Impact of IFRS 9

Introduction to 6 Sigma

6 Sigma Group has 5 businesses:

1. **Consultancy for Bankers** with our "Road to Basel (now IFRS 9)" program that spans the entire banking business. We have conducted 6 of these consultancies helping banks get on the road to IRB certification.
2. **Training for Bankers**, covering all products with notable emphasis on Credit through our Credit & Relationship Management program.
3. **Credit Rating Agency** from which we rate clients, produce bankers' CAs, Industry Studies, Product Programs and Target Market Studies.
4. The **Credit Risk Master** , the tool that bankers use to manage the credit portfolio.
5. **Corporate Finance** in which we evaluate businesses and conduct Private Placement activities.

Our motto is: **Bankers serving Bankers**.

Banking is about to change forever

REACTIVE

- Risk measured by an excel sheet,
- Collateral was first way out a
- Measurement of credit risk was limited to a few factors.
- Financial information was lacking
- Interactions with clients limited
- Pressure on Pricing evident
- Long Term Financing required minimum Equity.

PROACTIVE

1. Measure risk as a Forward predictor of default
2. Adopt Cash Flow analysis as a primary measure of credit risk
3. Implement Target Market / Risk Acceptance Criteria (TMRACs)
4. Consistently measure and analyze Portfolio Risk Ratings
5. Perform periodic Portfolio Stress Testing
6. Data to include annual and interim financials, management, industry and environment factors.

and much, much more

In Short the impact on Banks is 3 fold:

1. From **reactive to proactive** assessment of credit risk
2. Good bye Standardized Approach
3. Good riddance to reliance on long-dated back stoppers (90 day defaults)
4. No more over-reliance on collateral security
5. Allocating provisions from **Day One and on Limits** (for control)
6. Welcome to the world of **IRB** and risk measurement

IAS 39 to IFRS 9 Day 1 and on Limits

Impact on several fronts:

1. The earlier capture of defaults : **backstop 30 days** versus 90 days
2. The Calculation of ELs and switch from 12 months to Lifetime
3. The Capturing of problems ***Before*** actual defaults

The trick is to know how to apply it in your business.

Immediate Changes: Backstop 30 days

a) Early Problem Recognition & Remedial Mgt (**Before Default**)
b) Definition of Default: " **UNLIKELY**" to pay (**30 days backstop**)
c) Cash flow assessment rather than Traditional Ratios (PIT)
d) Calculating Portfolio Risk Rating (PRR)
e) Stress Testing both at Obligor and Portfolio Levels
f) Managing the PRR through SOW, TMRACs, R/E, Concentration Risks, RAROC

Becoming Proactive Means: Cash Flow Centric

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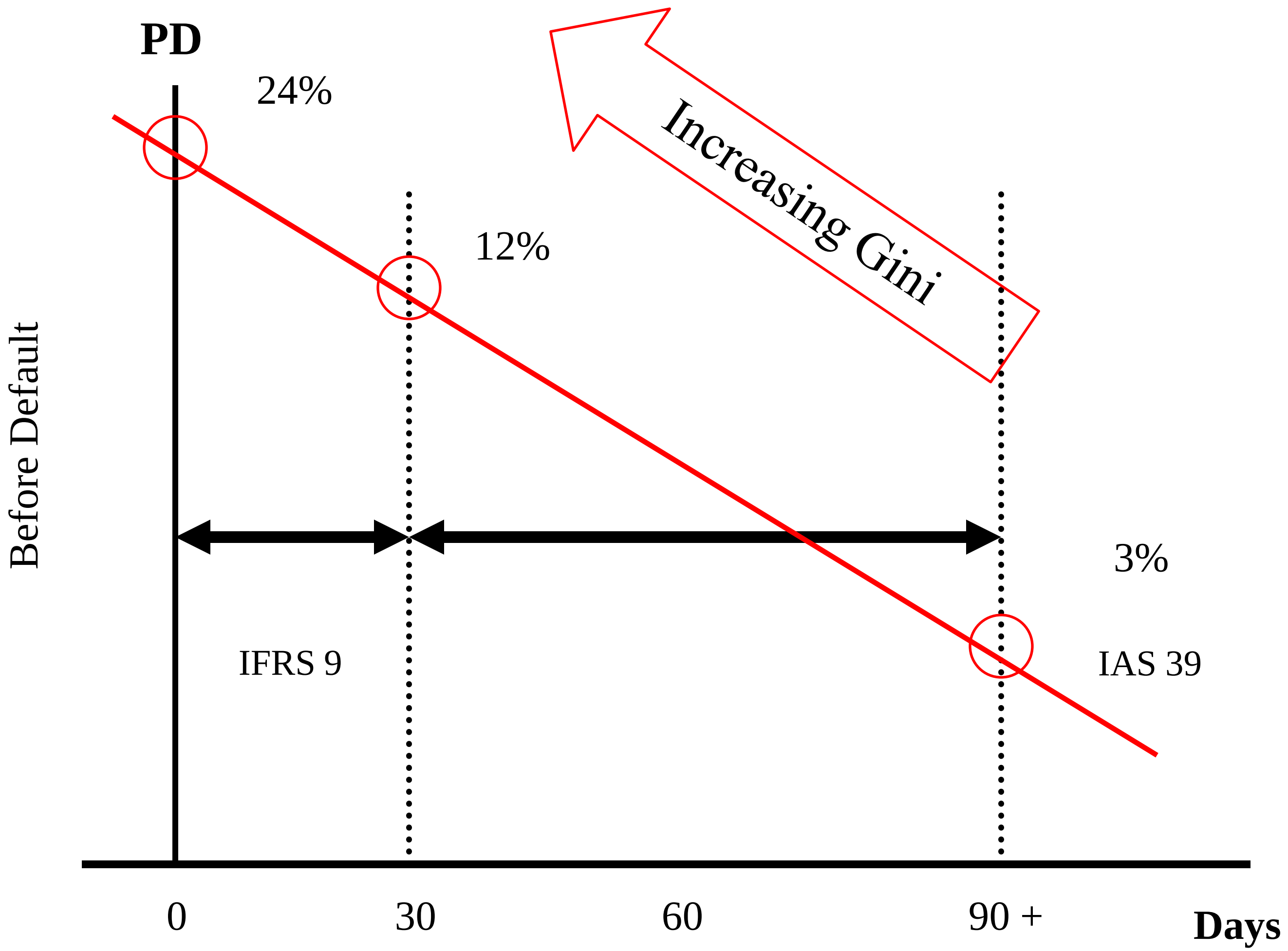
PD rates under IFRS 9 are Before Default

For the same portfolio, the PD rates increase exponentially the earlier is the back-stop (x4 - 30 days)



If the default rates at 30 days are 4x (or more) then Banks have to charge spreads of over 24% to remain profitable

12 months v Lifetime ELs: EIR 6%, RR6/3%, RR7/12%

	An Amortizing Exposure									
years	1	2	3	4	5	6	7	8	9	10
Limit	1,000	900	800	700	600	500	400	300	200	100
discounted EL 12m	**28**	**25**	**23**	**20**	**17**	**14**	**11**	**8**	**6**	**3**
discounted EL from yr1	113	96	81	67	54	42	32	23	14	7
Lifetime EL	**528**									
multiple	**19**									

	An non-Amortizing Exposure									
years	1	2	3	4	5	6	7	8	9	10
Limit	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
discounted EL 12m	**28**	**28**	**28**	**28**	**28**	**28**	**28**	**28**	**28**	**28**
discounted EL from yr1	113	107	101	95	90	85	80	75	71	67
Lifetime EL	**883**									
multiple	**31**									

Collateral Value	Accounting for Collateral Security (netting EAR)									
1,000										
# yrs	1	2	3	4	5	6	7	8	9	10
Discounted Value	943	890	840	792	747	705	665	627	592	558
% of original	94%	89%	84%	79%	75%	70%	67%	63%	59%	56%

Essentially the effects have a tendency to multiply …

EAR x EL% (up to 3%)

$$\sum \frac{\text{EAR x EL \% (12\% - 45\%)}}{(1+\text{EIR})^{n}}$$

min EAR x EL% x 4 x 4 x 4 (64x)

4x the number of defaulters detected

4x the EL from RR6 to RR 7

4x Lifetime EIR 7% & 5 years)

12 m EL

Stage 2
(RR over 6.5)

Multiplier

EL x (NPV Exp – NPV Collateral)

Specifics

Essentially under Basel & IFRS 9 Credit Risk is …

$$\frac{\sum \text{each Facility EAR x PD x LGD}}{\text{Total EAR}}$$

PRR

Facility Amount & Type (SOW, Xsell, R/E)

TM (Risk Rating, Industry Studies) & RACs (CPPs, RORAC)
Stress Testing

RR Management, Problem Recognition, & Structuring

Bank needs to manage all these at all times

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What the Rules are all about ….

"Characteristics of low credit risk financial instruments include: Strong capacity to meet its contractual **cash flow obligations** in the near term"

Cash Flow Analysis

Structuring means:

a. Ensure **Cash Flow** comes to you first before anyone else. So....
b. Ensure obligors settle outstandings within a **structured framework**
c. Tenors to suite cash cycles, and loans in line with capacity to repay

LGD & Structuring

1. PRR measurement is now **paramount** to calculate provisions
2. Management of PRR is also crucial in guiding the bank and optimizing returns to shareholders

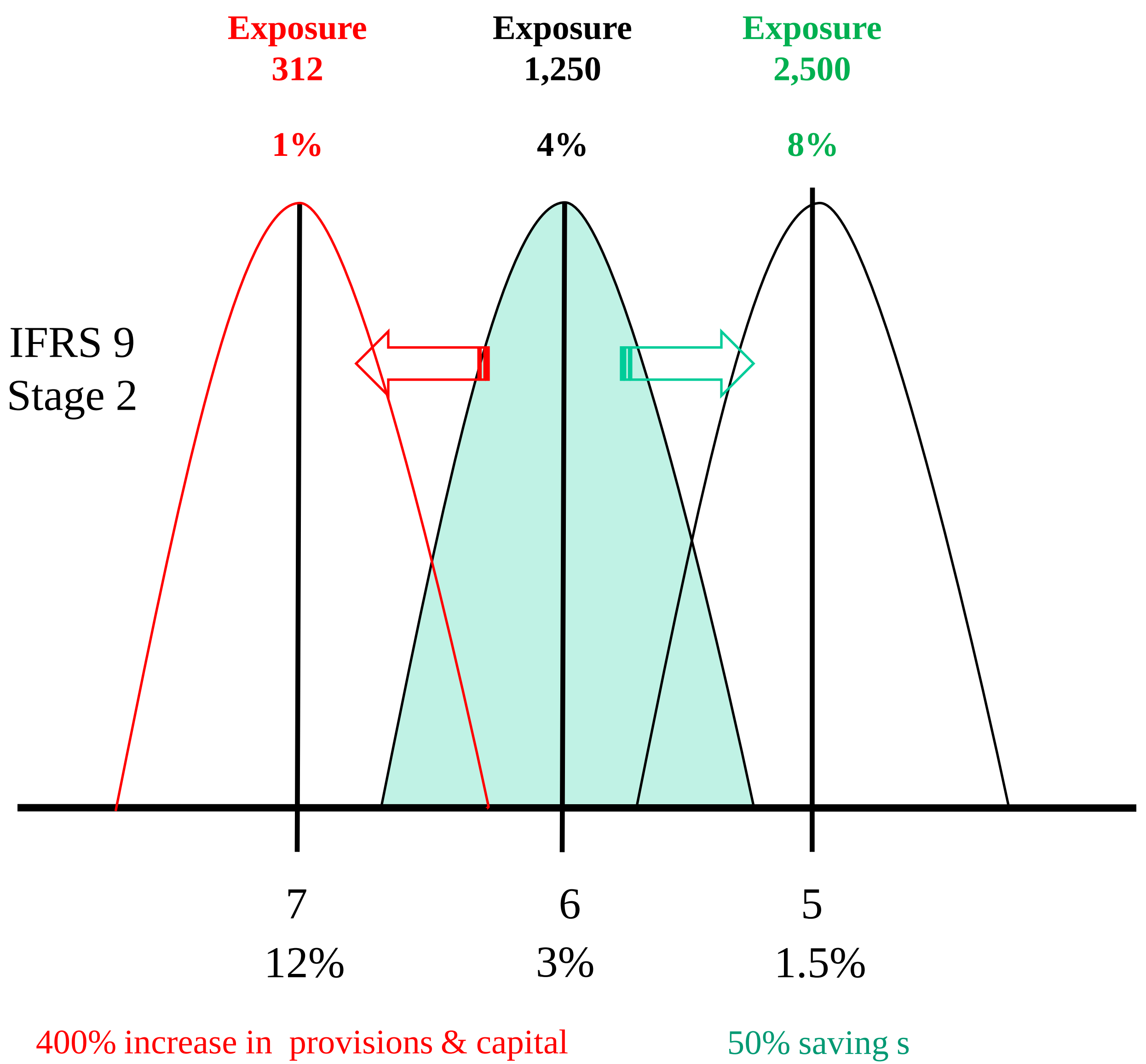
PRR

Even without incurring any changes to the portfolio, IFRS 9 demands forward looking assessments of credit risk, which means **Stress Testing**:

- Obligors (measuring impact of future changes on cash flows)
- Portfolios (measuring macro scenarios on PRR)

Stress Testing

Why Improve the PRR and How?



for Capital = 100

ROC

By:

1. Type of Client
2. Number of Clients
3. Type of Facility
4. Amount of Facility
5. Collateral Security
6. Early Problem Recognition

Changes to Current Practices

Changes to current practices: **Regulatory**

1. Under IAS 39 considerations were mostly on past events (**post-fact**), with the effects of future credit loss events not considered
2. To manage potential unexpected future losses therefore, banks had to carry a general reserve ala 90 days which postponed losses
3. Hence the phrase "**too little too late**"
4. With IFRS 9, each obligor has a specific PD and LGD to be accounted for in the income statement on **day of booking**

General Reserve gone

a) Rules do not mention anything about Standardized Methodology; nor Central Bank leeway to allow for flexibility
b) Welcome to IRB on 1 Jan 2018 (PIT not Thru The Cycle)
c) "an entity shall use the change in the **risk of default** occurring over the expected life of the financial instrument instead of the change in the amount of **expected credit losses**". In other words **before** considering effects of credit risk mitigants such as collateral or guarantees, exactly as assessed under IRB. (ORR, FRR and PRR)

Standardized gone

- "credit risk practices and financial reporting to be integrated". So distinction between the two is no more
- **Income statement is affected immediately**
- Through-the-Cycle (regulatory, weights) is now Point-in-Time (forward looking)

Economic = Regulatory

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Changes to current practices: **Methodologies**

a) Granting credits based on fragile **cash flows**
b) "Care needs to be exercised in dealing with obligors with high debt servicing requirements as compared with their expected cash flows". This is NOCF and **DSCR** not Leverage
c) Waiting for problems to manifest before taking action (detection should be "years" before)

Avoid Pitfalls

"**Rationale** for extending high risk exposures and associated governance process will be well documented and disclosed…"

- This means having to produce **Product Programs** to cover Name Lending, Lending without Financials, Contractor and Object Finance

Use of Product Programs

"Modifications or renegotiations can mask increases in credit risk, resulting in ECL being underestimated"

1. So **rescheduling of debt is now considered a default**
2. Balloon payments is claiming default from day one

Restructuring Obligations

"Credit risk increases should be **detected well ahead** of exposures becoming past due or delinquent."

- Hence the need for Early Problem Recognition and Remedial Management procedures (Principle 16 of Basel Guidelines)

Early Problem detection

Examples of Cash Flow versus Traditional Analysis

How Traditional Analysis is not IFRS 9 compliant

Julphar UAE	2008	2009	2010	2011	2012	2013
Traditional						
Sales (mil)	625	762	920	1,024	1,181	1,362
Sales Growth		32%	20%	5%	19%	30%
Gross Margins	62%	65%	63%	66%	63%	64%
Net Margins	21%	17%	17%	15%	18%	18%
Current Ratio	2.23	2.63	2.39	1.71	1.85	2.33
Working Capital	428	541	561	436	544	920
Leverage	0.30	0.32	0.38	0.47	0.49	0.62
FA/Sales	87%	84%	86%	95%	90%	83%

No Apparent Problems at all

Julphar UAE	2008	2009	2010	2011	2012	2013
Cash Flow Centric						
NOCF (mil)		46	76	150	53	12
% sales		7%	9%	17%	5%	1%
DSCR Short Term		0.22	0.32	0.38	0.13	0.03
Payback (years)		4.50	3.12	2.63	7.54	32.42
DSCR Total		0.15	0.20	0.30	0.09	0.01
Payback (years)		6.55	5.10	3.30	10.75	69.73
Withdrawals		(48)	(47)	(69)	(70)	(87)
Extra Borrowing		32	73	89	50	232

Inability to Settle bank Obligations

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Example 2 where the bank took SAR 300 mil hit

Saudi Account	2003	2004	2005	2006	2007	2008	2009	2010	2011
Traditional									
Sales (mil)	936	1,039	1,142	1,223	1,390	1,807	1,959	2,178	2,410
Sales Growth		11%	10%	7%	14%	30%	8%	11%	11%
Gross Margins	18%	18%	19%	18%	18%	17%	19%	13%	13%
Net Margins	3%	3%	3%	3%	3%	3%	3%	3%	3%
Current Ratio	1.24	1.25	1.24	1.20	1.25	1.25	1.19	1.16	1.15
Working Capital	90	104	114	105	137	178	155	159	159
Leverage	2.29	2.12	2.01	2.00	1.89	2.00	1.94	1.94	1.83
FA/Sales	9%	7%	6%	7%	6%	6%	9%	9%	9%

Saudi Account	2003	2004	2005	2006	2007	2008	2009	2010	2011
Cash Flow Centric									
NOCF (mil)		7	14	47	36	(118)	89	(87)	44
% sales		1%	1%	4%	3%	-7%	5%	-4%	2%
DSCR Short Term		0.02	0.04	0.11	0.08	-	0.12	-	0.05
Payback (years)		45	28	9	13		8		21
DSCR Total		0.02	0.04	0.11	0.08	0.00	0.12	0.00	0.05
Payback (years)		46	28	9	13		8		21
Withdrawals		(3)	9	(13)	(8)	22	10	21	2
Extra Borrowing		41	55	39	11	166	64	133	43

How IFRS9 is Applied

The Three Credit Risk Stages of IFRS 9

Stage 1

1. RR 1 – 6
2. EL: 0.1 – 3%
3. Defaults within 15 days due to operational reasons
4. Category 1 & 2 obligors
5. Cat 1:
   - SOW 50-75%
   - Tenor 5-10 yrs
   - Pricing up to 2%
6. Cat 2:
   - SOW 20-50%
   - Tenor 3-5 yrs
   - Pricing up to 7.5%
7. Reviewed yearly
8. Well Defined:
   - Industry Studies
   - Produce Programs
   - Target Market Studies

12 months PDs

Stage 2

1. RR 6.5 – 8
2. EL: 12% – 45%
3. Defaults are regular and exceed 30 days
4. Remedial Mgt Action Plans kick in:
   - Quarterly / Monthly reporting
   - Triggers for Reclassification & Declassification defined
   - Strategy Outlined in full.
5. Category 3 obligor.
6. Trigger for condition persisting 60 days:
   - Switch to Receivable Discounting or
   - Exit

Stage 3

1. RR 8 - 10
2. EL: 45% - 100%
3. Defaults 90 days plus
4. Specific Provisions to be taken
5. Remedial Actions sever; Non-accrual status and legal action.

- Lifetime PDs = discounted future cash flows using Original Pricing.
- Since LGD is already discounted, better to use Transition Matrix instead.
- Interests here is net of ELs?

Lifetime assessments of PDs

As the Risk Rating deteriorates with time

Definition of **"Significant":**

"An actual or expected significant change in the operating results of the borrower ….that results in a significant change in the borrower's ability to meet its debt obligations."

In CRS that means beyond RR 6.

Improve the Cross Sell and Streamline Workflow ….

Minimum Spread for RE Ratio 2:1 and ROEC 15%

RE ratio	2	ROEC	15%
	Direct	LC	LG(p)
RR	100%	20%	50%
1	0.01%	0.00%	0.01%
2	0.02%	0.00%	0.01%
3	0.04%	0.01%	0.02%
4	0.20%	0.04%	0.10%
5	3.80%	0.76%	1.90%
6	6.88%	1.38%	3.44%
7	23.71%	4.74%	11.85%

RE 10:1	3.82%	0.76%	1.91%

Pricing will Increase to ensure positive RAROC

So:

1. **Improve PRR**
2. **Increase Cross Sell**
3. **Streamline Approvals (TMRACs, Robust Risk Rating etc)**

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What Banks need to do NOW

Calculating IFRS 9 ELs needs to account for ….

1. Calculation of Probability of Default at 90 / 30 / 0 days default
2. Definition of "Significant" Deterioration of Credit Risk
3. Are we dealing with ORRs, FRRs, STORRs, TMORR, or PRRs?
4. Calculating Effective Interest Rate (including fees etc)
5. Which Facilities are IFRS 9 applicable?
6. Which Collateral is IFRS 9 applicable?
7. What is a suitable Collateral Volatility %?
8. What is a suitable Collateral Expected Period of Liquidation?
9. Is there a Right of Offset over Collateral across Facilities?
10. Double counting collateral: Netting Exposures whilst using LGDs
11. NPVing PDs and LGDs – double NPV
12. Capturing Outstandings when they exceed Limits
13. ECLs can be larger than exposures for some Lifetime cases.

Make sure your assessment is correct

a) Calculate Portfolio Risk Rating (PRR)
b) Stress Test the Portfolio
c) Establish targets for PRR and Return on Economic Capital.
d) Identify ways to increase Revenue to Expense Ratio
e) Produce Product Programs
f) Produce Industry Studies
g) Produce Target Market Studies
h) Structure Facilities Appropriately
i) Allocate appropriate SOW% and Tenor per obligor

Ongoing Considerations

Ensure the following 3 issues are tackled:

1. Ability to allocate the **right risk rating for the right reasons**
2. This means checking whether the obligor can generate **Cash Flow** to meet bank obligations (not Traditional Ratios)
3. **Qualitative** measurements are very important
4. **Stress Testing** the obligor is also in line with forward looking requirements

Appropriate Risk Rating

(Cash Flow Centric)

a) Definition of PDs and LGDs to be well defined **(#/total & 45% ??)**
b) IFRS 9 needs discounting of PDs for higher rated obligors
c) Some discrepancy with Basel as LGDs are already discounted
d) Management of LGD using 4 variables (HC, Vol. EPL, and RR).

Allocating the right EL (based on anticipated cash flow shortage)

- Applying **TMRACs** especially for specialized lending
- Ability to detect Red Flags **before** booking accounts
- Managing **watch-listed** accounts closely
- Linking **offerings** to risk profiles
- Ensuring positive **RAROC**
- Calculating the **Portfolio Risk Rating** and managing it
- **Stress Testing** the Portfolio and accounting for results

Managing the Portfolio

So ….

Those that have other than CRS:

1. **Validate Your Risk Ratings**. Use Cash Centric forward looking indicators (not traditional ratios); Stress Test each obligor, and identify all the early warning signs
2. Make use of **TM RACs** to manage the portfolio and justify lending to specialist groups. Best used in an automated credit process.
3. Produce regular **PRR** reports. To best manage the portfolio, concentration risks, profitability and accountability.
4. **Stress Test** the portfolio.

Those that do not comply with Basel's Managing Credit Risk Principles:

1. Use Early Warning Signs and Remedial Management techniques (Triggers, Reclassification, Declassification, Action etc)
2. Calculate and manage PRR (plus TMRACs, SOW%, Tenors)
3. Apply RAROC methodology
4. Stress Test the portfolio and apply results
5. Create Industry Studies, Product Programs and Target Market Studies

Validate your Risk Rating System using a Cash Flow Centric System

Adopt Basel's Guidelines for Managing Credit Risk

In Short

Top 5

1. Validate existing Risk Ratings to ensure forward looking capabilities
2. Need to switch to Cash flow centric analysis
3. Need to use PRR to manage the portfolio - critical
4. Need to Stress Test on an ongoing basis
5. Restructure your credit process – automate and standardize (support using industry studies, product programs, and target market studies)

Bottom 5

1. Reprogramming of bankers - the way they make decision and on what basis
2. Client selection critical – Use TMRACs to filter credits
3. Address new ways to serving clients – expanding the product range to capture fee income business
4. Review existing portfolio – to identify those that are subject to shift into Stage 2
5. pray !!!

Potential New Business For Lenders ….

1. Many marginal obligors and SMEs will find it difficult to borrow in terms of limits and increased pricing.
2. The way to circumvent this is to increase structuring by focusing on receivables: Channel Finance, Vendor Finance, Receivable Discounting, and Factoring.
3. This type of financing can also be packaged and sold through securitized commercial paper; opening up a new capital market opportunity.

Receivable Finance

a) Another avenue that helps SME business whilst limiting capital allocations, and lowering pricing.
b) The process allows banks to maintain ownership of imported goods until sold, hence maintain 20% capital allocation versus 100%. The reduction allows them to pass on lower pricing.
c) Once sold, the financing can switch to receivable discounting (as above).

Bonded Warehousing

i. A lucratively large capital market option that is currently untapped.
ii. Potential growth in this business could help improve financial discipline and accountability.

Leasing, Venture Capital and Private Placements

CRS and how it manages all this ...

6 Sigma's Unique Offering

Credit Risk System and what it delivers

1. Cash flow centric, so is able to detect:
   a) Ability to generate cash flow
   b) The Strength or weakness of the obligor's Business Model
   c) Whether the obligor is using bank debt to settle obligations
   d) Any Excessive withdrawals and impact on debt obligations
   e) Any Excessive inter-group transactions
   f) Any Excessive investment activity

Cash Flow Centric Means forward looking (Before Default)

a) Can the obligor generate cash flow and how?
b) Is the cash flow sufficient to meet bank obligations?
c) What is the obligor's behavior?

Addresses three critical questions

1. Projecting obligor behavior with confidence
2. Sensitizing obligors ability to generate cash flow in future
3. Covering both quantitative and qualitative factors (total 177 factors)
4. Calculating RAROC and RORAC both historical and future
5. Incorporating both Industry and Economy in the assessment
6. Gauging characteristics against various TMRACs
7. Calculating PRR and Stress Testing the Portfolio
8. Incorporating Stress Test results in Industry and Economic ratings

Enabling

Contact Us

ramzi.watfa@6sigmagrp.com

Ramzi Watfa

peter.verhoeven@6sigmagrp.com

Peter Verhoeven

www.6sigmagrp.com

Address

Important Notice

Please Note