XII CONGRESSO NAZIONALE degli ATTUARI

Financial Markets Facing Growing Uncertainty:

New Normals and Unconventional Policies

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The Context: Growing Uncertainty affecting both Provate (households, business) and Public Decision-makers

«O False and Treacherous Probability, Enemy of truth, and friend to wickednesse: With whose bleare eyes Opinion leans to see, Truth's feeble party here, and barenesse» (Keynes 1921, p.466)

Examples:

- The next financial crisis
- Green Finance
- Cyber-risks and terrorism
- The future of the multilateral trade system
- Ethical risks of machine learning and artificial intelligence
- Etc.

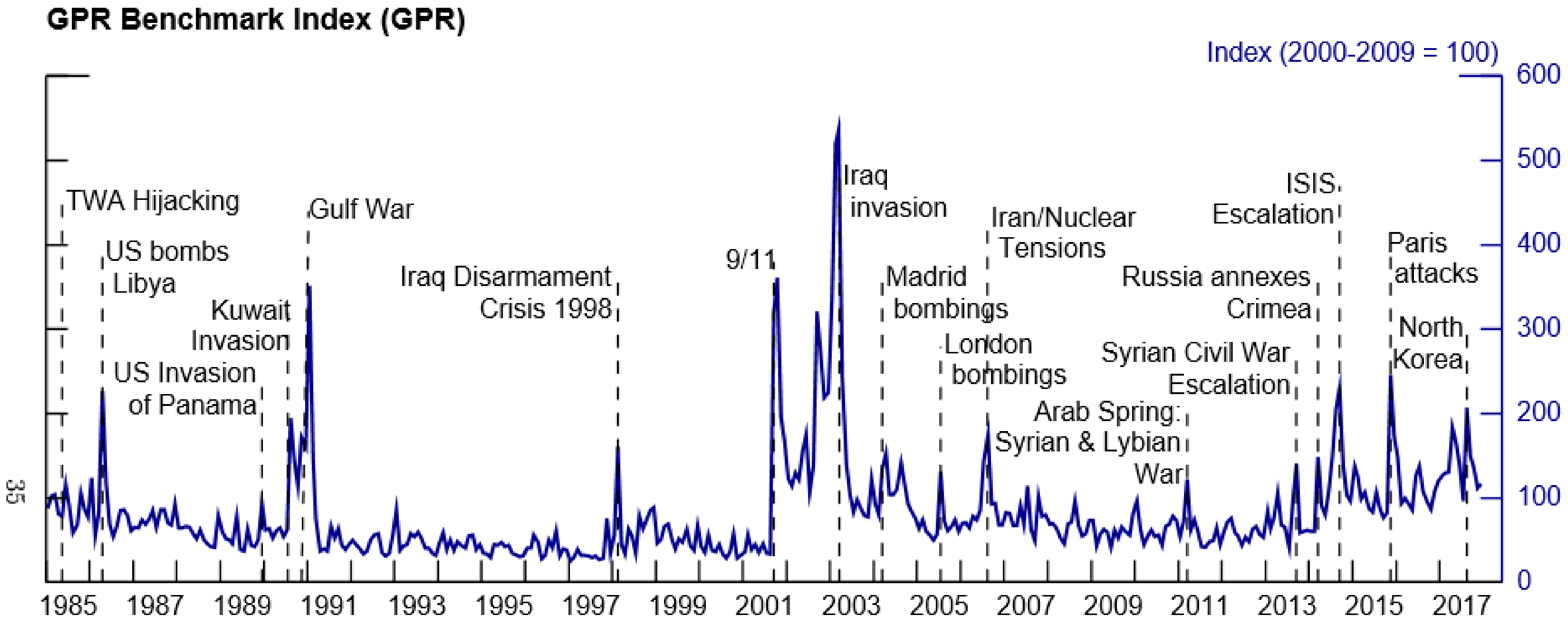
Why is Uncertainty Challenging?

«Where is the wisdom we have lost in knowledge? Where is the knowledge we have lost in information» (T.S.Eliot)

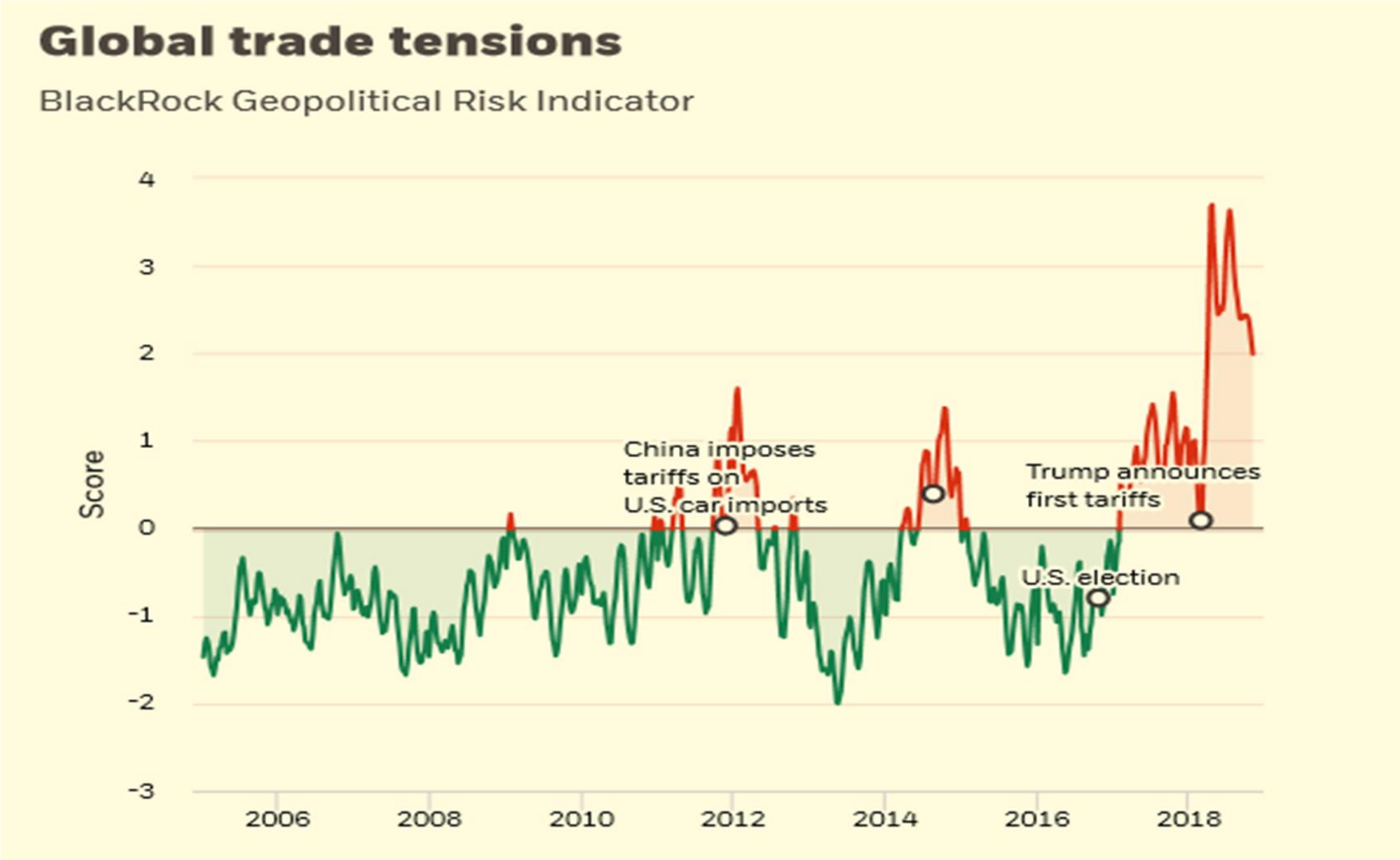
- The paradox of the digital revolution and big data
- Black swans do exist! Financial crises: from Strombolian to Plinian eruptions
- Geopolitical risks and other «new» risks
- The Rumsfeld doctrine: the «unknown unknowns»
- «Structural uncertainty», much more than methodological or parametric uncertainty. The case of «forward guidance» in monetary policy
- Growing impact on the economy, society and politics. The fragility of less-resilient institutions (family, State, values, etc.), the collapse of trust and social capital

The Geo-political Risk Index

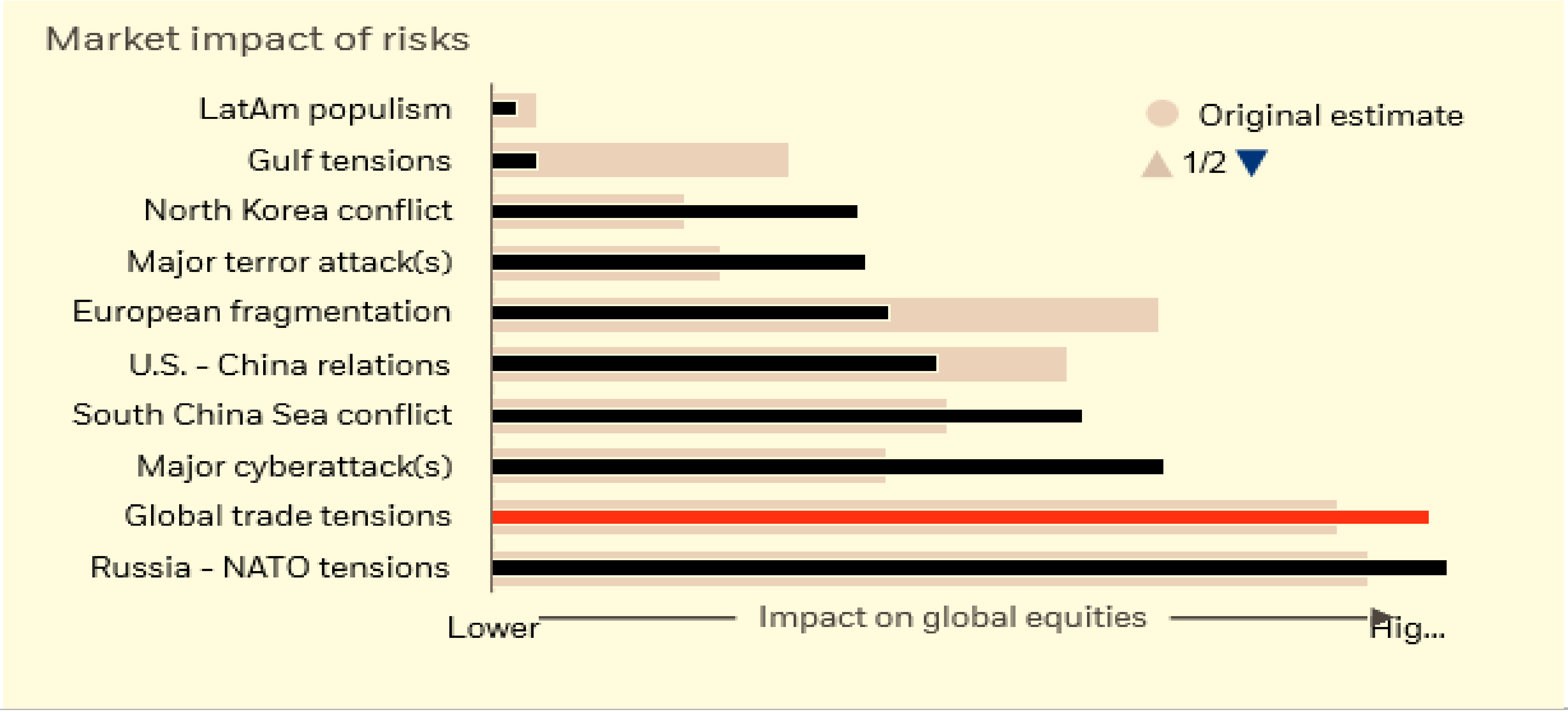
from Caldara iacoviello, Measuring Geopolitical Risk, Fed, feb.2018



Note: The line plots the benchmark GPR index (data from 1985 until the end of 2017).


Global trade tensions
BlackRock Geopolitical Risk Indicator
Score
4
3
2
1
0
-1
-2
-3
2006
2008
2010
2012
2014
2016
2018
China imposes tariffs on U.S. car imports
Trump announces first tariffs
U.S. election

Blackrock Geopolitical Dash-Board
from Blackrock, november, 2018



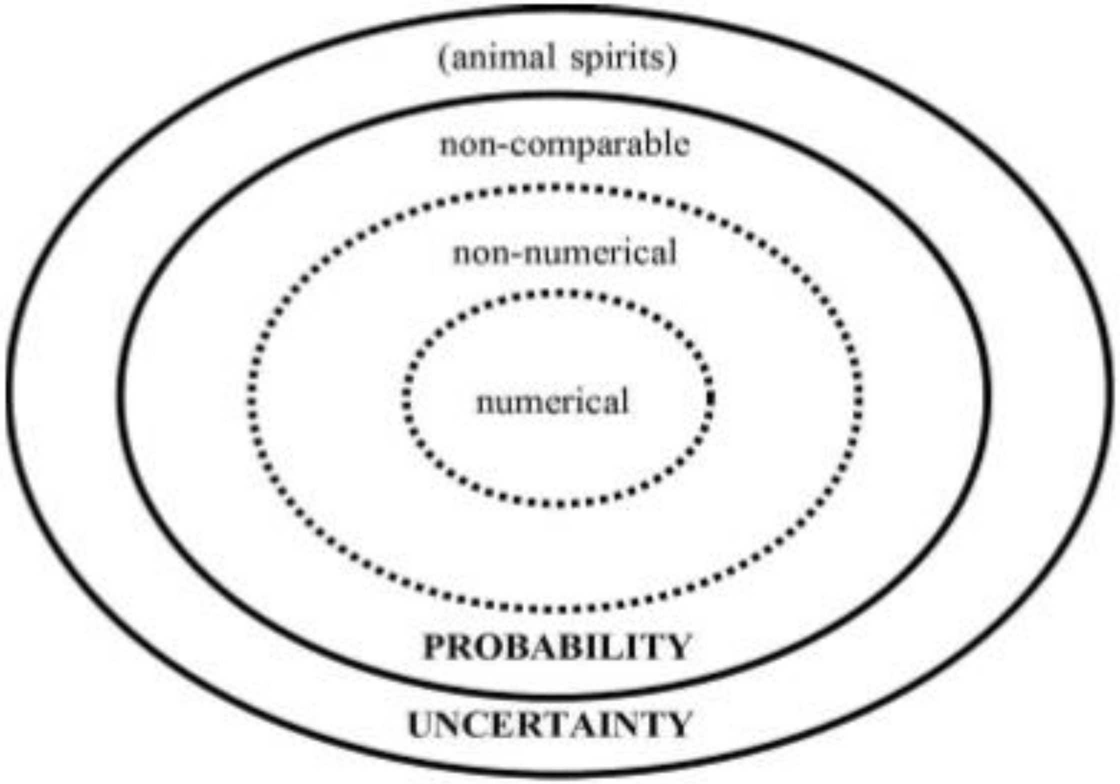
Risk versus Uncertainty: a Neglected Conceptual Foundation

- Basic distinction and difference: uncertainty is not risk! (F.Knight)
- Knightian uncertainty gives rise to market imperfections that justify Government intervenction (Keynes) and the need for a social contract
- By implication, risk management should not be confused with the management of uncertainty: different models, tools, perspectives,…
- To transform uncertainty (unmanageable) into risk (manageable), we need to identify, measure, model, understand, explain … (at least in terms of working hypothesis, direction of search, guideposts, etc.).
- James Tobin on «street lamps»
- To turn uncertainty into risk, we need a «new social contract» based on public private partnerships (e.g. welfare reforms, building resilience infrastructures)

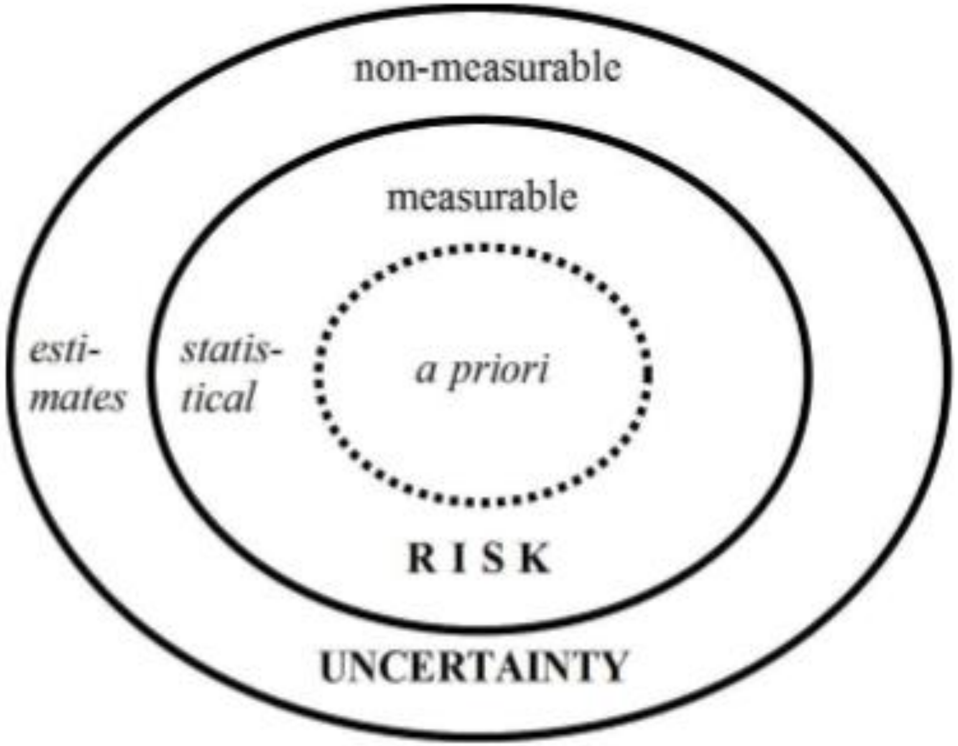
The current (unsatisfactory) response to uncertainty

- The growing gap between the world of risk and the aspiration to security
- This gap in turn feeds the divide between science and society, management and politics, promises and concrete achievements, demands and responsibilities, … (a sylos approach is unfortunately widespread)
- The two prevailing streams of response are: - euristics; and – the search for «new normals»
- I will provide examples drawing on – the Phillips curve; - unconventional monetary policy; - secular stagnation

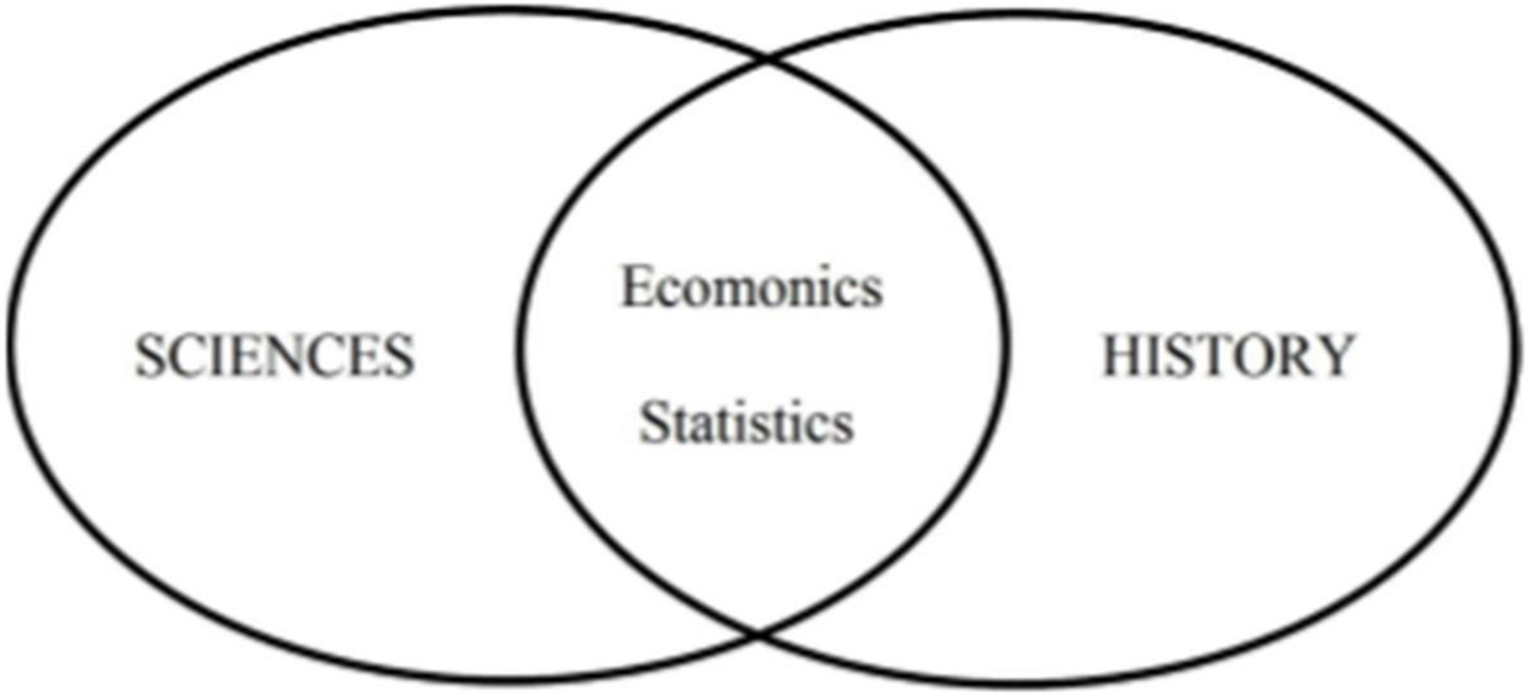
Keynes on Probability and Uncertainty
from Sakai, op.cit, fig 2



Knight on Risk and Uncertainty
from Sakai, op.cit., fig 3



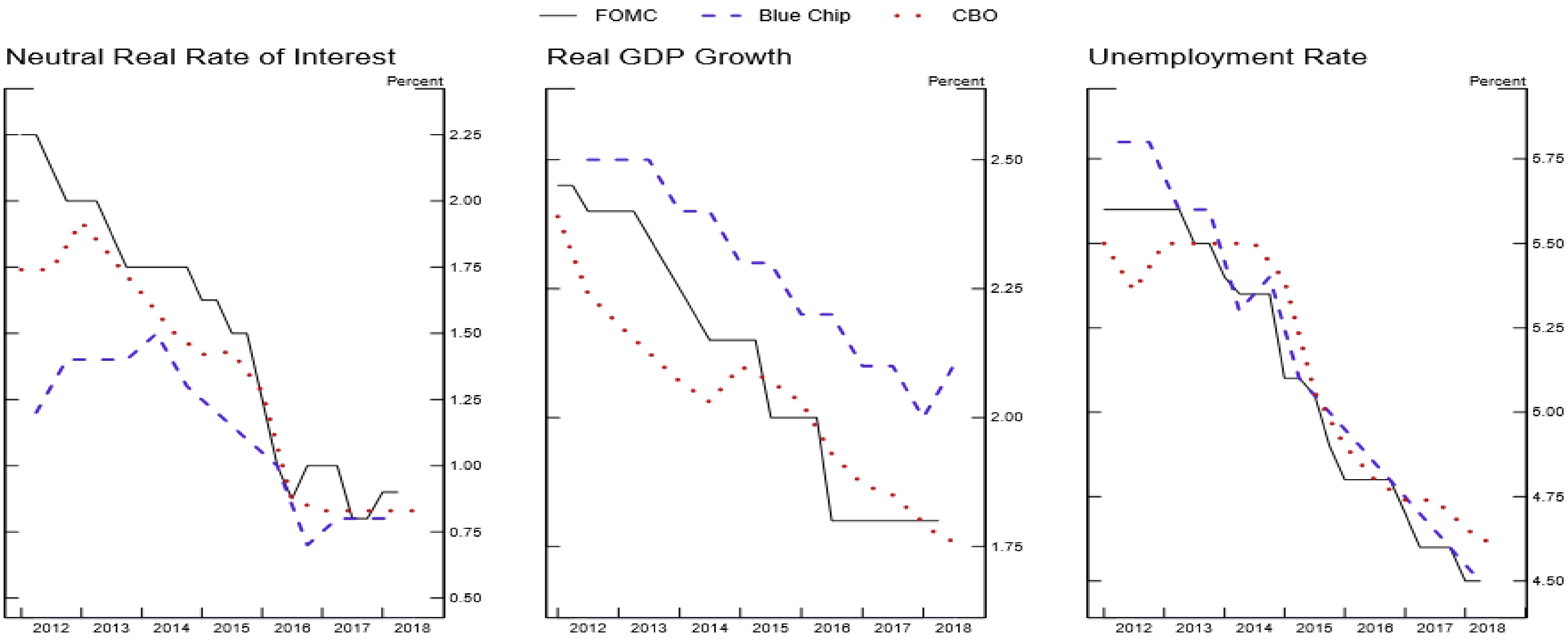
Hick's Dual Visions on Economics and Statistics (from Sakai, op.cit., fig. 4)



The Return to Astrology in Macro-economic Policy-making

- The Taylor's Rule «in the sky»: importance of the «starred» variables (the natural rate of unemployment, the neutral interest rate and the target rate of inflation) for macroeconomic policy
- However, the «stars» show volatility and do not help navigation. Role of mis-perceptions in macro-policies.
- J.Powell spoke of «shifting stars during normalisation»: «According to the conventional thinking, policy-makers should navigate by the stars». But «assessments of the value of the stars are imprecise and subject to further revision». We are navigating between «the shoals of overheating and the premature tightening».
- The response: - anchoring longer-term inflation and inflation targeting; - new navigation tools (risk management): instead of the stars, broad range of indicators and plausible scenarios
- Does the Phillips curve still exist? What does it mean? What implications does it have?

Figure 1. Real−Time Projections of Longer−Run Normal Values

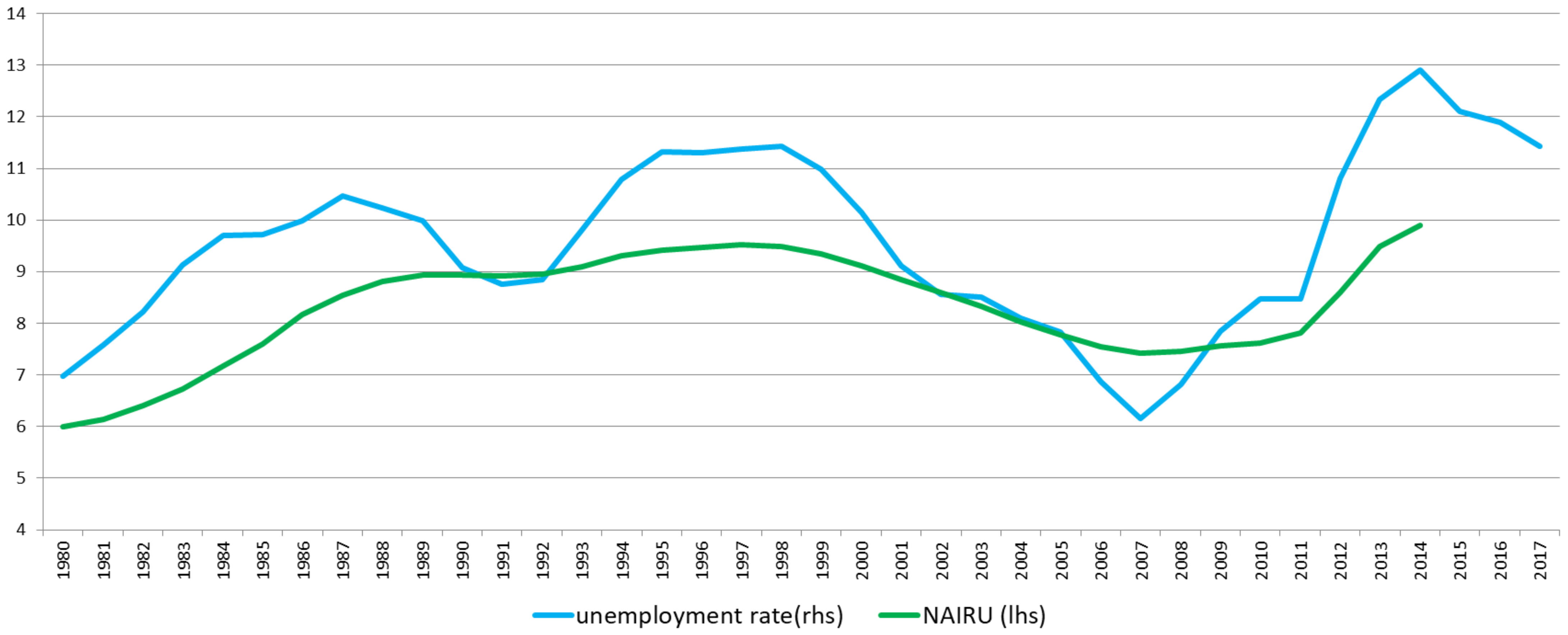


Note: The Federal Open Market Committee (FOMC) data are quarterly, extend through June 2018, and are projections of longer−term normal. The Blue Chip data are biannual, extend through June 2018, and are projections for 6 to 10 years in the future. The Congressional Budget Office (CBO) data are biannual and extend through August 2018. For the left two panels, the projections are for 10 years in the future; the right panel shows the natural rate projection for the current quarter at the time of the projection. The neutral real interest rate is the three−month Treasury bill rate projection (Blue Chip and CBO) or the federal funds rate projection (FOMC) minus the source's inflation projection. GDP is gross domestic product.

Source: For FOMC, Summary of Economic Projections, available on the Board's website at https://www.federalreserve.gov/monetarypolicy/fomccalendars.htm; for Blue Chip, Wolters Kluwer, Blue Chip Economic Indicators and Blue Chip Financial Forecasts; for CBO, Congressional Budget Office (*The Budget and Economic Outlook*) and Federal Reserve Bank of St. Louis (ALFRED).

Correction: In the original figure, CBO potential output growth as of August 2018 was incorrectly reported; the value has been corrected to 1.8 percent.

Italy: Actual Unemployment Rate and the NAIRU, 1980-2017



Unconventional Monetary Policies

- Euristics: the dilemma between the Brainard Principle (conservative) and the «whatever it takes»
- What is the neutral rate of interest?
- Independence or interdependence of central bankers?
- International monetary policy coordination. And fiscal policy?
- Normalisation, what?
- Deleveraging, what?

Secular stagnation or debt overhang?

- The paradox of the digital revolution and the declining trend of productivity growth
- Why is wage inflation lagging behind? Structural explanations.
- Problems of mis-measurement
- The fundamental global imbalances
- The governance of globalisation or re-nationalisation

Conclusion: Towards a Comprehensive Response to Uncertainty

- Responding to uncertainty requires giving to risk analysis and management a **central place** in business strategies and public policy
- We need a **huge investment** in research, technology and education (resiliency infrastructure)
- The management of uncertainty requires new and **broader dimensions of risk management frameworks**, analysis and agendas
- We need to broaden the research agendas, including **applied research** in support of private and public decision making from climate change to population aging and cyberterrorism
- More broadly we need:
- A **new culture of risk and resilience**
- A **new culture of trust and social capital** (a new social contract)
- A **new partnership between the public and private sectors**

The fundamental role of actuaries

- The new context creates great challenges (e.g. growing dissatisfaction with regulatory frameworks), but also **great opportunities** (e.g. new centrality of risk scenarios and risk response strategies)
- Actuaries are engaging in a **much wider agenda** of resilience frameworks affecting norms, tools and skills, well beyond the traditional boundaries of risk management profiles
- This opens up **new horizons for actuaries**, in relation to skills, **partnerships** with other (natural and social) scientists and professionals, interplay with private and public decision makers, **engagement in public policy** (e.g. financial inclusion, sustainability and education)