

Opportunity Valuation and Investment Decisions - A Tale of Narratives and Numbers*

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Abstract

How often have we heard the phrases “he is a number cruncher”, “there is nothing he could not sell”, conceded these stereotypes sound like profiling, but they are also rooted in two fundamentally different ways people are educated, often starting as early as grade school and leading to the STEM vs Liberal Arts higher education system. The fact is that we all have a preference when analyzing, presenting or making decisions based on data and information, investors and executives are no exception. The oil and gas upstream business is characterized by large uncertainties both in terms of variety and magnitude, leading to high investments risks and often elusive upsides, making sound investment decisions is a balancing act between narratives, a good storyline, and numbers, a sound valuation and pricing. Obviously complicating matters are biases both from individuals providing narrative, who does not want an optimistic and slightly biased explorer, as well as data where sampling biases are often a matter of facts. This article will explore these issues with recent real-world examples, as well as suggest solutions on how to best integrate narratives and numbers, enabling executives and investors to beat the odds through better investment decisions.

Investment Decisions

A tale of narratives and numbers

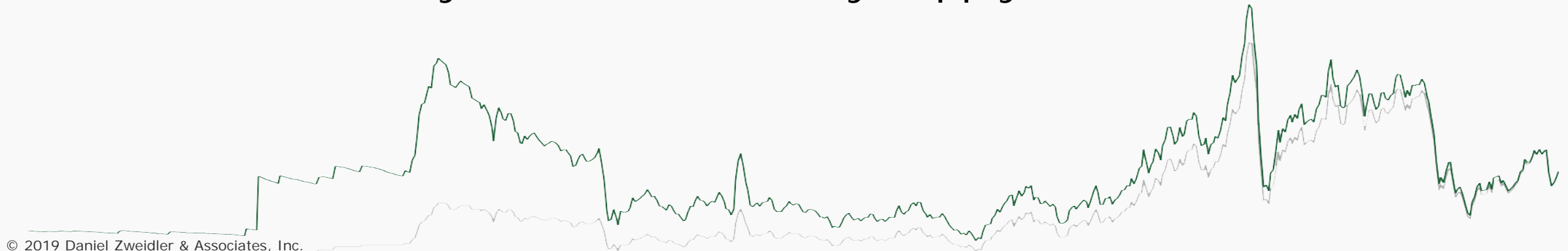
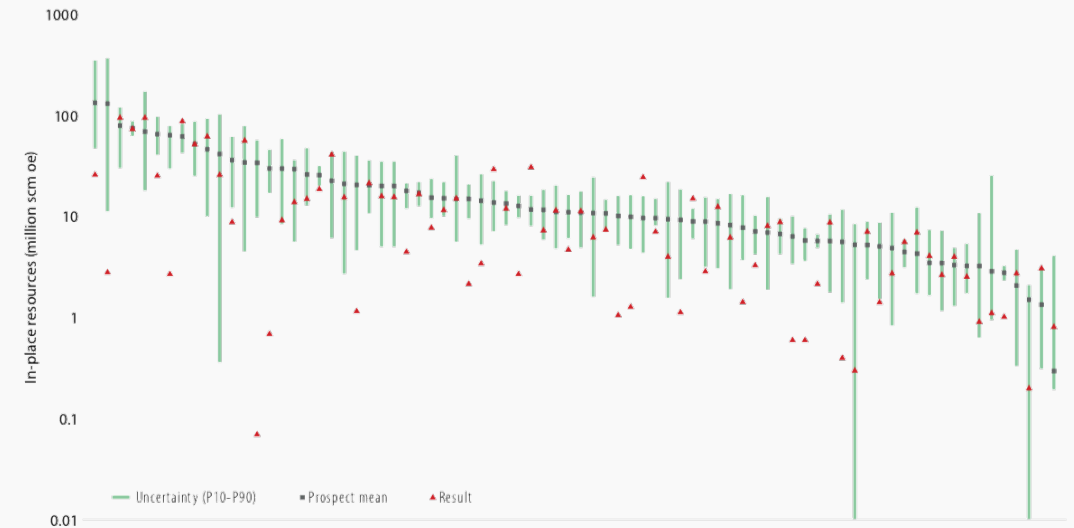
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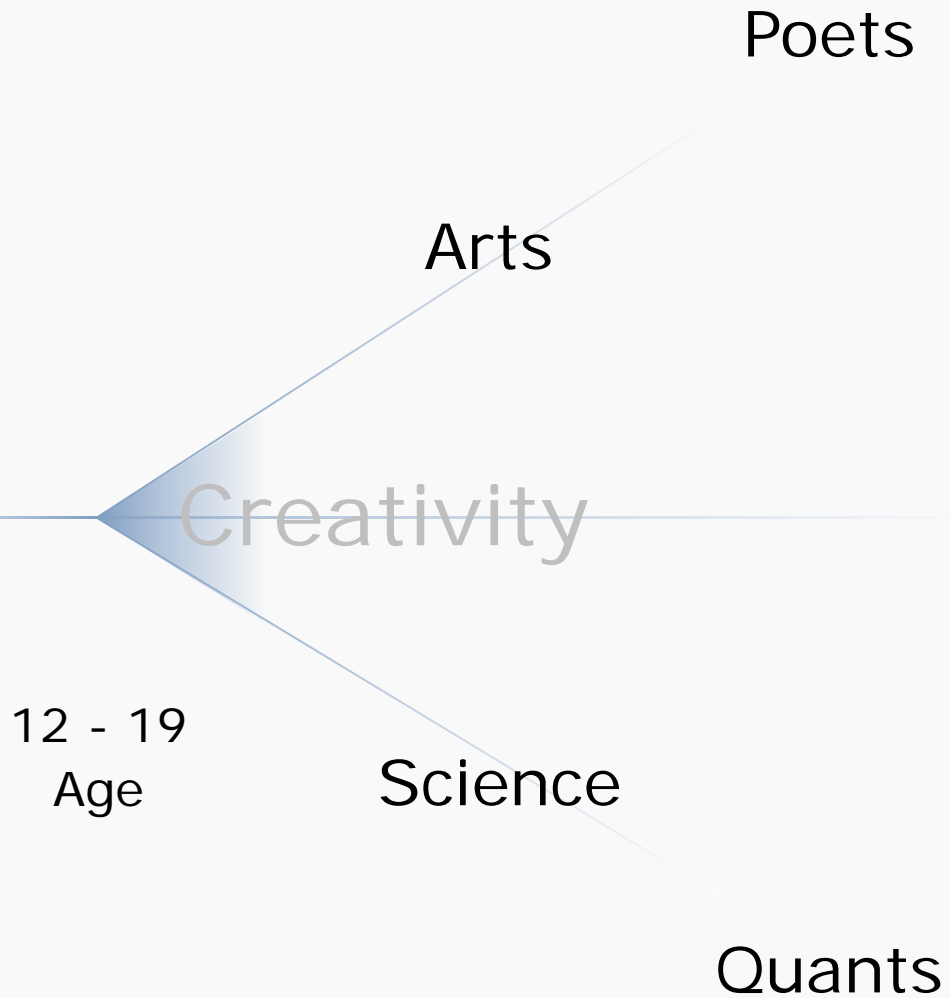
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An industry riddled with uncertainties


- We fail more often than we succeed
- We are not very good at predicting
- It is a commodity business driven by supply and demand



Our formative years




The Investment Triptych



The exploration team
makes an investment
proposals, based on a
valuation

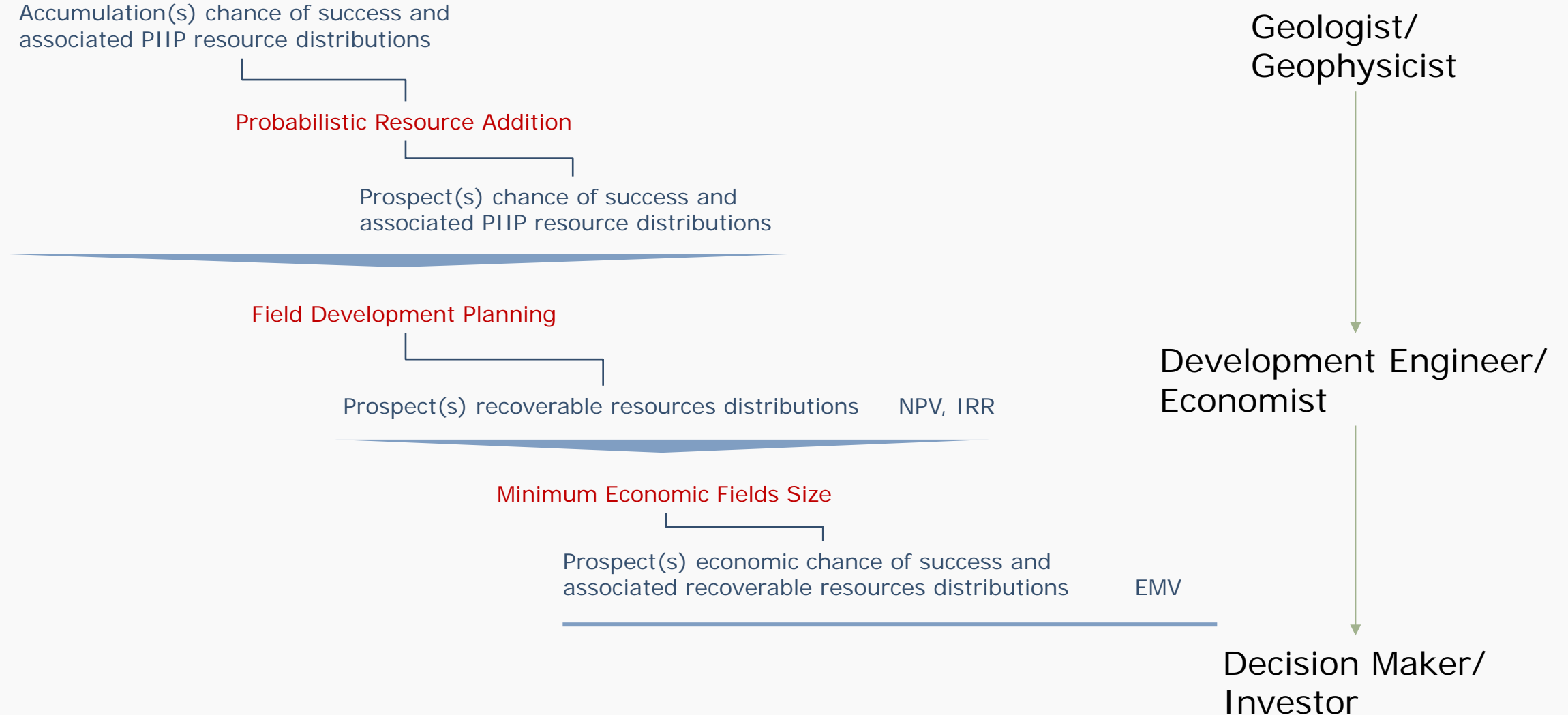


The executive makes
a decisions regarding the
proposal



The investors
finances the investment

Resource Assessment and Opportunity Valuation

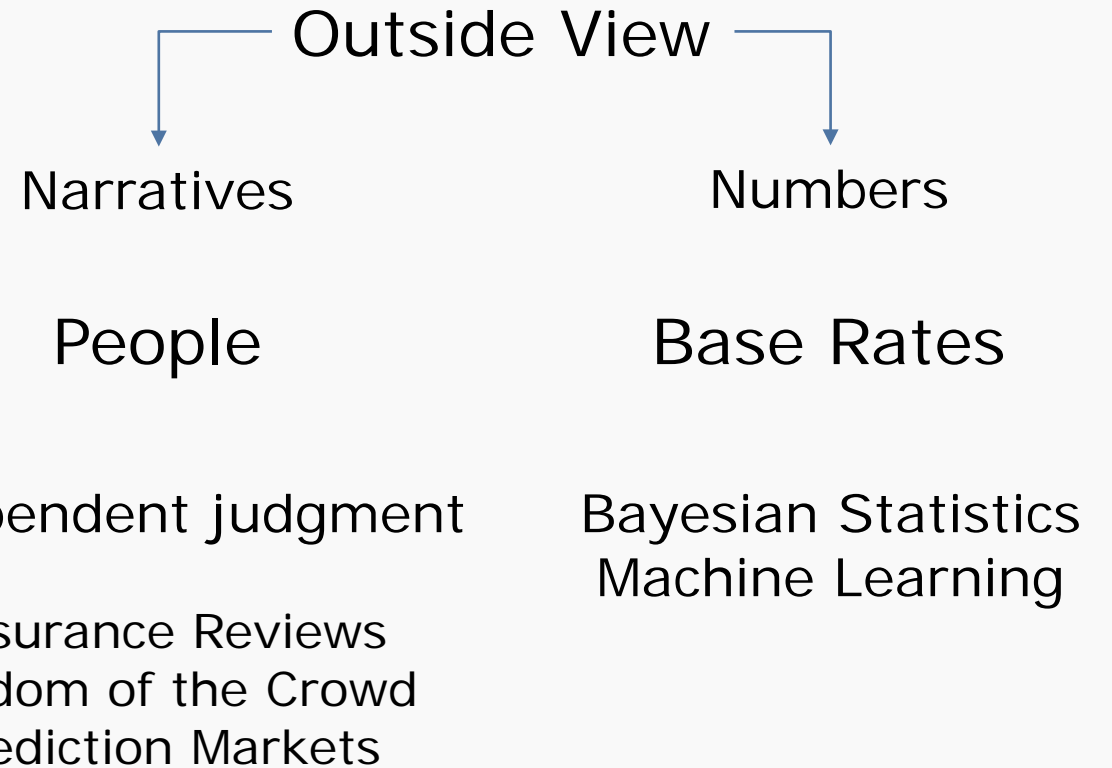


Judgment under Uncertainty

Biases



Hubris & Ego



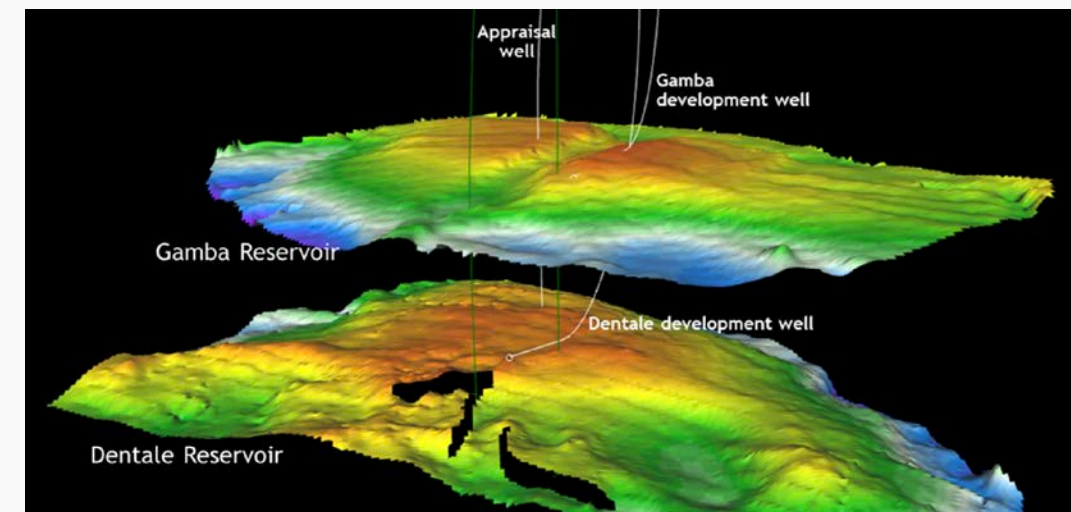
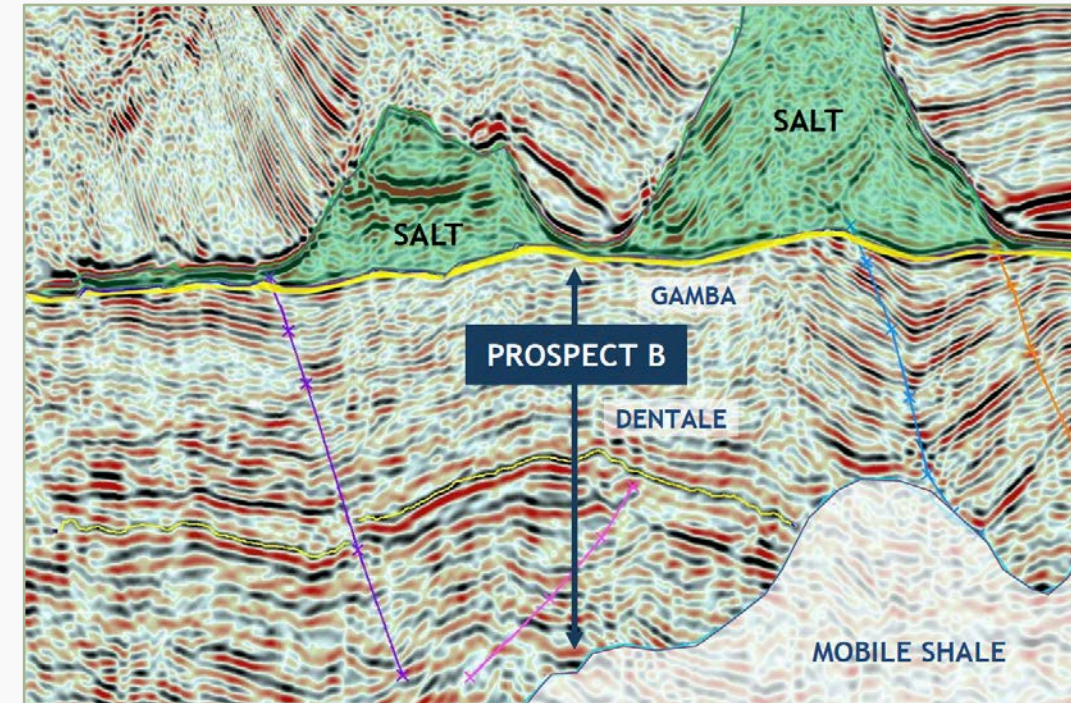
“Valuation” by Narrative

Multiple prospects in shallow water offshore Gabon, with stacked pay in a rift basin setting, equivalent to the onshore Rabi Kounga field. The objective reservoirs are pre-salt Early Cretaceous sandstone deposits

The Gamba is an excellent quality reservoir rock deposited regionally in a single sheet across the license area. The Gamba seal is provided by overlying salt

The Dentale is very good quality reservoir rock deposited as a series of stacked channels with intra-formational shales forming seals. Structures are syn-rift anticlines caused by the opening of the Atlantic.

How about the Gamba and Dentale dependencies ?



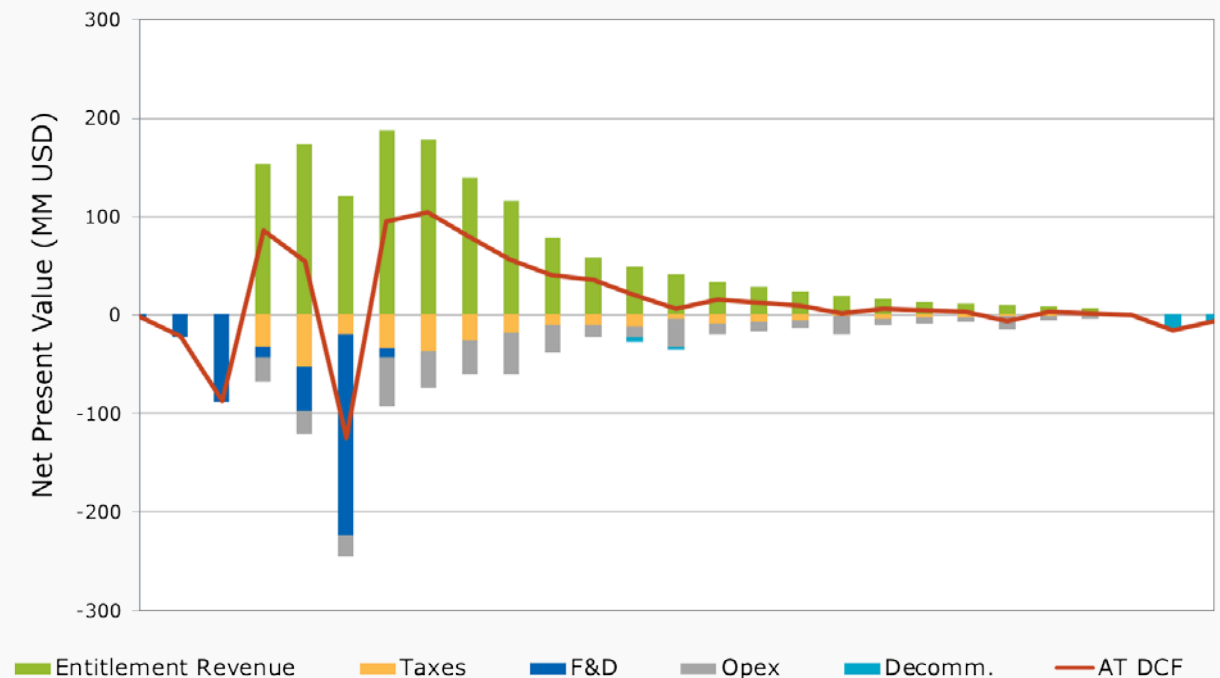
About the Narratives

- ▶ The appeal of a story is measured by how well it is told, not necessarily how good it is
- ▶ A story draws on emotions and biases, which can be manipulated
- ▶ Fear, uncertainty, and doubt ... a bit extreme no?
- ▶ Numbers become an afterthought sometimes downplayed or even ridiculed
- ▶ A picture is worth a thousand words, an interactive “picture” is even better

And then came the Numbers (the really short version)

	MEFS (MMbbl)	POS	P90 (MMbbl)	P50 (MMbbl)	P10 (MMbbl)	Mean (MMbbl)
Before Commercial cut-off	0	30%	35	57	87	59
After commercial cut-off	40	25%	45	61	89	65

	EMV (\$MM)	NPV (\$MM)	IRR (%)
High	122	640	63
Base	55	370	46
Low	-8	121	22



About the Numbers

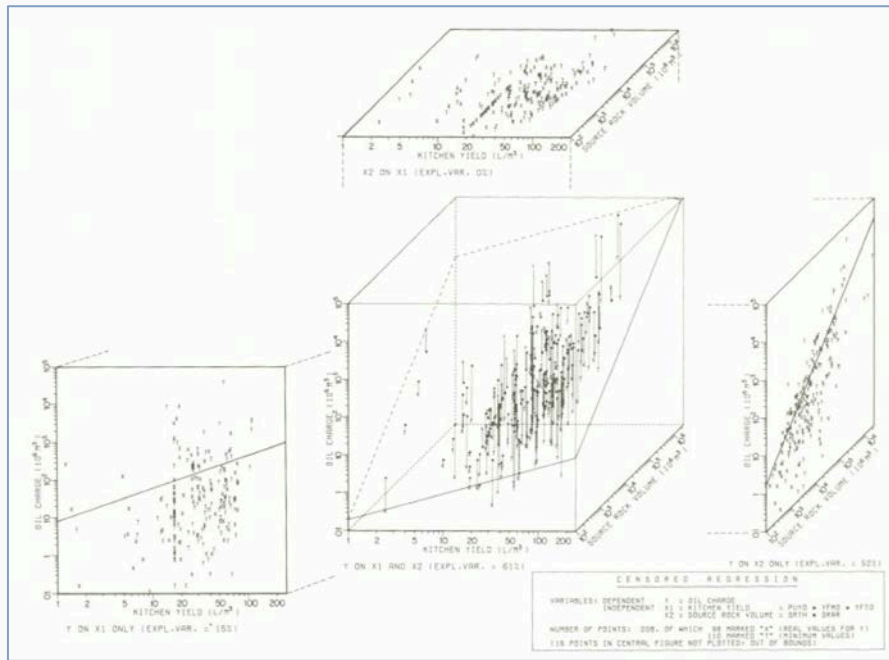
- ▶ Numbers provide a sense of comfort that due diligence was exercised
- ▶ Numbers feel precise, and the more the better
- ▶ Numbers give the impression that biases have been removed, as numbers represent “reality”

Narrative and Numbers

- ▶ Which one is more natural in an environment with many uncertainties?
- ▶ Which one is easier to remember?
- ▶ Importance of the Outside View for both
 - ▶ Support and challenge through external reviews (formal or informal)
 - ▶ Calibration through appropriate base rates

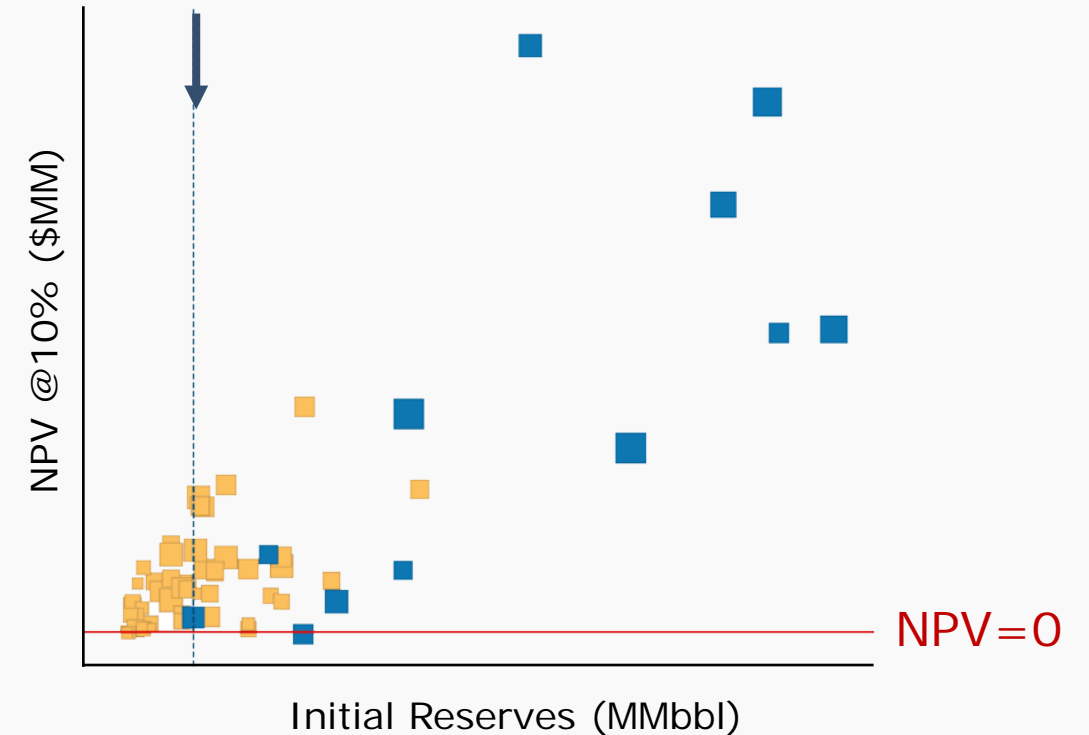
Base rates are just that ... base rates

Shell's charge calibration in the 80's



Worldwide geological experience as a
systematic basis for prospect appraisal
AAPG Memoir 35

Commercial cut-off

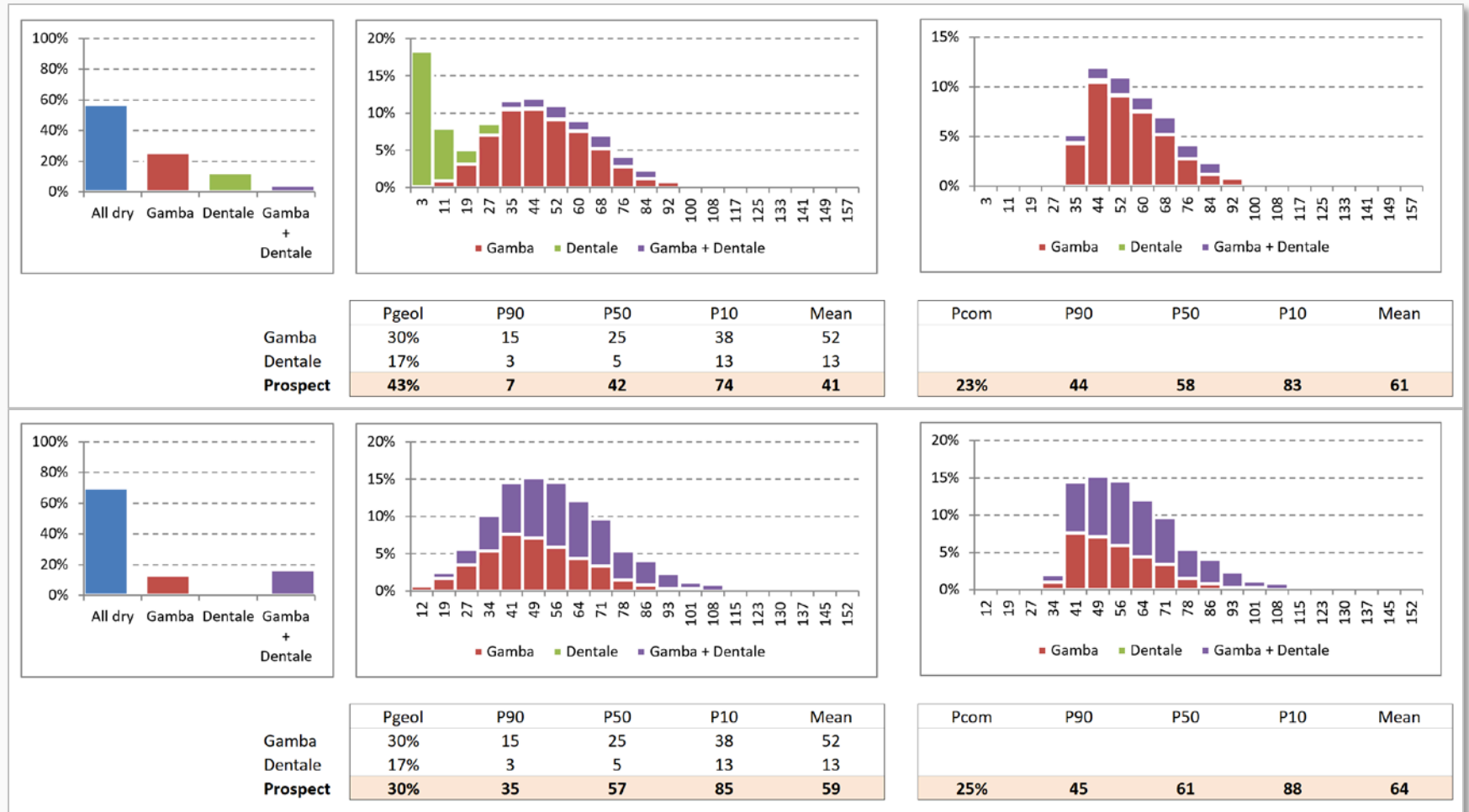


Balanced Valuations improve Investment Decisions

- ▶ Numbers and narratives are equally important and need to be fully integrated
- ▶ Think in Ink - Writing is the most appropriate and easiest way to integrate both worlds
- ▶ Role of a valuation intermediary, a master in numbers and narratives
- ▶ Analogues need to be connected to base rates
- ▶ Going interactive
 - ▶ Ability to interactively test impact of key uncertainties at the prospect level
 - ▶ Ability to interactively test investment options at the portfolio level

Impact of dependencies on valuations

Gamba/Dentale
Independent



Strategic Investment Decisions

- What is your growth challenge?
- Where do we want to play?
- How are we going to win?
- What capabilities do we need?



We are not quants nor poets...

The number people

The narrative people



...we just have a preference



... and this is where this story stops for now

To all the people I had the opportunity to meet over the years,
and the ones I have yet to meet.

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