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Capital Allocation – Should we open Pandora's Jar?

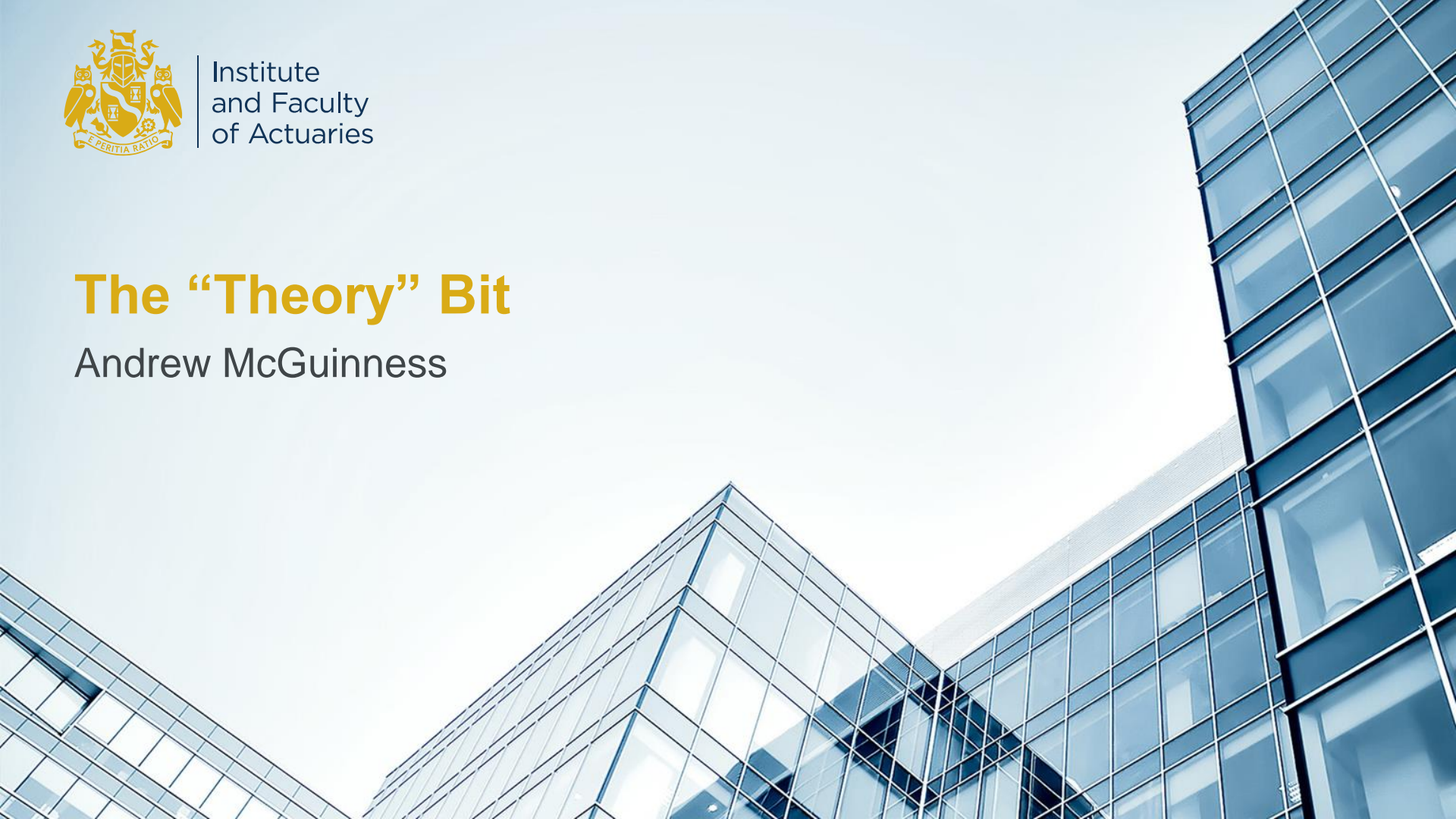
Andrew McGuinness, Willis Towers Watson
Martin Muir, Aviva



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The “Theory” Bit

Andrew McGuinness



Another allocation talk? Why now?

European market – shift in focus post Solvency II

- Market practice has generally converged
- BAU: stop “building” and start “using”

Changing market conditions

- Challenging conditions
- Focus on Value
- Analytics increasingly important – internally and externally
- Changing economy:
 - InsureTech
 - Disaggregation
 - Disintermediation

Technology continues to advance

- Take a sledgehammer to the toughest of nuts

Theory vs Practice

- Explosion of theory a decade ago
- Applications in practice have moved on little
- Time to open up the debate again!



Back to the fundamentals

Risk Owners (indemnity seekers)

Choose to Accept, Mitigate or Transfer

When we set Capital we look at:

- Risk profile
- Risk measure
- Risk tolerance
- For a given time horizon

What is Capital?

- General risk-absorbing capacity, or
- A collection of physical instruments on a balance sheet

Deployment

- The value of risk is not symmetric (cost of capital is undertaking-specific)
- In practice, the capital base of an undertaking is not easy to change in the short term, so it provides a constraint

What do we want from an allocation?

- Relationship to risk measure and risk appetite
- Appropriate consistency over time for the same risk
- Ability to deal with the time horizon for different risks
- “Coherence”, which has been formally described through:
 - Full allocation
 - No undercut
 - Symmetry
 - Riskless allocation
- No gremlins lurking in the mathematics
- Ability to implement with current models



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Methods aplenty

- Some of these have flavours
- Some are general principles that yield others as specific cases
- Some of them are just different names for the same thing
- They have all been talked-up and dressed-down
- And there are many more!



The **multitude of allocation methods** proposed in the literature is **bewildering**. Allocation methods are sometimes proposed in an **ad-hoc** fashion lacking usually with much economic justification and are thereby viewed as arbitrary. This motivated some authors to **doubt the legitimate purpose of the exercise itself** of allocating capital ... Certain allocation methods may be best suited in order to address specific issues, but it is always unclear what these issues are...certain allocation techniques **can dangerously lead to wrong financial decisions.**"

- From 'Optimal Capital Allocation Principles', Dahene et Al, 2009



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Reviewing the literature

Overview

There are 4 main streams in the literature:

- Co-operative game theory
- Performance/portfolio management
- Market valuation of assets & liabilities
- Optimisation

Practical Takeaways

“Flurry of activity” a decade ago, picking up again recently

Papers often aimed at addressing the shortfalls of methods so far

Realistic examples are relatively scarce

Slow groundwork – academics tend to worry about housekeeping

Bibliography and my potted summary notes can be found with the slides on the GIRO website

Recent Highlights

- Furman et Al (2018)
 - Analyse the Weighted Insurance Pricing Model under multiplicative and additive systematic-risk frameworks
 - Quite “useful” distributions allowed for
 - Dependency through explicit effects – analogous to CAPM
- Boonen et Al (2017)
 - Capital allocation with non-linear risk aggregation
- Major (2018)
 - Allocation for financial derivatives of some underlying e.g. reinsurance recoveries
 - Relies on homogeneity of the operator
- Tsanakas et Al 2018 (preprint)
 - Response to Major (2018)
 - Allocation of net rather than gross total



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Theory vs. practice

By the “no free lunch theorem”, there is never going to be one best method for all circumstances

Capital allocation is not an end in itself – the reason behind allocation should drive the choice of methods

What business problems are people using capital allocations for?

- Filling in regulatory returns
- Understanding the behaviour of the internal model / validation
- Business planning / strategy
- Pricing
- Performance management

Challenges:

- Nitty-gritty e.g. separating insurance and market risk on discounted profits
- The time horizon
- Expert judgement and its impact

Market practice: which methods are popular?

The following relatively non-exotic methods seem to be dominant:

- Haircut (or pro-rata)
- Co-TVaR
- Kernel (or Fuzzy VaR or Spread-VaR)

Most current models use Monte Carlo simulation – so any method needs to be amenable to simulation output

Often we hope to fit an allocation method onto an arbitrary model – maybe that’s asking too much

It can be difficult to frame many business questions in a “model world”

A common question I get asked is whether market practice has moved on to something more exciting, to which my common answer is “no, but maybe it should!”



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Where do we go from here?

- Call to arms – don't give up!
- Some methods have nicer theoretical properties than others
 - Just changing your allocation method won't help you
 - But why not experiment a little?
- I think there is an opportunity for research on the whole process (not just the allocation methods)
- We will need to change our models as the world moves on
 - Usefulness for allocation should be a design consideration





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The “Practice” Bit

Martin Muir



What do we mean by capital allocation?

Deploying to and releasing capital from:

Markets						
Products						
Stakeholders	Debtholders		Shareholders		Pension scheme members	

"The root of my success is acting rationally about capital allocation."

Warren Buffet, CEO Berkshire Hathaway

Objectives:

- Support the strategy
- Drive better financial outcomes



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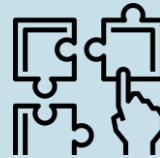
Where is capital allocation used?



Decision-making



Measuring performance



Strategy and planning



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What measures are needed to allocate capital?

Do we need another measure?

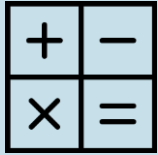
- We already have many! Want greater simplicity not additional complexity
- Finance and Risk may enjoy using it, but how will the Business understand and use it?

	Growth Oriented	Wide Application	Risk & Return
Operating Profit	●	●	●
Operating Capital Generation	●	●	●
Value of New Business	●	●	●
Net Written Premiums	●	●	●
Combined Operating Ratio	●	●	●
Cash Remittance	●	●	●



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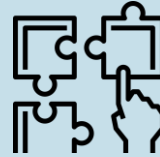
Practical considerations just as important



Easy to calculate



Easy to understand



Robust



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Capital allocation metrics

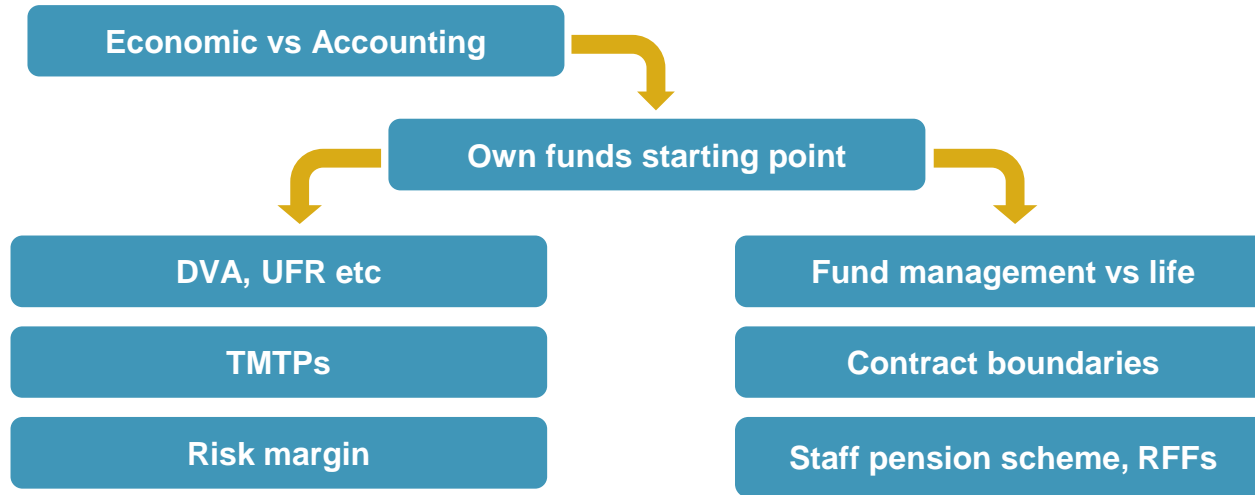
What's the right type of metric?



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Technical choices (1)

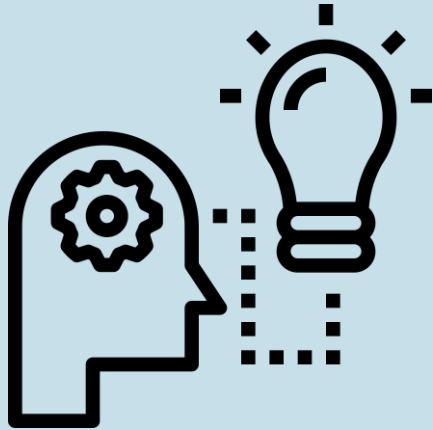
What's the right value measure?



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Technical choices (2)

What's the right capital measure?



SII vs Internal model

Risk appetite (+)

Dividend constraints

Group v solo diversification

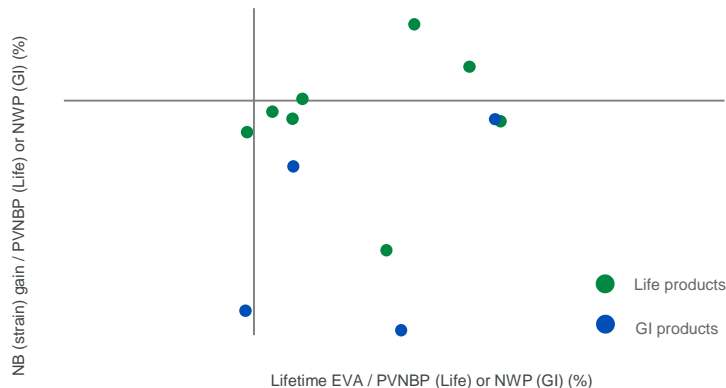


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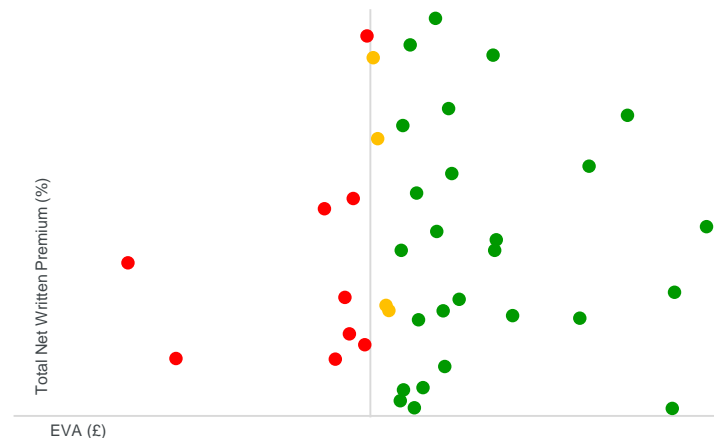
How we use it - examples (1)

Metric	Cash payback (years)	EVA +ve @ WACC of swaps plus
No escalation required	Less than X years	>%
Local CFO escalation	X-X years	%-%
Group escalation	More than X years	<%

Lifetime EVA vs initial capital strain (gain)



GI product EVA



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How we use it - examples (2)

M&A

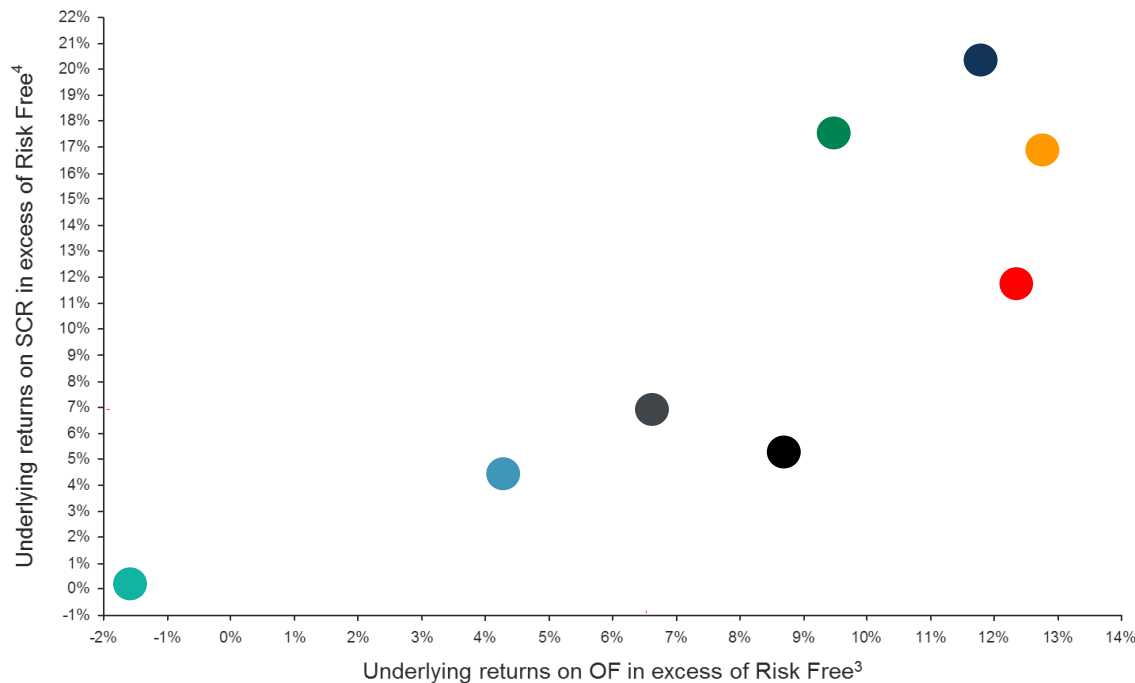


Solvency 2 - "Day 1" impact	
Purchase price	
Own funds acquired	
"Initial" EVA	
SCR at acquisition	
Diversification benefit	
"Day 1" Group S2 impact	
PV EVA - 8%	
PV EVA - 9%	
PV EVA - 10%	



How we use it - examples (3)

BU performance



Embedding it

Be pragmatic



- Use readily available numbers
- No new complex concepts
- Proportionate approach

Stakeholder Engagement



- Early consultation, let people help shape it
- Demonstrate the business value
- Compromise! Don't ignore concerns

Education



- Internal training
- Be able to pitch at different levels
- Repeat and persevere!

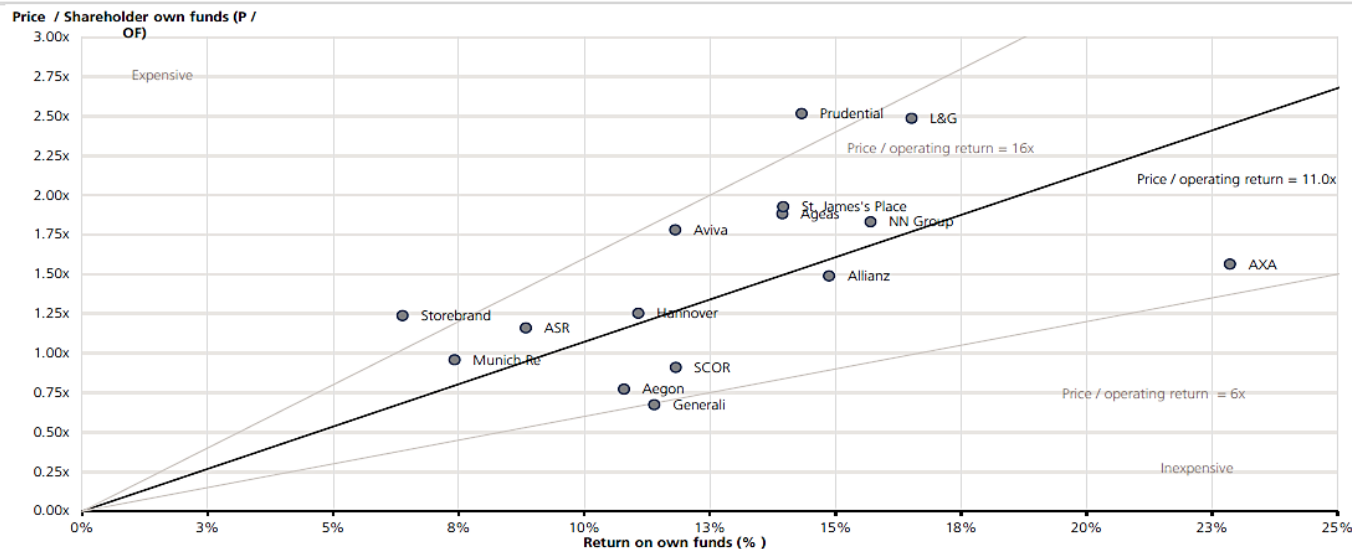


Market focusing on sustainable growth

Gaining traction with analysts, gradual shift from an IFRS to an S2 lens

Solvency II valuation – Price to shareholder Own Funds vs operating return on FY17 Own Funds (%)

The ability for insurers to demonstrate underlying growth in Own Funds could increase in prominence for investors



Operating return on Own Funds is an under-appreciated metric in our view

Source: UBS research, company data, Solvency and Financial Condition Reports (SFCRs), Datastream, all local currency, FY17 Own Funds



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Questions

Comments

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