Session 1B: Low and Negative Yields: The Cure or Cause of All Ills

 Moderator: Christian Robert, FSA, CFA, FCIA
 Presenters: Benoît Durocher and Fiona Ng, FSA, CFA, CERA

 October 26, 2020
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2020 SoA Annual Meeting

BENOÎT DUROCHER
Low Interest Rates - Cause and Consequences
October 26, 2020
Initial Considerations

• What is an interest rate?
  • Price of capital that clears the market at equilibrium between supply (available savings) and demand for capital (consumption and investments)

• The interest rate needs to satisfy borrowers and savers
  • Borrowers want it low enough to profitably finance expenditures and capital investments
  • Savers/lenders want it high enough to compensate for the foregoing of capital and to protect against inflation erosion (return considerations)
All Interest Rates Are Not Equal

• Short-term interest rates
  • Mostly determined by monetary policy
  • Greatest impact on economic growth and cycles

• Long-term interest rates
  • Determined partly by budgetary policy
  • Also function of capital flows

• An assessment of default risk is common to both
A Historical Perspective of Long-Term Rates

As at September 30 2020

Sources: Refinitiv, Addenda Capital
A Historical Perspective of Short- and Long-Term Rates

Sources: Refinitiv, Addenda Capital

As at September 30, 2020
The Influence of Structurally Slower Growth  
United States GDP

Source: BEA, Addenda Capital
Prospects for Future Growth

• Economic growth is the product of:
  • Population growth
  • Productivity growth
Prospects for Population Growth

Figure 2.2. The growth rate of world population from Antiquity to 2100

The growth rate of world population was above 1% per year from 1950 to 2012 and should return toward 0% by the end of the 21st century. Sources and series: see piketty.pse.ens.fr/capital21c.
Prospects for Productivity Growth

Figure 2.4. The growth rate of world per capita output since Antiquity until 2100

The growth rate of per capita output surpassed 2% from 1950 to 2012. If the convergence process goes on, it will surpass 2.5% from 2012 to 2050, and then will drop below 1.5%.

Sources and series: see piketty.pse.ens.fr/capital21c.
Prospects for Growth

Figure 2.5. The growth rate of world output from Antiquity until 2100

Observed growth rates

Projections (central scenario)

The growth rate of world output surpassed 4% from 1950 to 1990. If the convergence process goes on it will drop below 2% by 2050. Sources and series: see piketty.pse.ens.fr/capital21c.
Prospects for Productivity in the United States

The Six Headwinds to Growth for the US Economy

- The end of the demographic dividend
- Rising inequality
- Factor price equalization – interaction between globalization and the Internet
- Access to education and leveling of graduation rates
- Environmental regulations
- Household and government debt

Interest Rates Are on a Structural Downward Trend

• Prospects for further productivity growth are muted
• Slower growth implies weaker private sector demand for capital
• Structurally high public sector deficits will compensate
How Low Can They Go?
Close to $17 Billion in Negative Yielding Debt*

*Values derived with cubic spline analyses
Source: Bloomberg, Addenda Capital

<table>
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<tr>
<th></th>
<th>1-Year</th>
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<td>0.78</td>
<td>1.05*</td>
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<td>Canada</td>
<td>0.18</td>
<td>0.23</td>
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<td>0.36</td>
<td>0.40</td>
<td>0.60</td>
<td>0.87*</td>
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*As of October 19, 2020
The Peculiar Experiences of Negative Interest Rates

• Last ditch efforts by central banks
  • The ECB’s « Whatever it takes » mentality
  • The SNB’s fear of an appreciating franc (CHF)
  • The BoJ’s « Qualitative and Quantitative Easing with Yield Curve Control »

• Negative bond yields ≠ negative coupons
  • Bonds trade at a premium
Has the Experience Been Conclusive?

• Hampers commercial banks’ profitability
  • Tiered system for European commercial banks
• Economic growth remains on structural downtrend
  • Japan and Europe are eloquent examples
• The Fed doesn’t think so
  • Neither do markets according to Fed Fund futures
The Consequence
Wrong Diagnosis, Wrong Prescription

• Monetary policy
  • Designed to address cyclical issues
  • Rates brought to 0 to pull the economy out of the Great Recession and the pandemic-induced recession
  • The Fed is being bullied by markets into easing policy further:
    • Yet the economy was running against capacity limits before the pandemic
    • Not designed to address structural or geopolitical issues

• Unduly low rates lead to the mispricing of assets
  • Could lead to asset price bubbles and inefficient resource allocation
What to Expect

• In the short run
  • Inflation likely to emerge leading to higher monetary policy rates
    • Impediments to trade could support higher prices
  • Long-term rates to rise somewhat
    • Central banks ready tolerate somewhat higher inflation
    • Supply of bonds remains elevated
What to Expect

• In the longer term
  • Structural changes likely to result in a lower rate structure, all else equal
    • At least compared to the prime economic growth period
    • And until retirees start dissaving in earnest
  
  • Supply demand dynamics may alter that trend
    • Public sector debt projected to increase significantly
    • May lead to reassessment of risk
Low and Negative Yields: The Cure or Cause of All Ills

SOA 2020 Annual Meeting
October 26, 2020

Presenter:
Fiona Ng, FSA, CFA, CERA
Milliman Inc
Agenda

- Overview of U.S Life Insurers’ Investment Portfolio
- Yield Enhancement Strategies
  - Private Placements
  - Municipal Bonds
  - Mortgage Loans
  - Alternative Assets
- COVID-19 Observed Impacts
2019 YE Allocation by Asset Class

Total Cash & Invested Assets of All Insurance

- Insurance companies hold 20% of all corporate and foreign bonds
- Hold 15% of all municipal debt

U.S. Life Industry

Source: S&P Global – Market Intelligence
Annual Net Yields on Invested Assets

- U.S. Life Insurers: $4.35 trillion in cash & invested assets as of 12/31/2019

Source: S&P Global – Market Intelligence
Comparison of Variously Sized Companies

Source: S&P Global – Market Intelligence
Annual Net Yields on Invested Assets
By Company Size

Source: S&P Global – Market Intelligence
Allocation by Asset Class

Source: S&P Global – Market Intelligence
### NAIC Ratings of Bonds

- **95%** of the bond portfolio is Investment Grade: NAIC 1 & 2

Source: S&P Global – Market Intelligence
Yield Enhancement Strategies

- Private Placements
- Municipal Bonds
- Mortgage Loans
- Alternative Assets
Private Placements

Source: S&P Global – Market Intelligence
Municipal Bonds

Source: S&P Global – Market Intelligence
Mortgage Loans

Source: S&P Global – Market Intelligence
Schedule BA Holdings

In Billions

Source: S&P Global – Market Intelligence
ETF Exposure

ETF Exposure - Life Insurance Sector

Source: S&P Global – Market Intelligence
COVID-19
Observed Impacts
2020 Treasury Yield Curve

Source: Bloomberg
Moody’s Default Rates Trends - Global 2020

Speculative-grade Corporate Default Rates

Default Rates by Issuer

Source: Moody’s Default Study – September 2020
Moody’s Default Rates Trends - 2020

5-year U.S. Speculative-grade Default Rate

Default Rate

Debt (in Millions)

Defaulted Debt (by Region)

Debt (in Millions)

Source: Moody’s Default Study – September 2020
## U.S. Corporate Index

### Option-Adjusted Spread (Long-Term Averages)

<table>
<thead>
<tr>
<th>Time Period</th>
<th>AA</th>
<th>A</th>
<th>BBB</th>
<th>BB</th>
<th>B</th>
<th>HY</th>
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<tbody>
<tr>
<td><strong>2005/1 to 2020/10 (15 years)</strong></td>
<td>1.12%</td>
<td>1.46%</td>
<td>2.16%</td>
<td>3.81%</td>
<td>5.44%</td>
<td>5.50%</td>
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<tr>
<td>Include Financial Crisis and Covid-19 Period</td>
<td>0.90%</td>
<td>1.19%</td>
<td>1.85%</td>
<td>3.30%</td>
<td>4.74%</td>
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<td>Exclude Financial Crisis and Covid-19 Period</td>
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<td><strong>Financial Crisis and Covid Period</strong></td>
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<tr>
<td>Financial Crisis (2008/1-2009/6)</td>
<td>3.13%</td>
<td>3.98%</td>
<td>4.87%</td>
<td>8.12%</td>
<td>11.33%</td>
<td>11.73%</td>
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<td>Covid-19 Period (2020/3-2020/4)</td>
<td>1.56%</td>
<td>1.98%</td>
<td>3.28%</td>
<td>5.72%</td>
<td>8.77%</td>
<td>7.99%</td>
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<tr>
<td>Covid-19 Period (2020/5-2020/10)</td>
<td>0.90%</td>
<td>1.16%</td>
<td>2.02%</td>
<td>4.12%</td>
<td>5.97%</td>
<td>5.79%</td>
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### 2000/1 to Present

![Graph showing option-adjusted spread over time from 2000/1 to 2020/10](chart.png)

**Source:** Bank of America Indices
Moody’s Rating Migration – Global Pandemic Impact

Moody's Global Rating Migration Rates - 1/1/2019 to 12/31/2019

Moody's Global Rating Migration Rates - 10/1/2019 to 9/30/2020

Source: Moody's Default Study – December 2019 & September 2020
Moody’s Rating Migration – Global

Source: Moody’s Default Study – December 2019 & September 2020