



# Measuring and Managing Risk Within a Sovereign Framework

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# Disclaimer

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“The sole purpose of this presentation is to share views among institutional investors who attended the conference hosted by EPF of Malaysia. This views and opinions expressed herewith in this presentation are my own and do not necessarily reflect in any way those of the Government Pension Fund (Thailand)”



1. Brief Background of GPF (Thailand)
2. A Philosophy of Investment Risk Management
3. Measuring and Managing Risk
4. Severe but plausible stress testing/ sensitivity analysis is crucial and sensible tool
5. Alignment of Interest on Risk Budgeting Setting
6. The Changing of Investment Landscape
7. Summary





# Brief Background of GPF (Thailand)

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# Government Pension Fund (Thailand)

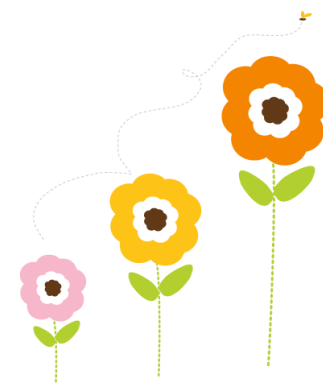
- Government Pension Fund (GPF) is established under the GPF Act 2539 B.E. (1996 A.D.) to be autonomous entities, supervised by the Board of Directors (BoD), which is primarily composed of representatives who are owners of the money contributed to the Fund from both sides (the employer, and the employees or members of the fund).
- GPF currently has around USD 20 billion in aggregate of asset under management. Whereas USD 5 billion serves as a government's built-up reserve portfolio for an approximate 3 years budget equivalence to fund the government's obligation on Pillar I: Defined Benefit pay-as-you go; the majority of fund under management of USD 15 billion is investment portfolio of Pillar II: mandatory defined contribution scheme for 1.2 million individual government officials.





# A Philosophy of Investment Risk Management

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# Street-wise philosophy of investment risk management

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- It is required that we all assume the market is efficient (this is the first order approximation) although the reality it is not. Possibly if the market is semi-strong form or above will be much desired than weak form.
- The alpha is like a flip of coin as it can be either head i.e. positive (+) or toe i.e. negative (-) and if you do compare it in an economics context alpha is a scarce resource which every fund manager is chasing after.
- Given a scarce or hard to find alpha, and the financial world is full of fund managers in all area:
  - What should the risk manager be thinking of?
  - How do the risk manager react in term of identifying, assessing, monitoring & reporting and control & mitigating the risk?



# Layman term philosophy of investment risk management

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- Being closed to the front office (fund managers) i.e. try to understand their investment decision and rationale so that when risk parameters shown out you will know exactly the reason behind this statistical numbers.
- Being pragmatic i.e. even though risk managers worked like rocket-scientist but have to be practical in conveying or communicating with relevant stakeholders in the organisation.
- Being realistic and simplistic but robust i.e. don't get succumb into those statistical parameters too soon and be realistic and simplistic but robust on those 4 steps of risk management concept.



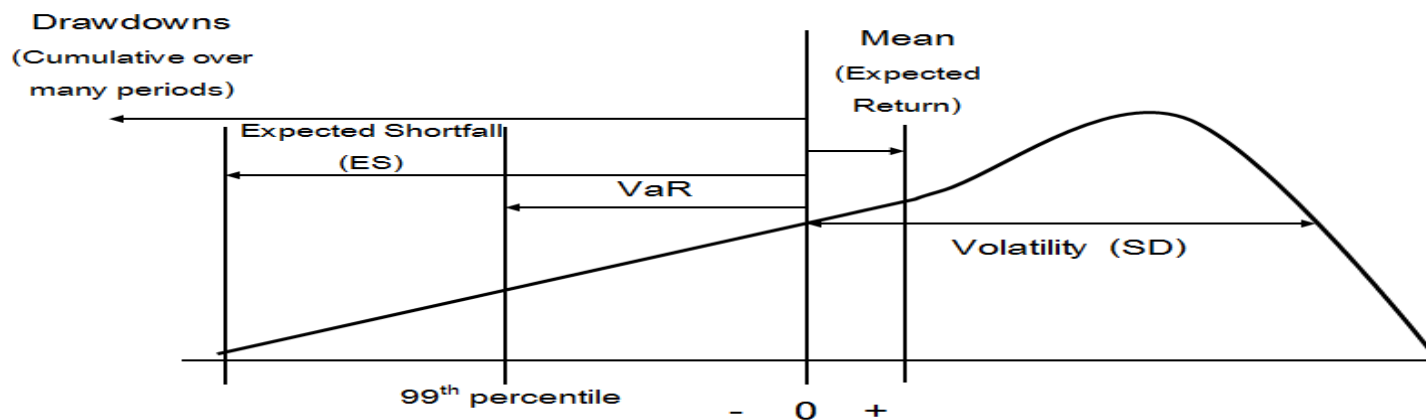
# Measuring and Managing Risk

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# Measuring and Managing Risk (1/2)

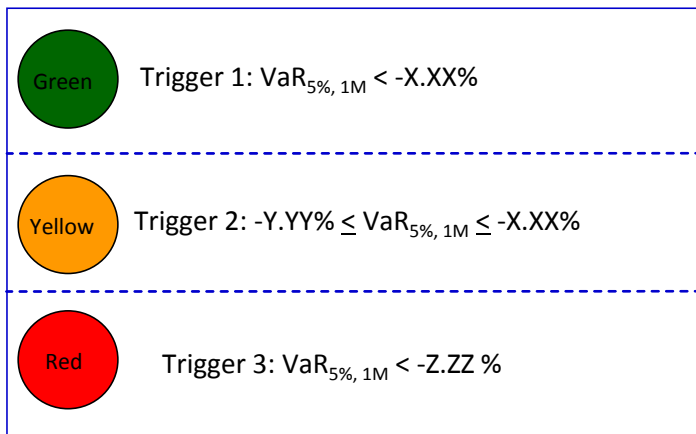
- No such a single best measure i.e. Volatility, VaR, Expected Shortfall (ES), Drawdown, Tracking Errors (TE), Stress Testing etc.
- No such an unarguably way on setting up the computing parameters i.e. 95%, 97.5%, 99% of confidence interval, historical simulation (how far back or the capturing period used?), holding periods used, asset return parameterisation etc.
- No such a way to overcome errors i.e. risk parameters/numbers will be much more meaningful for one asset class but least meaningful for a single asset class i.e. public vs. private market.



# Measuring and Managing Risk (2/2)

- Applying rule of thumbs investment risk management (I-A-M-C) i.e. Risk Identification, Risk Assessment, Risk Monitoring & Reporting, and Risk Control & Mitigation (put an emphasis on the significant inherent risk).
- Setting suitable and probable risk limits in different levels i.e. overall portfolio, asset class, portfolio, sub-portfolio etc.

## Traffic Light Monitoring



Risk Parameters	Early Warning 1	Early Warning 2	Loss Limit
<b>Group 1: High volatility currencies</b>			
Monthly VaR (Confidence level = 95%)	-66.00%	-73.00%	-80.00%
Monthly Conditional VaR or ES (Confidence level = 95%)	-80.00%	-90.00%	-100.00%
<b>Group 2: Low volatility currencies</b>			
Monthly VaR (Confidence level = 95%)	-8.60%	-9.50%	-11.00%
Monthly Conditional VaR or ES (Confidence level = 95%)	-10.50%	-12.00%	-14.00%

Loss Level Threshold	FX Exposure	% of Losses	Action Plan
High	Group 1		Fund manager needs to unwind the entire FX exposure position
	Group 2		
Medium	Group 1		Fund manager needs to unwind half of the total FX exposure position
	Group 2		
Low	Group 1		Fund manager needs to explain and clarify on a written memo for those FX exposure position to Investment Risk Management
	Group 2		

**Remark:** FX Exposure Group 1 = High volatility currencies based on the historical price movement for the past 3 years  
 FX Exposure Group 2 = Low volatility currencies based on the historical price movement for the past 3 years



# Stress Testing/ Sensitivity Analysis

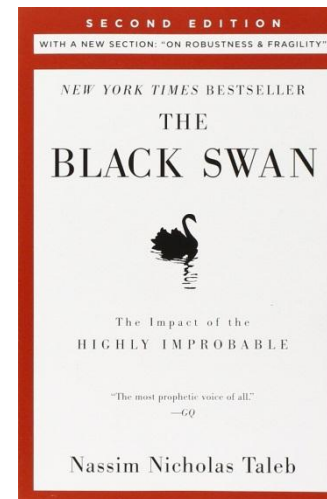
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# Stress Testing

- Severe but plausible stress testing scenario is crucial and sensible tool to implement i.e. need to be innovative but realistic when designing it.
- According to Mr. Taleb's great piece and best-selling book; the Black Swan as it has given us some second thought on the tail risk hedging or even applying stress on expected shortfalls (take the average of the max).

*“Tail risk hedging” or  
“black swan protection” to  
protect against abnormal  
market volatility.*



# Risk Budgeting Setting

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# Risk Budgeting Setting

- A good translation of organisation's risk appetite and risk tolerance level is vital as it reflects the alignment of interests from the Board down to the working levels. It should also be suited to our members' profile as well.
- Prudent and robust risk budgeting setting is like an art as giving more rooms for fund managers to tilt out from the benchmark to attain alpha is like playing futsal vs. football (smaller field vs. standardised bigger field) as a result there will be more referees for the latter one.

*Rule No.1: Never lose money...*

*Rule No.2: Never forget rule No.1*





# Changing of Investment Landscape

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- The so called “New Normal” environment i.e. weak economic growth, low interest rates in developed countries, flood of liquidity via QE from major central banks globally, persistently rising unemployment rate, rising up of public debts which led to fiscal austerity, deleveraging of major banks in the Eurozone and U.S. according to new imposed regulations etc.
- According to a low yielding environment, there will be a resurrection of structured products post 2008-9 financial crisis as everyone is chasing after a higher return.
- Since the policymakers around the world are doing the same thing as a result there is some global convergence of rules and regulation as well as the investment philosophy.



- The creation and becoming more popular of virtual money (bitcoin), virtual market, virtual algorithm trading pattern (HFT) etc. which will submerge into our daily living.
- The evolution of “Big Data” will play a big role in many aspects’ decision making including investment and risk management whereas the flip side of it is that it also created more noises/ turbulences in the market
- Investment risk management aspect, there might be some new measures but most important is the global holistic view of risk management due to an interconnected and borderless investment territory.



# Summary

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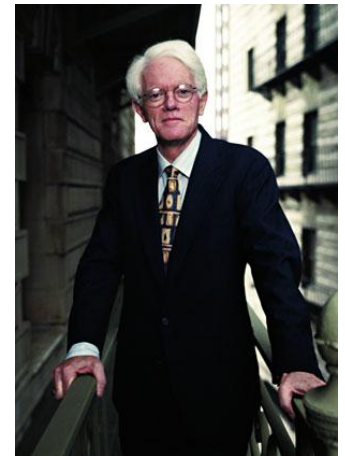


# Summary

- Investment risk management shall be pragmatic, simplistic and realistic.
- Investment risk management team shall be close-tied with fund manager.
- Some conventional risk management parameters e.g. Duration, VaR, TE, Volatility etc. might be relevant to one investment product but irrelevant to others.
- Keep understanding on the intrinsic composition of those investment products i.e. exotic structured products.

*“Invest in what you know” principle*

*“Go for a business that any idiot can run,”  
he has said, “because sooner or later, any  
idiot probably is going to run it.”*



# Thank you



18 ปี anniversary  
กองทุนบำเหน็จบำนาญข้าราชการ

