

INVESTMENT RISK, EPF MALAYSIA

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25th ASSA BOARD MEETING

24th – 26th MARCH 2010



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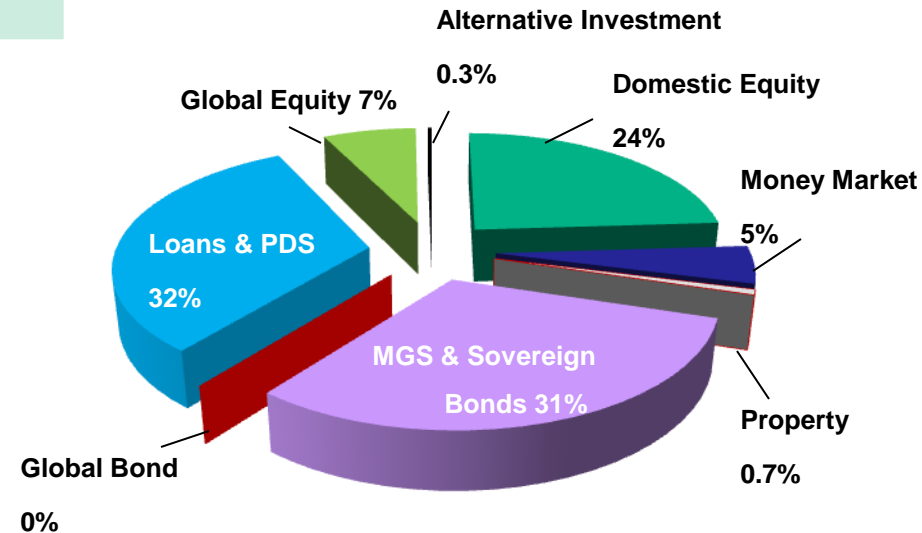
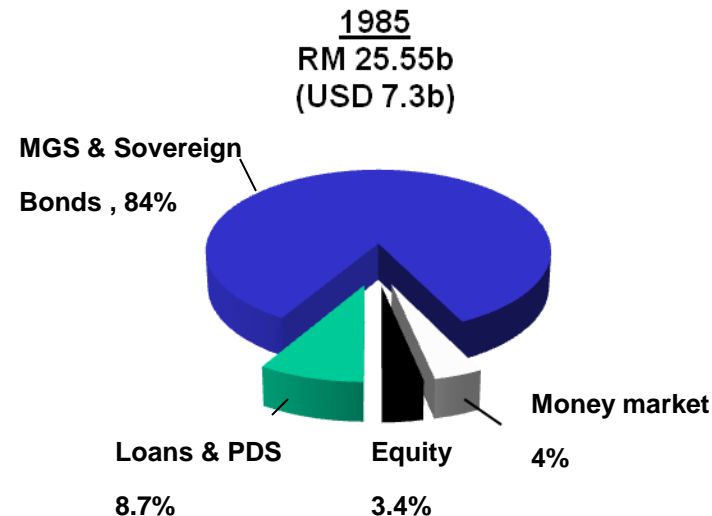
EPF MALAYSIA

- A defined contribution scheme, established on 1st October 1951. Governed by EPF Act 1991 (revised).
- Is the oldest employee provident fund operator in the world.
- Vision: To Be A World-class Social Security Organisation Providing The Best Retirement Savings In Malaysia
- Mission: To Provide The Best Retirement Savings Scheme

Details	31 st Dec 2009	
Members	12.07 M (as at 31 st Dec 2008)	
Asset Size	Market Value: RM 397.7b (USD 113.6b)	Book Value: RM 375.7b (USD 107.3b)
Staff size	5,364 (as at 31 st Dec 2008)	

31st Dec 2009

**RM 397.7b
(USD 113.6b)**





FRAMEWORK FOR MANAGING RISK

ISO 31000:2009

1. Mandate and commitment
 - ❖ Commitments from Investment Panel



2. Design of framework for managing risk
 - ❖ Clear establishment of gaps versus best practice risk management
 - ❖ Assessment and prioritisation of risk exposures
 - ❖ Summary recommendations for new framework
 - ❖ Blueprint to guide risk management development across all dimensions
 - ❖ Policy and procedures for Risk Management
 - ❖ Tender specs for risk and performance system



3. Implementing risk management
 - ❖ Selection of implementing partners
 - ❖ Full implementation of recommended framework
 - ❖ Training of risk management staff



4. Monitoring and review
 - ❖ Review of effectiveness 90 to 180 days after implementation completed
 - ❖ Refinements as necessary



5. Continuous improvement





CORPORATE RISK SCORECARD

- In pursuit of achieving business objectives, EPF faces a myriad of risks

		Risk Scoring				
Possibility	Very High	5	6	7	8	9
	High	4	5	6	7	8
	Medium	3	4	5	6	7
	Unlikely	2	3	4	5	6
	Very Low	1	2	3	4	5
		Insignificant	Minor	Moderate	Major	Very Significant
		1	2	3	4	5
		Impact				

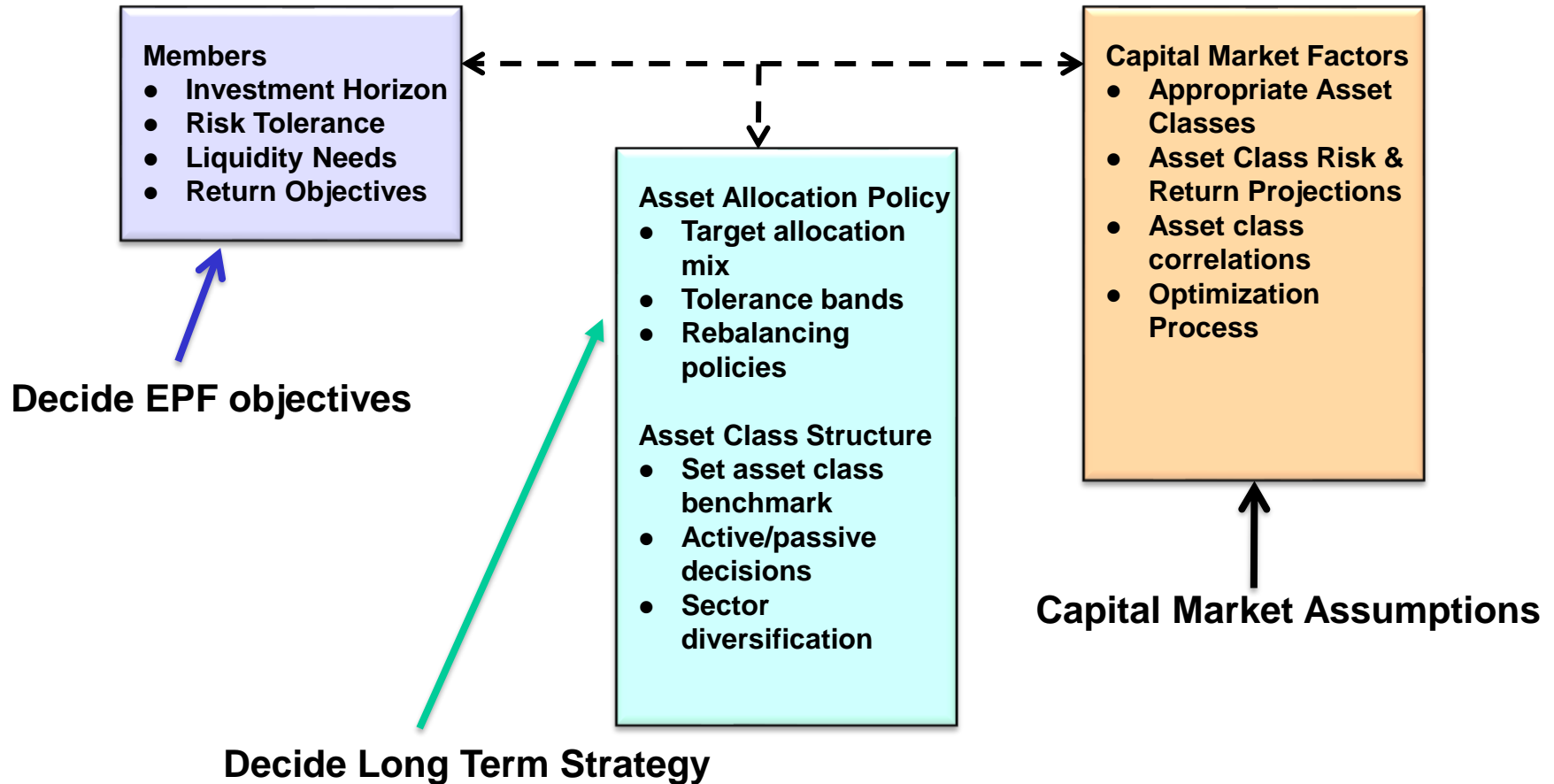
Corporate Risk Scorecard



Gross Rating	—	Control Effectiveness	=	Nett Rating	—	MAPs to create/enhance control effectiveness	=	Target Rating
<ul style="list-style-type: none"> Causes and Consequences Worst case scenario. No control or controls totally ineffective 		<u>Reduce Cause</u> Preventive and Detective Controls. <u>Reduce Consequence</u> Detective and Corrective Controls		After taking in consideration controls effectiveness		<ul style="list-style-type: none"> Tolerate. Transfer./ Share Treat. Terminate. MAPs = Management Action Plans		Points to consider in setting targets: <ul style="list-style-type: none"> Changes in causes. Improve controls effectiveness. MAPs by other departments MAPs by own department



SETTING INVESTMENT STRATEGY

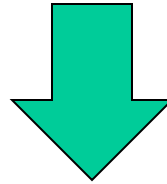




EPF RISK APPETITE

EPF OBJECTIVES

- Vision & Mission-To provide the best retirement saving scheme in Malaysia.
- Aim to quantify this objective
 - *The minimum dividend specified in EPF Act is 2.5% per annum*
 - *This by itself is insufficient to enable members to retire comfortably*
 - *Need to consider the impact of inflation*
- Although EPF has a long term time horizon, excessive asset value volatility over the short term may impair EPF's ability to declare dividends in line with its requirements.



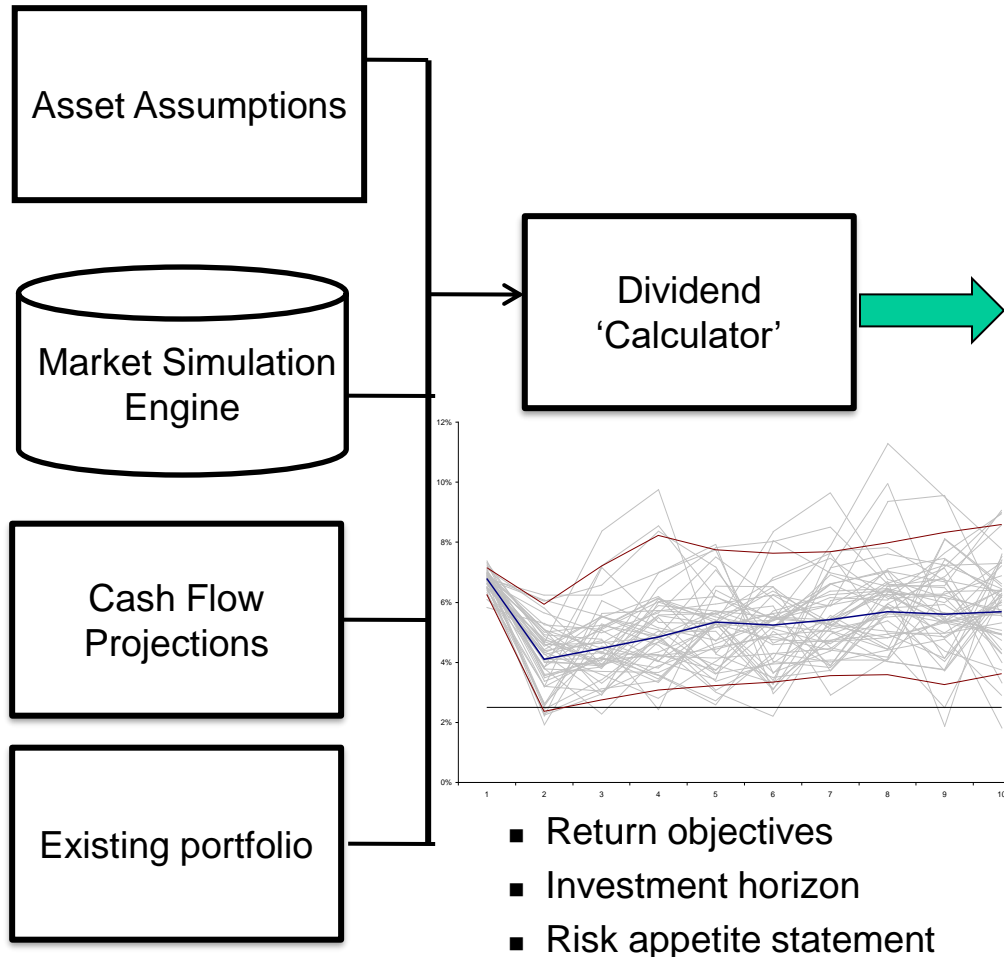
RISK APPETITE

- Risk appetite statements framed as follows:
 - **“EPF will not tolerate a greater than 10% chance of the dividend falling below 2.5% in any year over the next 10 years”**
 - **“EPF will not tolerate > 1/3 chance of the dividend falling below inflation + 2% over any rolling 3 year period”**



STRATEGIC ASSET ALLOCATION (SAA)

- Selection of benchmarks
- Risk/return assumptions
- Asset class risk & return projections
- Liquidity needs/ Net cash flow
- Withdrawal schemes
- Current allocation
- Rebalancing policy



Target SAA

MGS	29%
Loans & PDS	29%
Domestic Equity	21%
Global Equity	9%
Global Bond	5%
Money Mkt.	4%
Property	2%
Alternative Invest.	1%

- The SAA aims to be an asset allocation that seeks to maximise expected return for a given level of risk.
 - ❖ Return from EPF's perspective relates to the dividend that is able to be declared over time
 - ❖ Risk from EPF's perspective should relate to uncertainties associated with future dividends



TACTICAL ASSET ALLOCATION (TAA)

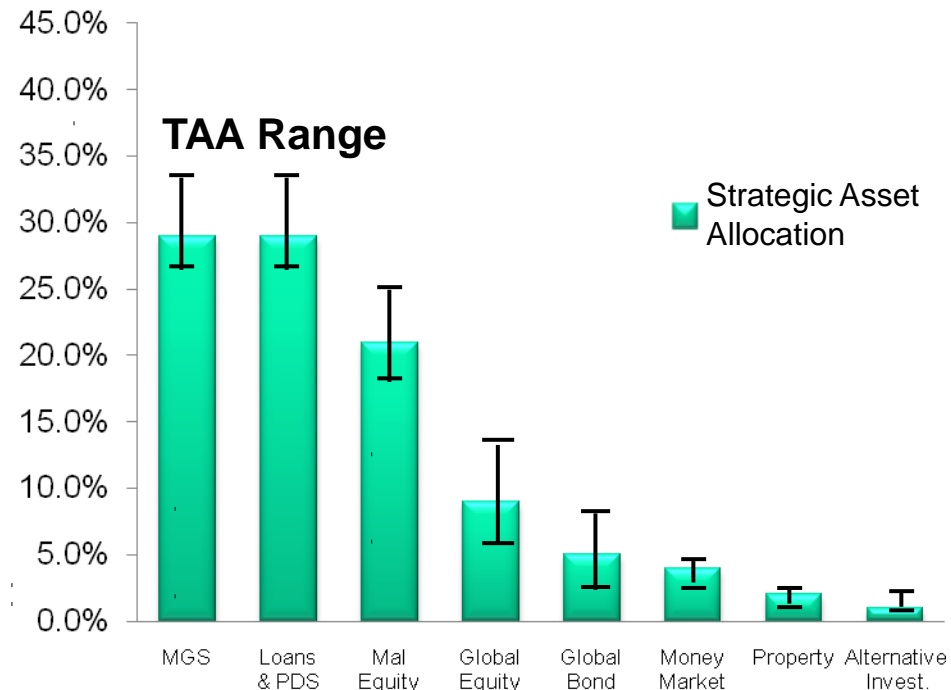
LONG-TERM

Target SAA

MGS	29%
Loans & PDS	29%
Domestic Equity	21%
Global Equity	9%
Global Bond	5%
Money Mkt.	4%
Property	2%
Alternative Invest.	1%



SHORT-TERM



- Tactical Asset Allocation (“TAA”) is intended to bridge the gap between long term strategic asset allocations and the shorter term horizons over which active investment managers generally operate
- A disciplined, short term (1-3 year) TAA process aims to take advantage of financial markets’ deviation from their fair value, producing better risk-adjusted returns by implementing **tilts** away from the SAA.
- Examples of decisions made to overweight/underweight:
 - Growth/Defensive asset buckets
 - Asset classes
 - Sub-asset classes
 - Currency exposures / hedging ratio



THE STRUCTURE OF RISK MANAGEMENT IS TO SUPPORT THE INVESTMENT PROCESS

Investment Process

- Allocation across asset classes based on chosen benchmarks
- Long term risk/return perspective
- Target is absolute return
- Active management of the asset allocation
- Driven by short-term risk/return expectations
- Target is to achieve better returns than SAA
- Active management of portfolios
- Target is to achieve better returns than the benchmark

Strategic Asset Allocation (SAA)



Tactical Asset Allocation (TAA)



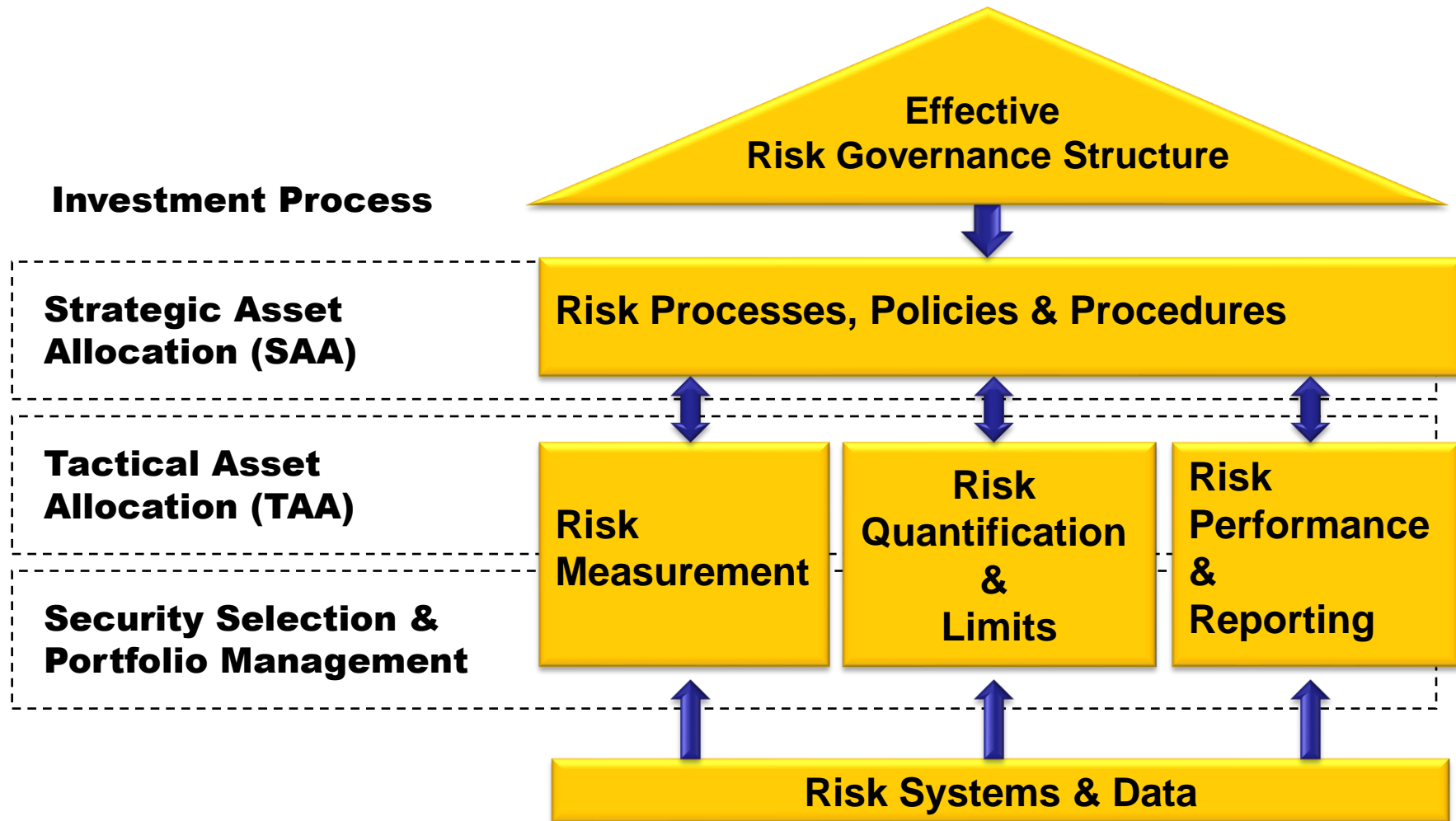
Security Selection & Portfolio Management

Risk Management

- Risk Appetite
- Top-down 'risk budgeting' of active risk-taking against benchmarks
- Upper and lower limits set on target SAA
- Setting limits & triggers i.e: Tracking error, VaR, concentration, shareholding, duration, etc. specific to asset classes

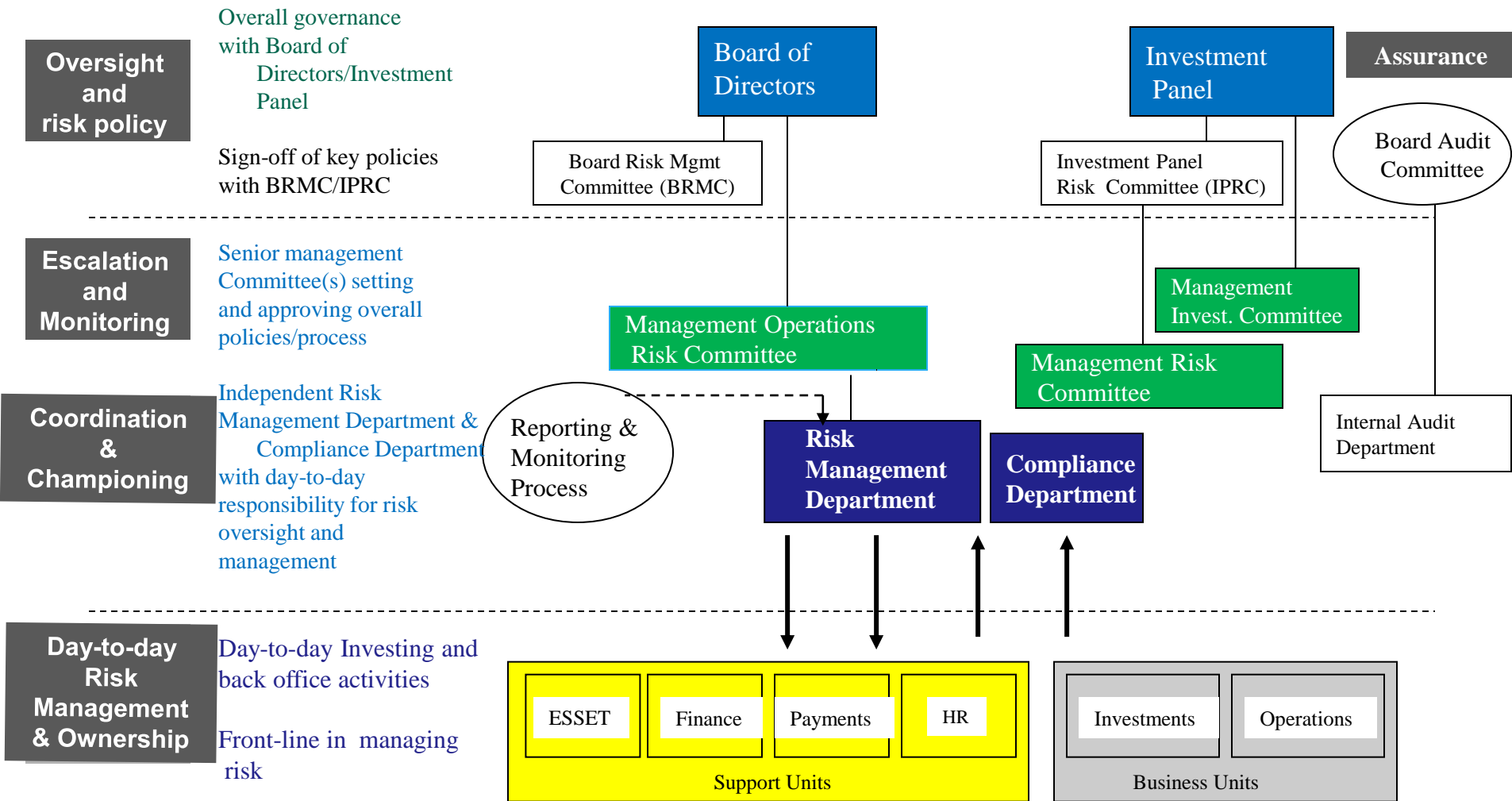


INVESTMENT RISK MANAGEMENT FRAMEWORK



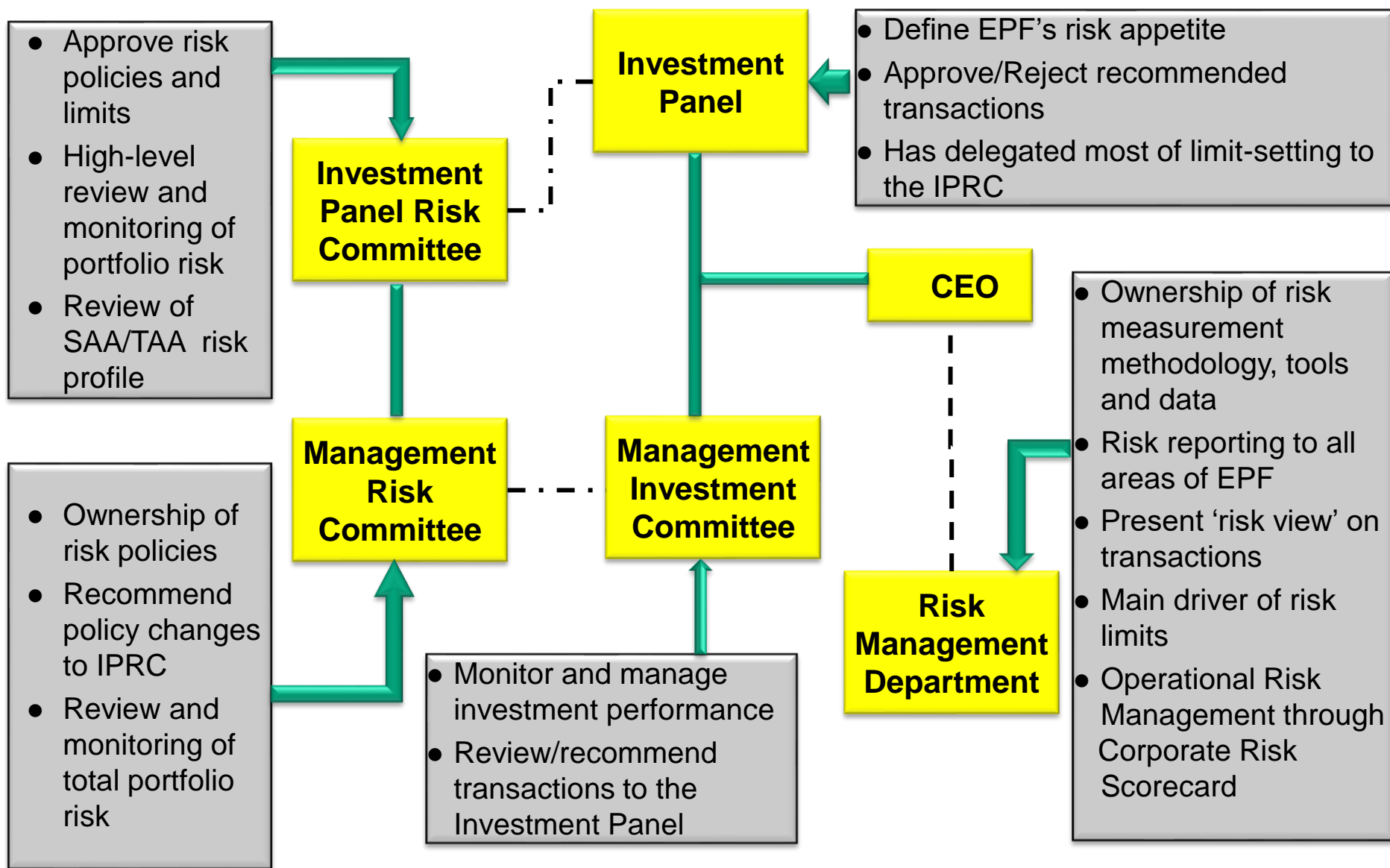


EPF's RISK GOVERNANCE STRUCTURE





INVESTMENT RISK GOVERNANCE STRUCTURE





INDEPENDENT REVIEW PROCESS

- **Roles & Responsibilities Of Independent Credit Risk Assessment Unit -**
 - **Independently Assess Business Proposal For Each Asset Class**
i.e: Loans/PDS, Private Equity & Property
 - **Review Proposed Changes To Terms & Conditions That May Have Adverse Effect To EPF Risk Profile**
 - **Conduct Annual Reviews On Borrowers**
 - **Review & Monitor Borrowers In The Watch List**
 - **Remedial Activities On Defaulted Facilities**

SAMPLE INDEPENDENT RISK REVIEW REPORT

- CONFIDENTIAL -

Independent Risk Review

RISK MANAGEMENT DEPT

ABC GROUP BERHAD

RM850 million Islamic Financing Facility

Major Risk Statistics

Rating	AA1 (Internal)
Exposure	RM850m
Expected Loss	RM0.43m (0.05%)
CVaR	RM42.49m (5.00%)
Credit Policy Limit	Within Limit

EPF'S EXPOSURE AS AT 31 DECEMBER 2009

	Direct	Indirect	Total Exposure
ABC Berhad	4,031,898,871	392,740,265	4,424,639,136
KG Berhad (Group)*	32,607,281,971	2,853,785,277.06	35,461,067,248
Total	36,639,180,842	3,246,525,542	39,885,706,384

*refer to Appendix I for details

RISK EVALUATION

The facility was rated AA1 by internal rating template.

RMD Comments:

- Lending to an investment holding company**
ABC Group Berhad (AGB) is an investment holding company where revenue is derived solely via dividend payments from its operating companies.
- Purpose of the loan is for refinancing exercise**

AGB is a subsidiary for an Islamic Financing of

FINANCIAL AND NON-FINANCIAL RATING

ABC Group Berhad is rated AA1 by internal rating template. The rating assigned mainly due to the followings:

- Increased in profit.** ABC registered profit before tax of RM1.84 billion on the back of RM9.41 billion revenue for the financial period ended 30th Sept 2009. The profit increased by 17% as compared to previous period in 2008 of RM1.57b.
- In addition to the above, the financial projection shows healthy cash position of the Group. With a further sensitized to the cashflow (assuming revenue

CREDIT RISK RETURN

Return-Risk-Ratio. The proposed facility Return-risk-ratio of 1.20 is lower than the Sector's and DCM Portfolio Risk Return ratio of 1.50 and 2.22

RELATIVE VALUE - PEERS COMPARISON

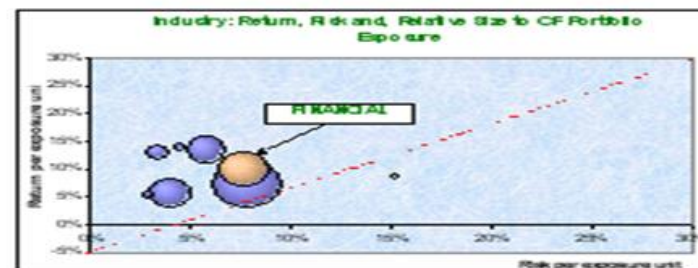
I) Among Issues of the Same Industry in DCM Portfolio. Total exposure to Axiata is low at 2.32%

PORTFOLIO RISK

Portfolio Risk Limit. The portfolio CVaR will increase to 1.94% if the proposed facility is accepted. The expected CVaR% of 1.94% is well within the **6.86% CVaR limit** set for DCM portfolio.

CONCENTRATION RISK

II) Among Industries in CF Portfolio. Comparing with other industries in CF Portfolio, the exposure to financial sector is the second highest.



CONCLUSION



VISIT TO EXTERNAL FUND MANAGERS

- ❑ **Site Visit Together With Equity & Quantitative Teams To Understand The EFM Investment Processes, Risk Management & Systems.**

- ❑ **Request Questionnaires To Be Filled To Gauge The Soundness Of EFM Practices With Regards To :**
 - **Risk Governance Structure**
 - **Policies , Procedures & Limits**
 - **Systems & Model**
 - **Disaster Recovery Plan**
 - **Succession Plan**
 - **Audit Frequency**



SURVEILLANCE OF INVESTEE COMPANIES

- **Evaluate Resolutions & Attend AGMs/EGMs-e.g. Objection To Section 132D, Etc.**
- **Assess/Review Corporate Actions Proposed By Investee Companies.
e.g. M&A, Right Issue.**
- **Weekly Visit To The Site Of Investee Company To Meet CEO & Senior
Mgmt. Team (Spear-headed By EPF CEO, Tan Sri Azlan & Team)**
- **Briefing By Investee Companies To EPF Research Team**
- **Guidelines To Ensure Effective Governance Of Directorship In Investee Companies
i.e.: Age Limit, Tenure Of Independent Director, Number Of Directors In The Board**
- **Dialog With Regulators (i.e: Security Commission & Bursa Malaysia) With Regards
To Guidelines To Strengthen Corporate Governance**



WATCH LIST

- Monitoring Companies Under Negative Rating Watch/Outlook Or Downgraded
- Follow Up On Remedial Activities With Regards To Defaulted Facilities
- Criteria for watch list:
 1. Rated below A3
 2. Defaulted Account
 3. Supranational/Foreign entity bonds below AAA (S&Ps,Moody's)
 4. Rating watch list
 5. Special mention
- Loan Recovery Committee Chaired By Tan Sri CEO.

Sample WatchList

ISSUER	RATING	MOST RECENT RATING ACTION	DATE ANNOUNCED
SPECIAL PORT VEHICLE BHD	AAA	AFFIRM	7/1/2010
CAPONE BHD	AA+ B	DOWNGRADE	16/12/2009
SENAI-DESARU EXPRESSWAY BHD	AA3	REAFFIRM	11/1/2010
LEBUHRAYA KAJANG-SEREMBAN SDN BHD	AA3	REAFFIRM	30/12/2009
TANJUNG OFFSHORE BHD	AA3	REAFFIRM	13/11/2009
MALAKOFF CORPORATION BHD	A2	REAFFIRM	2/11/2009
BANK MUALAMAT MALAYSIA BHD	A3	REAFFIRM	9/1/2009
MALAYSIAN MERCHANT MARINE BHD	BB+	DOWNGRADE	4/2/2010
AMPLE ZONE BHD	B+	DOWNGRADE	5/8/2009



STRESS TESTING

Stress testing of EPF's investment portfolio is done based on the 5 elements covering the following aspects:

ELEMENT	DESCRIPTION
Economic Assumptions	The scenarios are divided into the base case, of which under the normal market circumstances the economy is expected to perform. The worse case is a diversion from the base and it is a plausible event that deemed can happen.
Market Indicator Assumptions	Once the economic projection has been established, the assumptions of changes to the risk factor for each asset class are then constructed. The changes to the risk factors are derived and measured from the given economic assumptions value.
Risk Assessment on Asset Value and Income	Based on the shock value of risk factor, simulations are run to determine the impact of changes to the asset values and income. Income projected for the 3 years is stressed to gauge the potential impact to the dividend distribution if the economy contraction continues to prolong.
Trip Wires and Triggers	The economic indicators act as trip wires and triggers are then established containing the leading indicator from the external and internal variables. It indicates whether the economy is in periods preceding the worse case scenario.
Management Action Plan	The Management Action Plan (MAP) is to be put in place to mitigate the most potential loss from occurring once the triggers have been hit. Each relevant department is required to come up with a proper MAP and the MAP is monitored in the Department Risk Scorecard.



DOMESTIC EQUITY & GLOBAL EQUITY

RISK MEASURES & PURPOSE

RISK MEASURES	PURPOSE
1. Market Value-at-Risk	<ul style="list-style-type: none"> To alert the management to an increase in equity risk during periods of high market volatility, or when large allocations are made to volatile stocks/sectors.
2. Tracking error	<ul style="list-style-type: none"> To measure active risk taken beyond benchmark and To control the deviation of actively-managed actual return from the SAA's expected benchmark returns.
3. Sector Concentration	<ul style="list-style-type: none"> To control the deviation of the sector weight in the equity portfolio from the sector weight in the benchmark.
4. Ownership limit	<ul style="list-style-type: none"> To ensure the fund managers do not take larger stake in any company without approval.
5. Name Concentration	<ul style="list-style-type: none"> To ensure portfolio diversification by setting a minimum number of companies in the portfolio.
6. Loss limit	<ul style="list-style-type: none"> To limit poor performance at the stock and/or the portfolio basis, either on absolute amount or relative to the benchmark.
7. Dealers Limit	<ul style="list-style-type: none"> To prevent fund managers/traders from buying large amount of stock without higher authority's consent
8. Country Limit (Global Equity)	<ul style="list-style-type: none"> To limit exposure by country. As a secondary control to tracking error



MALAYSIAN GOVERNMENT SECURITY

RISK MEASURES & PURPOSE

RISK MEASURES	PURPOSE
1. Credit VaR	<ul style="list-style-type: none">• To control the size of credit risk assumed by the portfolio
2. Issuer concentration	<ul style="list-style-type: none">• To control the concentration risk in each counterparty (by rating)
3. Liquidity by issue	<ul style="list-style-type: none">• To prevent the portfolio manager from owning too large a proportion of an issue
4. Duration Limit	<ul style="list-style-type: none">• To control liquidity and interest rate risk in the portfolio
5. Dealers Limit	<ul style="list-style-type: none">• To prevent fund managers/traders from buying large amount of securities without higher authority's consent
6. Maturity limit	<ul style="list-style-type: none">• To ensure the funds are invested in securities within the targeted maturity buckets
7. Loss limit	<ul style="list-style-type: none">• To limit poor performance at the securities and/or the



OTHER ASSET CLASSES

RISK MEASURES & PURPOSE

MONEY MARKET

RISK MEASURES	PURPOSE
1. Duration limit	• To control liquidity and interest rate risk in the portfolio
2. Credit Value-at-Risk	• To control the size of credit risk assumed by the portfolio
3. Minimum Rating	• A floor for all credits investment
4. Counter party limit	• To control the amount of exposure based on counter parties risk profile and credit worthiness

LOANS & PRIVATE DEBT SECURITY (PDS)

RISK MEASURES	PURPOSE
1. Minimum rating limit	• A floor for all credits investment
2. Issuer concentration	• To control the concentration risk in each counterparty by rating
3. Sector Concentration	• To control the concentration risk in the sectors



NON-COMPLIANCE PROCEDURE

POLICIES & LIMITS

- ✓ Policies & limits imposed to major asset class

TRACKING & MONITORING

- ✓ Daily monitoring
- ✓ System based monitoring

NON- COMPLIANCE PROCEDURES

- ✓ Memo issued by Compliance Dept. to respective Fund managers/HOD.
- ✓ 24hours reverting respond from respective fund managers/HOD
- ✓ 5 days given for the corrective action (limit back to normal)
- ✓ Bring to Investment Committee for approval to hold.

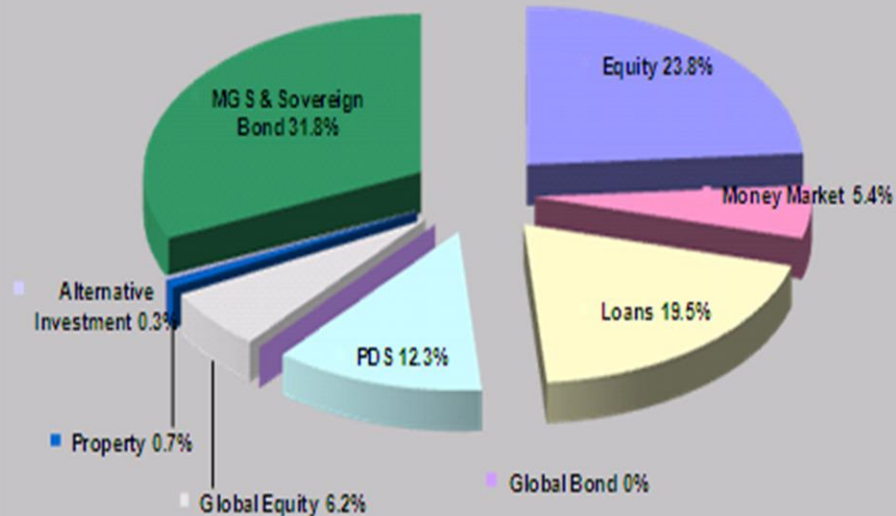


RISK SYSTEMS AND DATA

SYSTEMS	DESCRIPTION
Corporate Rating Template	<ul style="list-style-type: none">• Rating tool to assess creditworthiness of borrower
Credit Portfolio Model	<ul style="list-style-type: none">• To compute potential lost of EPF portfolio due to event of default
SAA/TAA Model: (Dividend Calculator)	<ul style="list-style-type: none">• Tool to allocate funds to various asset classes in line with EPF risk appetite and long term target dividend rate <p><i>SAA: Strategic asset allocation</i></p> <p><i>TAA: Tactical asset allocation</i></p>
RiskManager	<ul style="list-style-type: none">• To compute market risk of the EPF portfolio (VaR)
Wilshire	<ul style="list-style-type: none">• To compute portfolio returns and tracking error
IBM Cognos TM1	<ul style="list-style-type: none">• To maintain historical position and market data

SAMPLE INVESTMENT REPORTS

Asset Allocation as at 31 January 2010 (By Market Value)



Asset Class	TAA Range	SAA	Cost	Mkt. Value
MGS & Sovereign Bonds	26% - 32%	29%	33%	32%
Loans & PDS	26% - 32%	29%	33%	32%
Domestic Equity	16% - 26%	21%	22%	24%
Money Market	1% - 7%	4%	5%	5%

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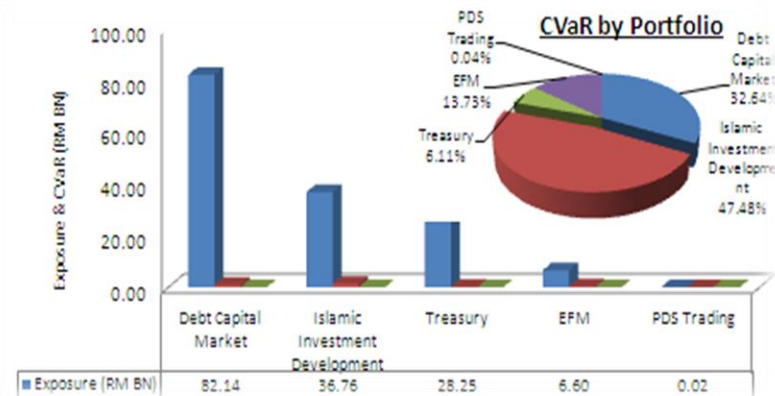
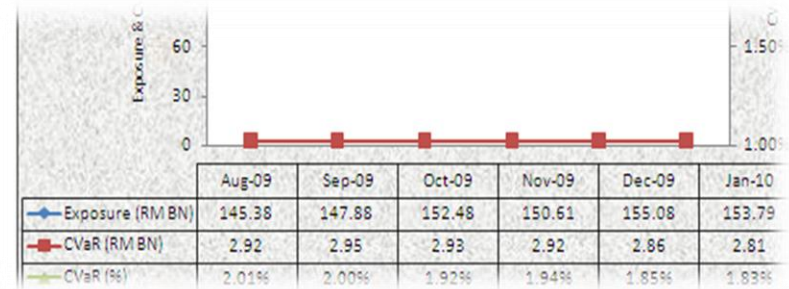
Appendix

Equity Risk Report – Domestic as at 31 January 2010

INTERNAL VAR

PORTFOLIO	MARKET VALUE	VaR	% VaR	STRESS KLCI 700	% VALUE WEIGHT	% RISK WEIGHT
GROUP 1	19,465	5,234	27%	11,591	25%	25%
GROUP 2	19,502	5,335	27%	11,579	25%	25%

COUNTRY OF INCORPORATION	MARKET VALUE	% WEIGHT	VAR	% VAR
MALAYSIA	95,297	80.73%	25,846	27.12%
SINGAPORE	5,469	4.63%	2,410	44.08%





INVESTMENT RISK MANAGEMENT GOING FORWARD

2003-2005 (Investment Risk)

- Formed Risk Structure-MRC & IPRC
- Installed SAA/TAA model
- Intensive Risk trainings/workshops
- Set up Frame-work, Process, Monitoring & Reviews
- Implementation of Market Risk & Performance Systems
- Independent assessment (the deal team)

Set Foundation

- Adopt common language
- Establish oversight and governance

2003-2005

2006-2009 (Investment Risk)

- Review on SAA & TAA
- Expand staff strength
- Expand role of the independent assessment team to cover private equity & property
- Improve MIS capabilities
- Risk & Performance monitoring & reporting

Build Capabilities

- Assess risk and develop responses
- Design/implement capabilities

2006-2009

2010 onwards (Investment Risk)

- Data Analytics-TM1
- Expanded Roles
- Systems-ALM, Credit/Market Risk Models
- Enhancing Risk Measurements
- Enhancement to risk & Performance monitoring & reporting

Enhance Capabilities

- Quantify risk enterprise wide
- Improve performance
- Establish sustainable value

2010 onwards

The more management has **enhanced capabilities** in place, the **greater the alignment of risk management policies, processes, people, technology and knowledge** and the **greater the degree of integration** with strategy and operating processes.

Managing Risks For Success



THANK YOU

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INVESTMENT RISK GOVERNANCE STRUCTURE

Investment Panel Risk Committee (IPRC)

- Membership: 3 members of the Investment Panel including Tan Sri CEO
- Meeting- minimum 4x a year
- Roles & Responsibilities:
 - Review the SAA/TAA proposal and escalate to Investment Panel for approval
 - Approve risk policies and limits
 - High-level review and monitoring of portfolio risk

Management Risk Committee (MRC)

- Membership: CEO, Deputy CEOs, Head of Risk Management, Head of Compliance & Settlement, Head of Quantitative & Performance Analysis and relevant Heads of Department.
- Meeting- minimum 8x a year
- Roles & Responsibilities:
 - Review risk policy proposal and escalate to IPRC for approval
 - Ownership of risk policies
 - Review and monitoring of total portfolio risk