

# Investment Decision: Quality in Oil & Gas

Fernando Aiube

aiube@puc-rio.br

Pontifical Catholic University of Rio de Janeiro

Petrobras

IAG Puc-Rio, 2013

# MOTIVATION

- Last decade was dominated by uncertainties. Is the new century riskier than the last?
- Terrorist attacks in 2001.

# MOTIVATION

- Last decade was dominated by uncertainties. Is the new century riskier than the last?
- Terrorist attacks in 2001.
- Hurricane Katrina in 2005 with consequences to installations in the GOM.

# MOTIVATION

- Last decade was dominated by uncertainties. Is the new century riskier than the last?
- Terrorist attacks in 2001.
- Hurricane Katrina in 2005 with consequences to installations in the GOM.
- Financial crises in 2008 with consequences worldwide.

# MOTIVATION

- Last decade was dominated by uncertainties. Is the new century riskier than the last?
- Terrorist attacks in 2001.
- Hurricane Katrina in 2005 with consequences to installations in the GOM.
- Financial crises in 2008 with consequences worldwide.
- Accident with the DeepWater Horizon oil rig in 2010 (Gulf of Mexico): considered the largest accidental marine oil spill in the history of the oil industry.

# MOTIVATION

- Last decade was dominated by uncertainties. Is the new century riskier than the last?
- Terrorist attacks in 2001.
- Hurricane Katrina in 2005 with consequences to installations in the GOM.
- Financial crises in 2008 with consequences worldwide.
- Accident with the DeepWater Horizon oil rig in 2010 (Gulf of Mexico): considered the largest accidental marine oil spill in the history of the oil industry.
- Eurozone crisis in 2010: made it difficult for some countries to re-finance their government debt.

# MOTIVATION

- Last decade was dominated by uncertainties. Is the new century riskier than the last?
- Terrorist attacks in 2001.
- Hurricane Katrina in 2005 with consequences to installations in the GOM.
- Financial crises in 2008 with consequences worldwide.
- Accident with the DeepWater Horizon oil rig in 2010 (Gulf of Mexico): considered the largest accidental marine oil spill in the history of the oil industry.
- Eurozone crisis in 2010: made it difficult for some countries to re-finance their government debt.
- Slow recovery of USA economy.

# MOTIVATION

- Last decade was dominated by uncertainties. Is the new century riskier than the last?
- Terrorist attacks in 2001.
- Hurricane Katrina in 2005 with consequences to installations in the GOM.
- Financial crises in 2008 with consequences worldwide.
- Accident with the DeepWater Horizon oil rig in 2010 (Gulf of Mexico): considered the largest accidental marine oil spill in the history of the oil industry.
- Eurozone crisis in 2010: made it difficult for some countries to re-finance their government debt.
- Slow recovery of USA economy.
- Exploration of unconventional reserves of hydrocarbon in USA: shale gas revolution.



# MOTIVATION

- Last decade was dominated by uncertainties. Is the new century riskier than the last?
- Terrorist attacks in 2001.
- Hurricane Katrina in 2005 with consequences to installations in the GOM.
- Financial crises in 2008 with consequences worldwide.
- Accident with the DeepWater Horizon oil rig in 2010 (Gulf of Mexico): considered the largest accidental marine oil spill in the history of the oil industry.
- Eurozone crisis in 2010: made it difficult for some countries to re-finance their government debt.
- Slow recovery of USA economy.
- Exploration of unconventional reserves of hydrocarbon in USA: shale gas revolution.

# MOTIVATION

- Last decade was dominated by uncertainties. Is the new century riskier than the last?
- Terrorist attacks in 2001.
- Hurricane Katrina in 2005 with consequences to installations in the GOM.
- Financial crises in 2008 with consequences worldwide.
- Accident with the DeepWater Horizon oil rig in 2010 (Gulf of Mexico): considered the largest accidental marine oil spill in the history of the oil industry.
- Eurozone crisis in 2010: made it difficult for some countries to re-finance their government debt.
- Slow recovery of USA economy.
- Exploration of unconventional reserves of hydrocarbon in USA: shale gas revolution.

# HOW TO FACE A WORLD OF UNCERTAINTIES?

- Quick answer: [quantitative analysis](#)

# HOW TO FACE A WORLD OF UNCERTAINTIES?

- Quick answer: **quantitative analysis**
- This means the continuous use of methodologies with **risk** in view:

# HOW TO FACE A WORLD OF UNCERTAINTIES?

- Quick answer: **quantitative analysis**
- This means the continuous use of methodologies with **risk** in view:
  - Monitoring **volatility** through econometric models

# HOW TO FACE A WORLD OF UNCERTAINTIES?

- Quick answer: **quantitative analysis**
- This means the continuous use of methodologies with **risk** in view:
  - Monitoring **volatility** through econometric models
  - Modeling economic variables through **stochastic processes**

# HOW TO FACE A WORLD OF UNCERTAINTIES?

- Quick answer: **quantitative analysis**
- This means the continuous use of methodologies with **risk** in view:
  - Monitoring **volatility** through econometric models
  - Modeling economic variables through **stochastic processes**
  - Modeling the dependence of economic variables through **copula**

# HOW TO FACE A WORLD OF UNCERTAINTIES?

- Quick answer: **quantitative analysis**
- This means the continuous use of methodologies with **risk** in view:
  - Monitoring **volatility** through econometric models
  - Modeling economic variables through **stochastic processes**
  - Modeling the dependence of economic variables through **copula**
  - Use of **Real options** approach in capital budget decisions



# HOW TO FACE A WORLD OF UNCERTAINTIES?

- Quick answer: **quantitative analysis**
- This means the continuous use of methodologies with **risk** in view:
  - Monitoring **volatility** through econometric models
  - Modeling economic variables through **stochastic processes**
  - Modeling the dependence of economic variables through **copula**
  - Use of **Real options** approach in capital budget decisions

## OIL &amp; GAS PRICES

