Approaches to Risk Management for Insurers and Pension Plans:
Scenario Planning in a Low Growth Environment

ERM Symposium – Concurrent Session 3
May 2, 2019 1:45 – 3 pm
Max J. Rudolph, FSA CFA CERA MAAA

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Outlier Scenario or Likely Result?

- ## A Low Growth World: Implications for the Insurance Industry and Pension Plans
  - Mark Alberts and Max Rudolph
  - Expected publication: imminent

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Key Takeaways

- Focus on factors causing low growth
  - High growth needs technological solutions, peace, trade, renewable energy, or a group to enter work force
- "Expected" growth is lower than historical
- Fiscal/monetary responses ineffective – choices have ramifications
- Insurance/pension - assets, premiums, mortality/morbidity/property claims levels
- Product designs will evolve

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Disciplined Thought Process

- Know your risk profile
- Learn/understand conventional solutions
- Identify gaps
- Seek out wisdom, knowledge, opinions of others (especially contrarians)
- Critically evaluate that wisdom
- Apply the best of old/new solutions
- Own your decision

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Drivers of Growth

- Productivity
  - Markets (invisible hand) and technological innovation
  - Recent innovations take a generation to increase productivity
- Population
- Ecosystem
  - Helps: biodiversity, clean environment, stable temperatures
  - Hurts: insect declines, spillover diseases, pollution, CO_2

- Advice: the economy is a complex adaptive system – look for interactions between productivity, population growth, conflict, climate, energy…

GDP per capita

Real GDP per capita is measured using US$, inflation adjusted at prices of 2011. A single benchmark in 2011 makes these series suitable for studying the growth of incomes over time (but not for comparing income levels between countries over time).
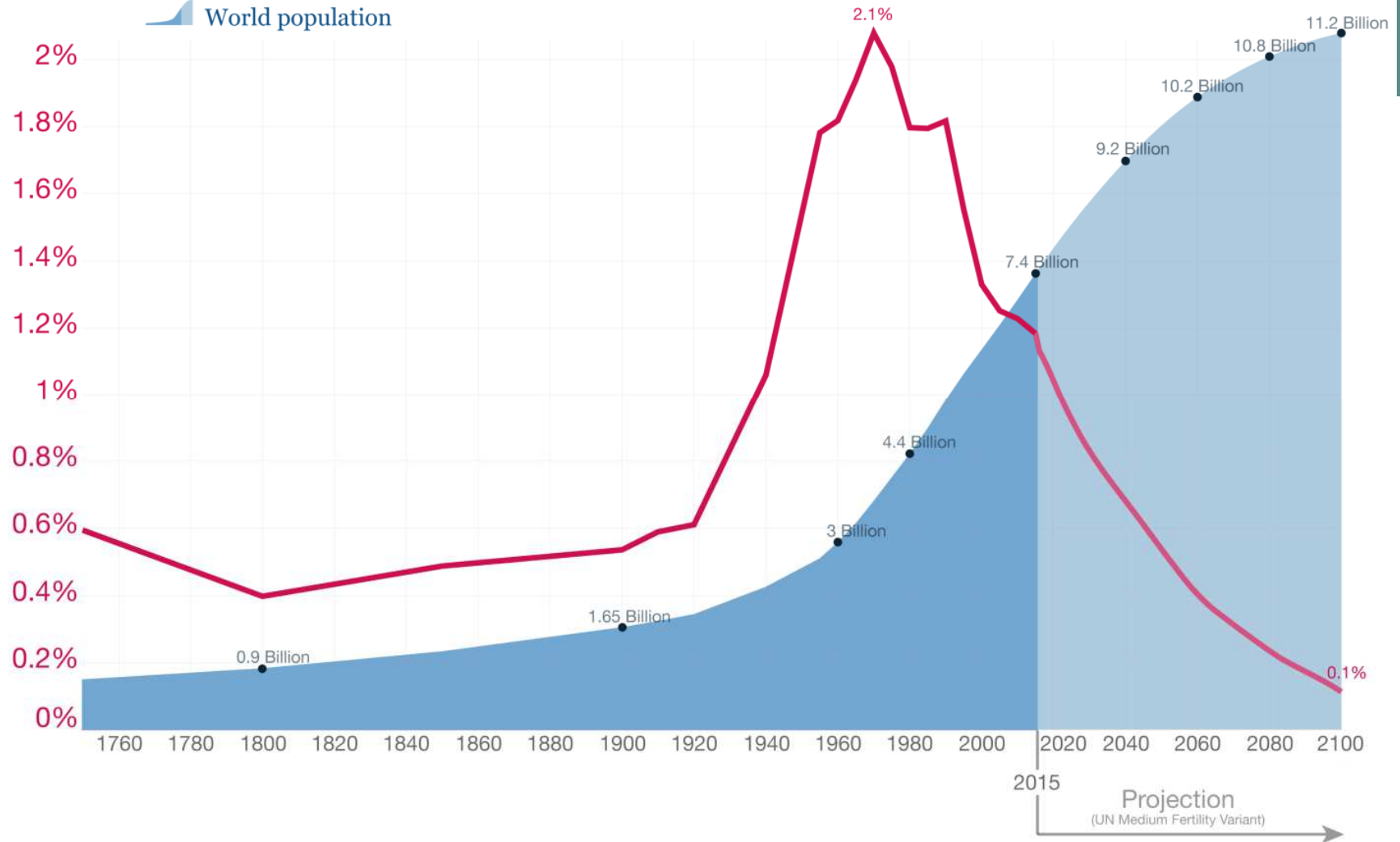
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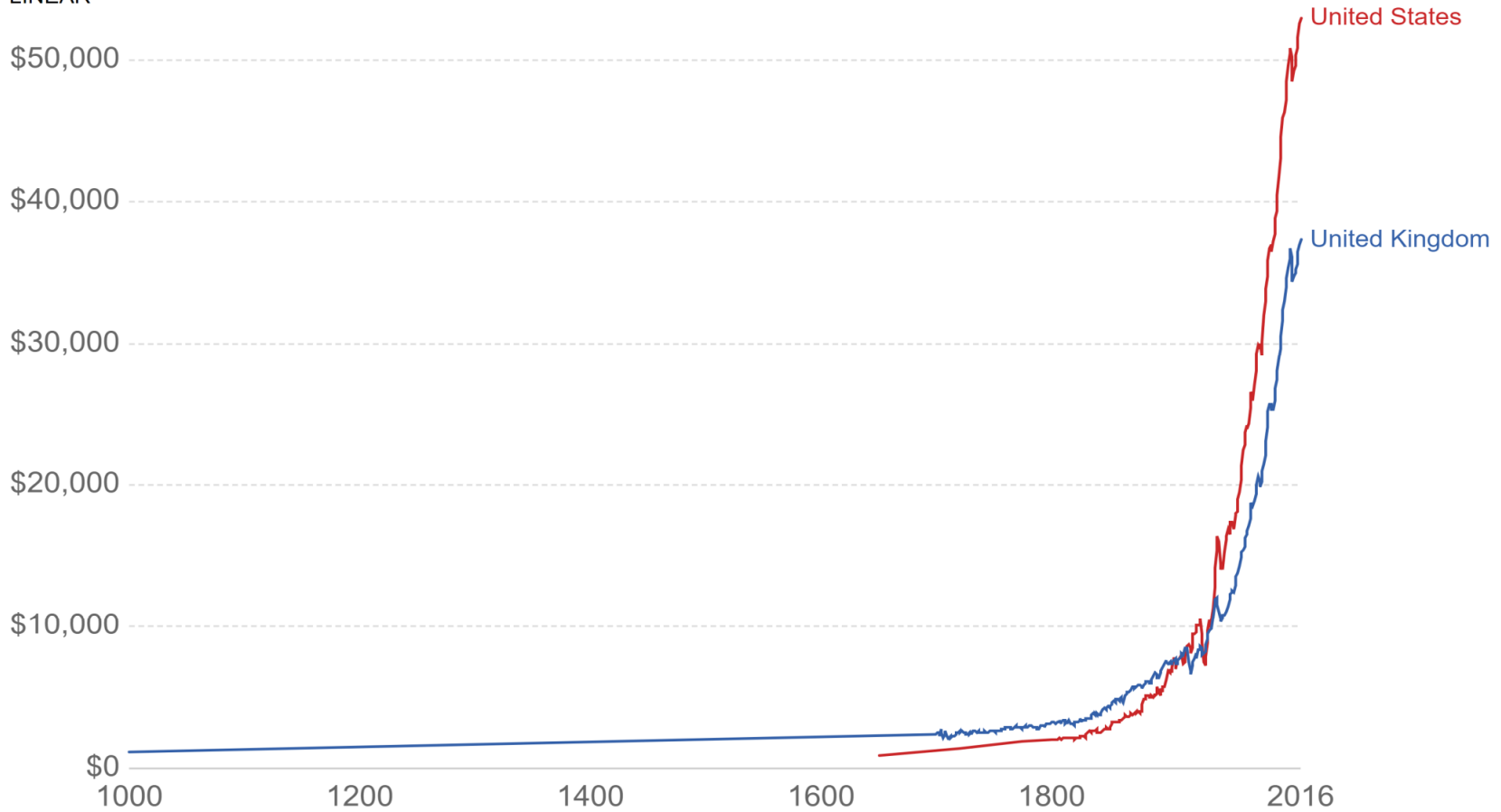
Source: Maddison Project Database (2018)

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Max Roser (2019) - "Economic Growth". *Published online at OurWorldInData.org.* Retrieved from: 'https://ourworldindata.org/economic-growth' [Online Resource]

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World population growth, 1750-2100

Demographics is Destiny

- Fewer people lowers relative GDP
  - Role of immigration, fertility rate
  - Interacts with emerging risks (e.g., conflict, pandemics, climate change is threat multiplier)
- Older population lowers relative GDP
  - Buy services
  - Spend down their nest egg

- Advice
  - Watch and learn from Japan/Europe/China

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The Rise and Fall of American Growth - Robert Gordon

- Return to pre-1700 growth rates (0.2%)
  - Third Industrial Revolution (computers) breakthroughs have been incremental rather than transformative – is he right?
  - Where are cars, electricity, lighting, refrigeration
  - One time circumstances in 1930s/1940s

- Why growth will stall
  - Females already in workforce
  - Outsourcing/gig economy
  - Education – single parents, student debt
  - Sustainability/climate – historical, future
  - Income inequality
  - Government actions – debt, stimulus

- http://www.cepr.org/sites/default/files/policy_insights/PolicyInsight63.pdf
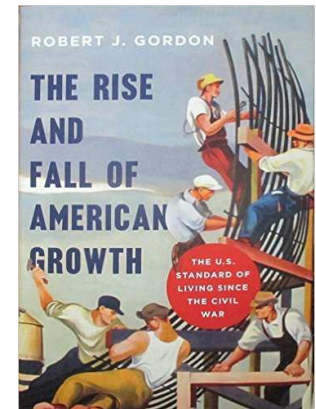
Economic Forecasts

- Reviewed 20 existing GDP scenarios
- Global results, split US and China
- University of Denver Pardee Center's International Futures (IFs) model
  - Open access modeling platform – free!

GDP Growth

	Historical 1960-2010	Low	Medium	High
World aggregate	3.8%	1-2%	2-2.5%	2.5-3.5%
World per capita	2.1%	0-1%	1-2%	2-3%
U.S. aggregate	3.2%	0-1%	1-2%	2-3%
U.S. per capita	2.1%	1-2.5%	1-1.5%	1.5-2%
China aggregate	8.1%	1-2.5%	2.5-3.5%	3.5-4.5%
China per capita	6.5%	1-2.5%	2.5-3.5%	3.5-4.5%

Global GDP Growth Scenarios
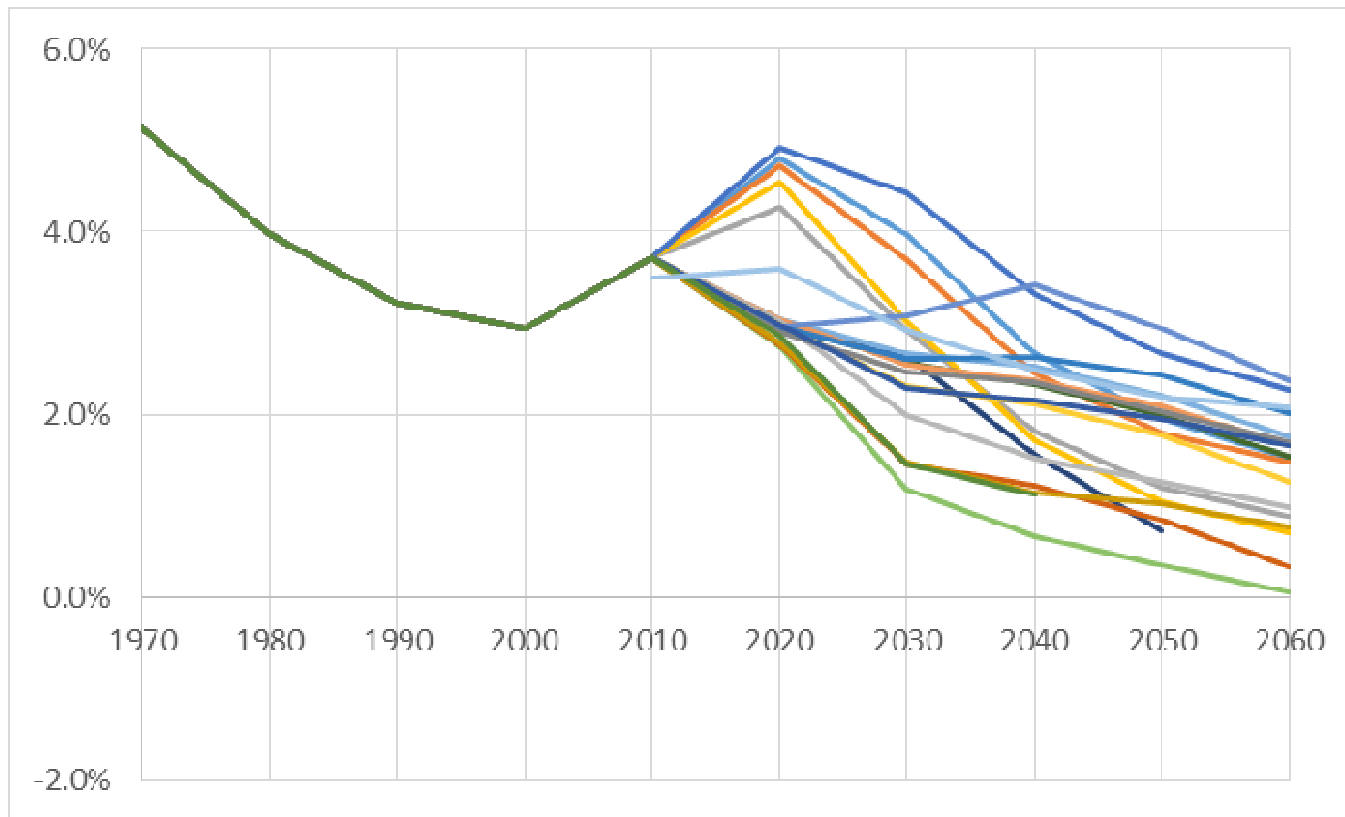
Modern Monetary Theory (MMT)

- Unlimited spending is ok
  - US$ is reserve (fiat) currency
  - Impossible to default
  - Treasury prints money as needed
  - Relies on Congress to balance spending
- Associated with progressive Democrats
  - Alexandria Ocasio-Cortez, Stephanie Kelton
  - Consistent with every administration since 2000
- Fiscal policy is the signal, monetary policy is the noise
  - Monetary policy less effective when debt > 90% GDP
  - High/hyper inflation could result

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Hillebrand-Closson Scenario Set

- 2x2x2=8 qualitative scenarios
  - Economic growth (low/high)
  - Energy prices (low/high)
  - Geopolitical relationships (low/high political harmony)
- HC4 - low growth, low energy prices, low political harmony
  - Regional mercantilism
  - Regional trading blocks, US loses role as economic leader and reserve currency, populism and state capitalism grow

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Financial Products in a Low Growth Environment

- Unknown knowns
  - Historical data is not predictive
  - Where is your company at risk? Be proactive
- De-emphasis on investment risk
  - Shift to pass through
  - Guarantees based on real rates
  - Shift to shorter term coverage – stable time horizon
  - Risk pooling instead of systemic risk (law of large numbers)
  - Previous feedback loops
    - Loan guarantees
    - Unlimited premiums
    - Credited rate guarantees
    - Variable guarantees
    - Loose contract language

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Impact on Investments

- Depends on drivers of low growth
- Environmental drivers
  - Avoid coasts (esp. Miami), ski resorts
  - Fresh water locations or just inland from Hudson Bay
- Financial drivers
  - Be wary of leverage
    - LBO, CLO, loose covenants, BBB downgrade risk
  - Alternative investments
    - Are you knowledgeable?

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My Next Project – Seeking Input

- Historical research
  - Interest rates
  - Low growth scenario
  - Emerging risk survey
  - ERM process
  - Chief Skeptical Officer
  - Was Malthus right, but early
  - Driverless investing
  - Scenario planning
  - Climate change
  - Clustering

- Next project?
  - Country CRO
  - Extending time horizons in decision making
  - Has last 70 years been humanity's peak?
  - Likely scenarios and planning for them
  - Climate change as a threat multiplier

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Thank you!
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