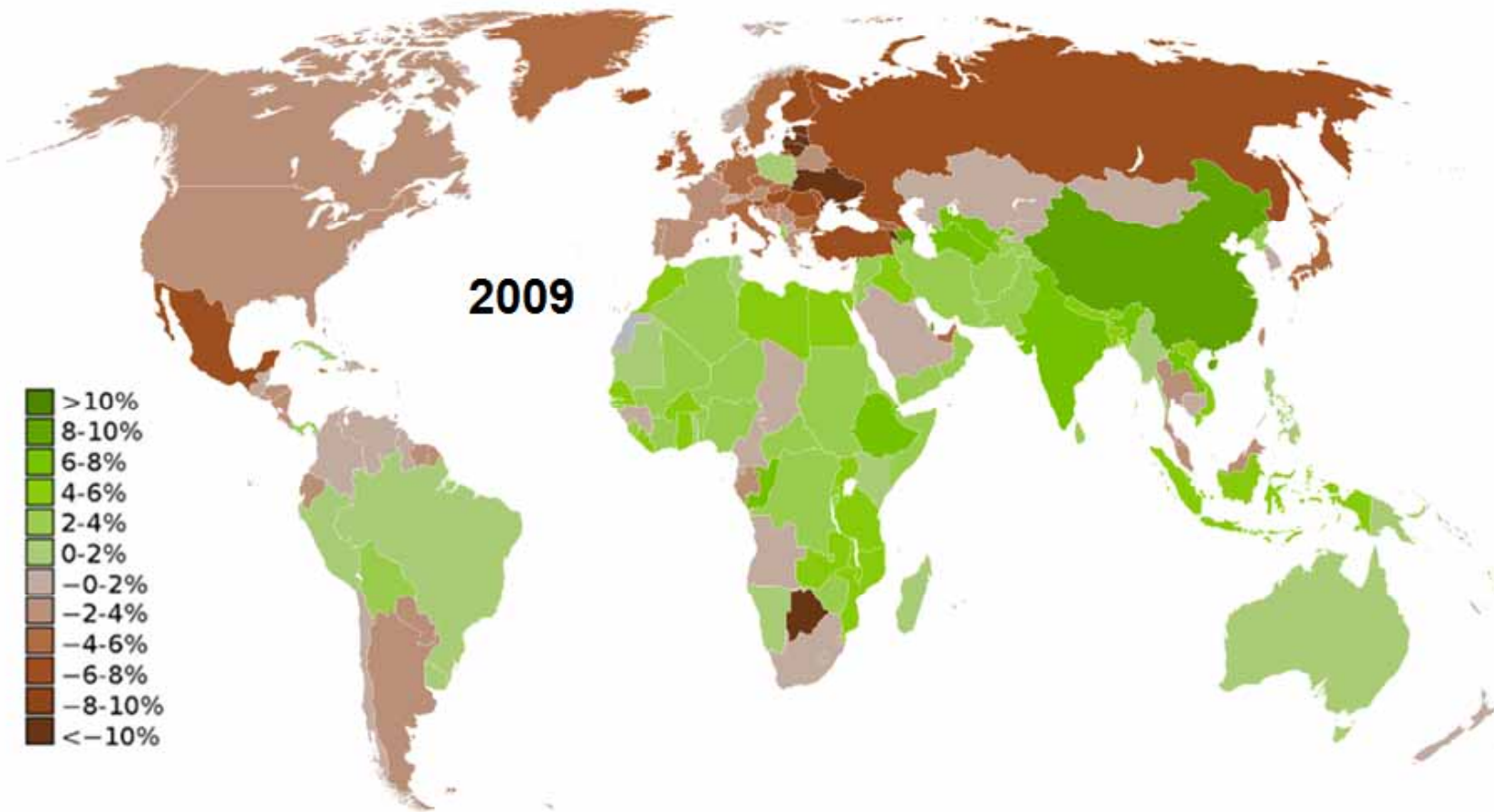
GDP Growth Rates



Source: CIA World Factbook 2011

The impact of the crisis has been felt in almost every area of the world

GDP Growth Rates



Today's economic and regulatory environment calls for significant focus on the factors driving losses and developing effective mitigation strategies

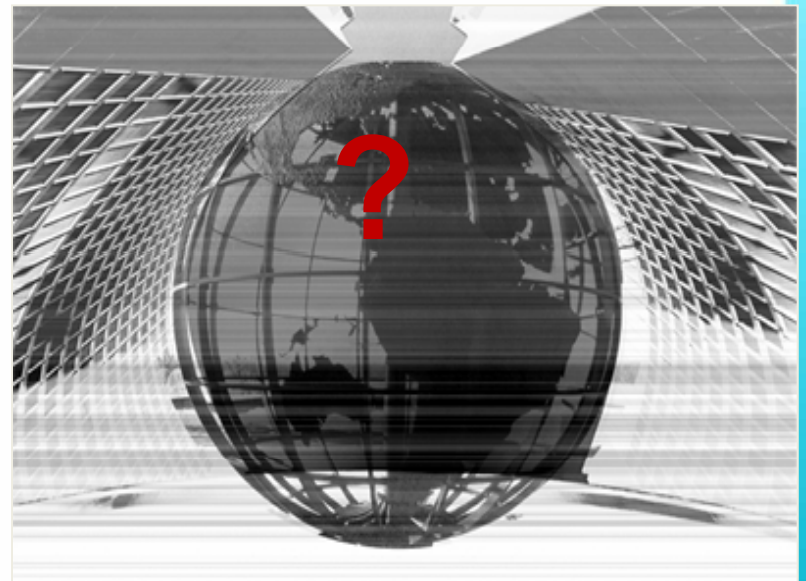
Significant losses due to basic processing and operating failures

- Risk models based upon unreliable and incomplete data
- While models may have tended to perform institutionally they did not address macro-failures across the industry/globe
- Lack of validation, checking, documentation
- Assumptions were not adequately stressed tested for individual facilities or portfolios
- “Laundering” of risk ratings
- Outright fraud – Satyam; Madoff; etc.

We live in an increasingly interconnected world which means risk managers have to consider impacts of events around the globe

- Spreading revolution in the Middle East?
- \$300 per barrel oil
- Spreading European Debt Crisis
 - Spain / Portugal others forced to seek assistance
 - Ireland declares bankruptcy
 - Collapse or substantial restructuring of the EU Monetary Union
- Winding down of Freddie Mae and Freddie Mac causes a 10 to 20% decline in US home prices
- Continued expansion of regulatory requirements and restrictions across Europe, North America and Asia

What is next?



These challenges require a number of related capabilities from financial institutions

RISK AND TRANSPARENCY

Understanding of risk positions and the ability to demonstrate them to the market and to regulators and take proactive actions based on current and reliable information

CAPITAL AND LIQUIDITY

Focusing on critical short-term survival factors while providing a longer-term competitive advantage

SYSTEMIC IMPLICATIONS

Understanding the dependence of the business on external organizations, markets and vendors/suppliers, their related “inter-connectivity” and their risks

COST AND COMPLEXITY

Renewed vigor to maximize risk related expenditures across all areas of the business and transform the way organizations manage risk and compliance

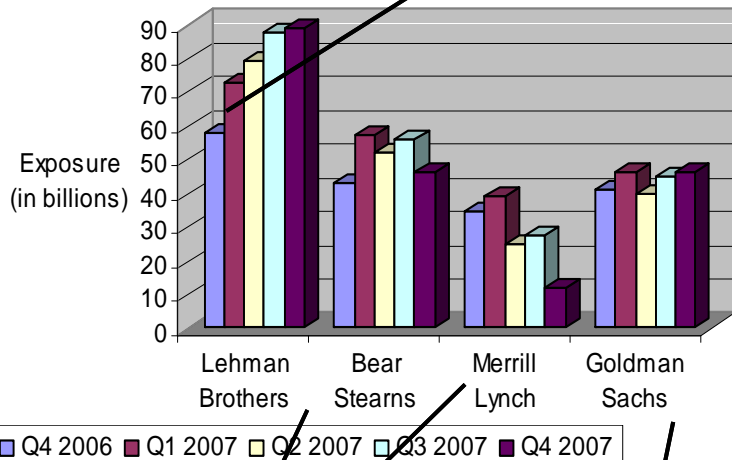
.... all with an unrelenting focus on the **measurements**

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Unstructured data analytics can provide automated insight into a variety of risk exposures such MBS, ABS, Beneficial Ownership, security threats and others

Significant increase in Lehman's exposure between Q4 2006 and Q3 2007

Mortgages, mortgage-backed & Asset Backed security exposure



Bear Stearns and Merrill Lynch reducing exposure

Stable portfolio for Goldman

Goldman Sachs 10-Q Reports from several quarters

	As of	
	February 2007	November 2006
Mortgage whole loans and collateralized debt obligations (1)	\$46,259	\$ 41,017
Bank loans (2)	20,171	20,190
High-yield securities	12,310	11,054
Emerging market debt securities	2,748	2,291
SMFG convertible preferred stock	4,662	4,505
ICBC ordinary shares (3)	5,898	5,194
Other corporate principal investments (4)	4,878	3,675
Other private equity and restricted public equity securities	4,735	3,736
Real estate principal investments (4)	1,141	588

Lehman Brothers

In millions: Financial Instruments and Other Inventory Positions	Owned		Sold But Not Yet Purchased	
	February 28, 2007	November 30, 2006	February 28, 2007	November 30, 2006
Mortgages and mortgage-backed positions (1)	\$ 72,929	\$ 57,726	\$ 87	\$ 80
Government and agencies	47,764	47,293	75,499	70,453
Corporate debt and other	48,807	43,764	12,559	8,836
Corporate equities	52,471	43,087	34,868	28,464
Derivatives and other contractual agreements	22,586	22,696	17,823	18,017
Real estate held for sale	9,017	9,408	—	—
Commercial paper and other money market instruments	3,064	2,622	67	110
	\$ 256,638	\$ 226,596	\$ 140,903	\$ 125,960

Bear Stearns

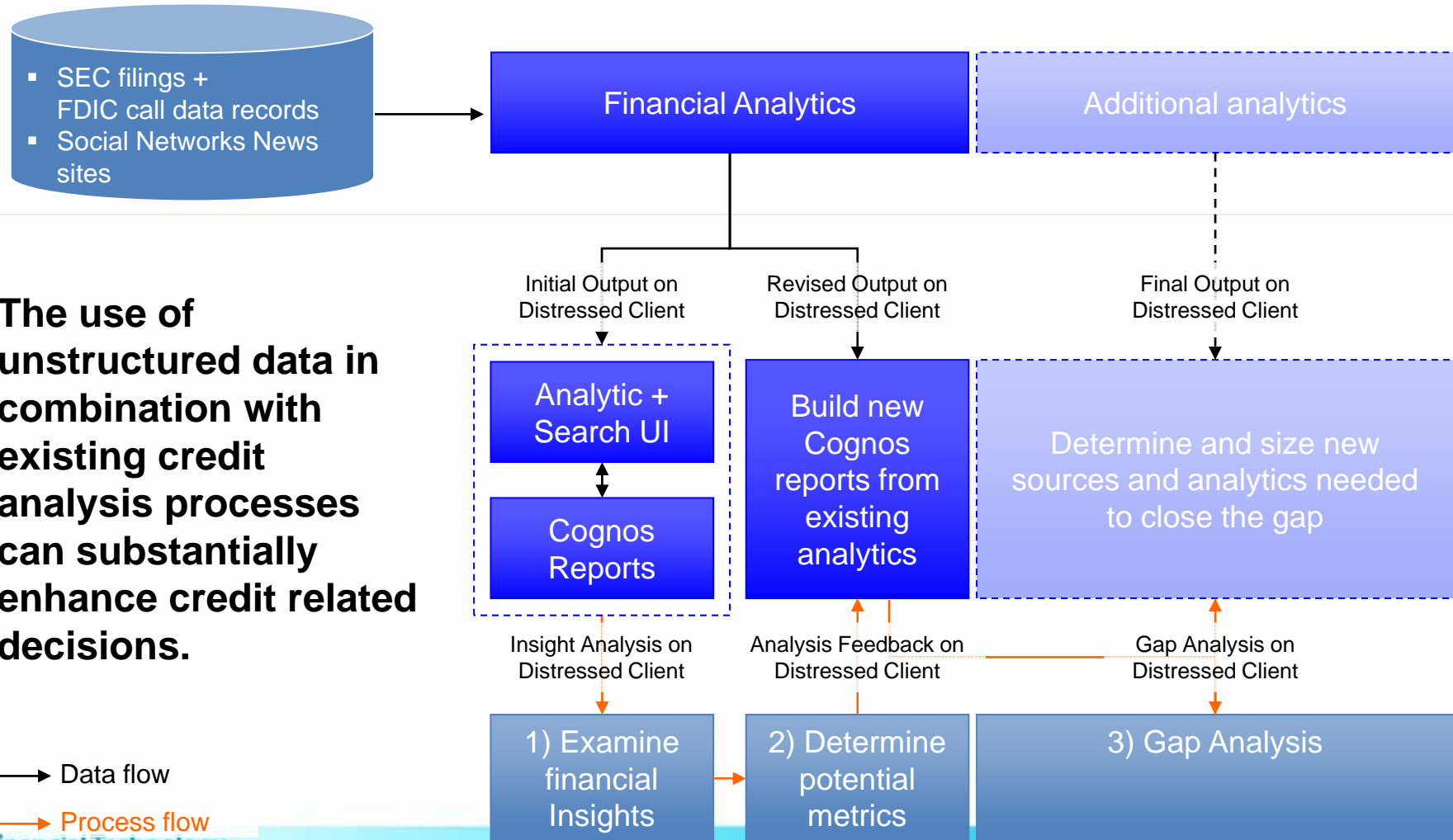
(in thousands)	February 28, 2007	November 30, 2006
FINANCIAL INSTRUMENTS OWNED:		
U.S. government and agency	\$ 5,246,453	\$ 6,136,191
Other sovereign governments	2,456,191	1,371,713
Corporate equity and convertible debt	36,423,135	28,892,588
Corporate debt and other	35,308,016	33,034,116
Mortgages, mortgage- and asset-backed	57,549,272	43,226,699
Derivative financial instruments	10,281,472	11,617,144
	\$ 147,164,539	\$ 125,168,451

Merrill Lynch

In millions:	Owned		Sold But Not Yet Purchased	
	May 31, 2007	November 30, 2006	May 31, 2007	November 30, 2006
Mortgages and mortgage-backed positions (1)	\$ 79,634	\$ 57,726	\$ 119	\$ 80
Government and agencies	44,705	47,293	79,822	70,453
Corporate debt and other	55,298	43,764	13,258	8,836
Corporate equities	38,352	43,087	50,976	28,464
Derivatives and other contractual agreements	28,335	22,696	24,001	18,017
Real estate held for sale	15,890	9,408	—	—
Commercial paper and other money market instruments	3,270	2,622	39	110
	\$285,684	\$226,596	\$168,015	\$125,960

Integrated Content: Next Generation Credit Risk Analytics

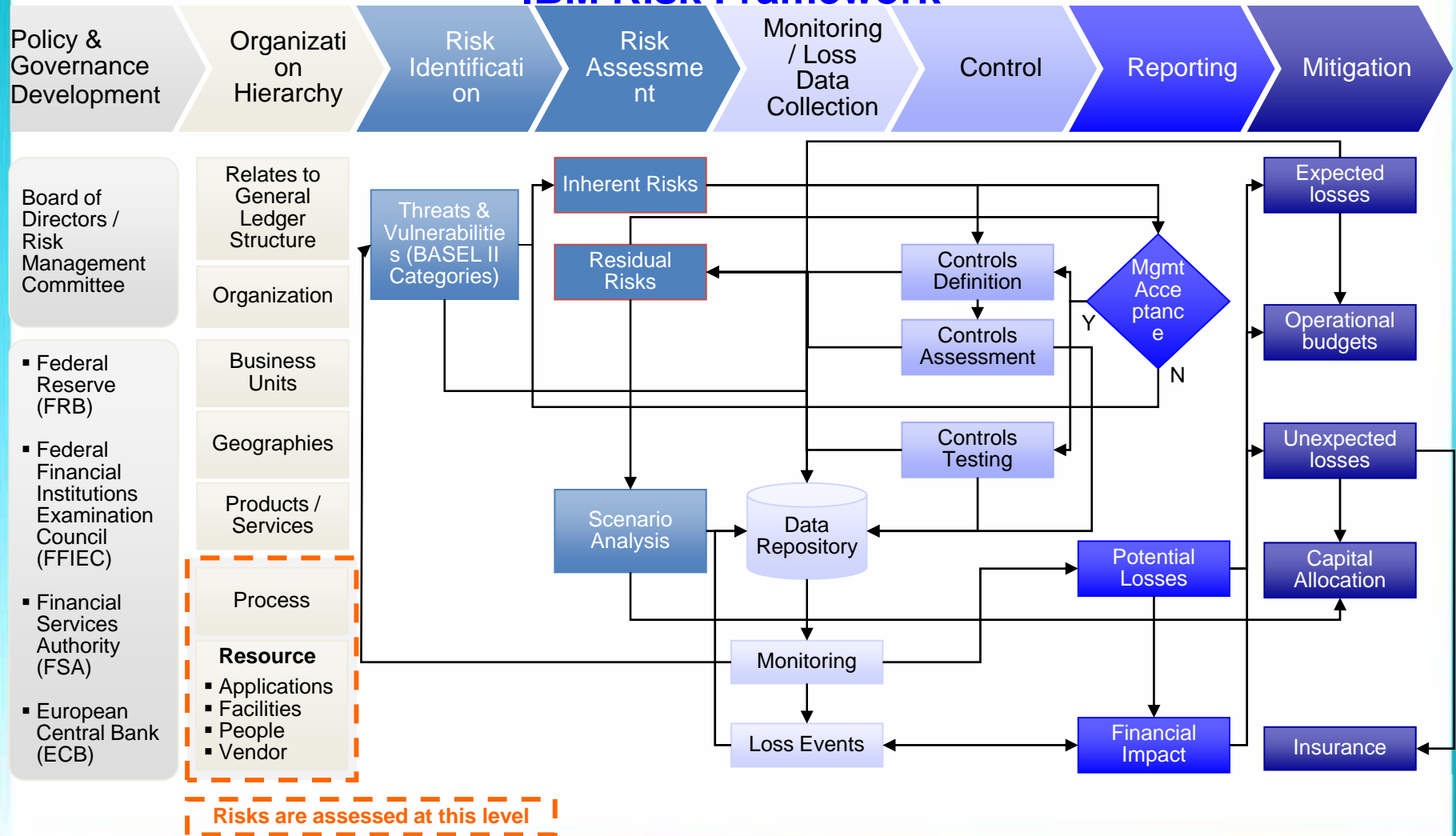
Credit analysis using unstructured data provides additional insight to health of targets



The use of unstructured data in combination with existing credit analysis processes can substantially enhance credit related decisions.

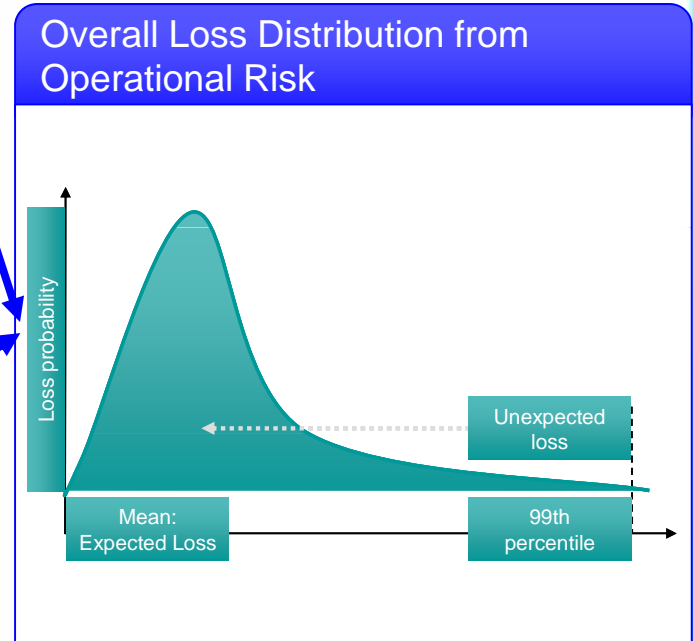
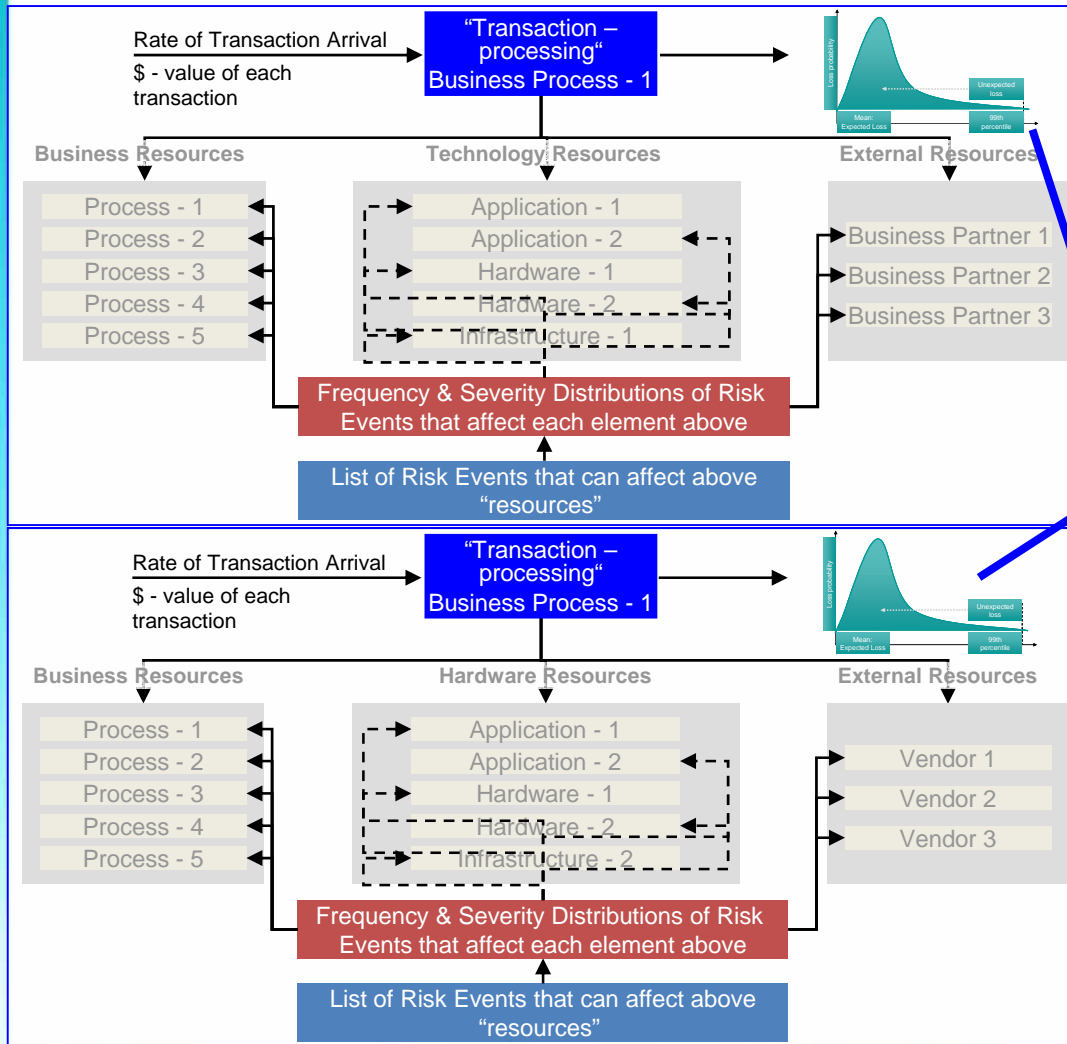
Implement a standard risk management process and methodology that supports all regulatory and policy requirements

IBM Risk Framework



Integrated Analytics: Events>Resources>Process>Operational Risk

Quantifies and consolidates “exposures” to create overall risk exposure



Effectively implementing these capabilities requires organizations to focus on a number of key areas

Loss Events

- Enterprise wide governance process
- Harmonized and standardized data
- Integrated across the enterprise
- Utilization of external data normalized with internal data
- Tied to organization financial results

Risk Assessment

- Elimination of silos
- Standardized framework & assessment process
- Prioritized based upon impacts
- Utilization of structured and unstructured data
- Aligned with financial results
- Integration and alignment of risk assessments from external parties

Move from a “Compliance Culture” to a “Risk Management” Culture

Financial & Capital Management

- Standardized risk architecture
- Integration of financial and capital management with risk assessments, loss events, and real-time monitoring of key transaction systems
- Comprehensive use of scenario analysis
- Link compensation to long-term results
- Development of a “model of models” using internal and external data
- Incorporating risk data into all key decisions
- Understanding risks in the “nested” supply chain

Monitoring

- Integration of real-time data from key transaction systems with risk assessment process
- Focused reporting and threat management alerts to the right level of the organization
- Sophisticated views into emerging threats
- Broad market-based trends analysis combined with internal portfolio analysis
- Integrating KRIs into day-to-day operations
- Independent analytical organization supporting risk management processes

Thank you.

Questions?