Financial Implications of COVID-19

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Summary

- Traditional finance framework is limited
- Not wrong, but incomplete (physics envy)
- Stable environment $\Rightarrow$ stable financial policies (EMH)
- Dynamic environment $\Rightarrow$ dynamic financial policies (AMH)
- The current environment is highly dynamic
- We must adapt to changing market conditions
- “It’s the economy, stupid”
- The Adaptive Markets Hypothesis provides a framework for thinking about how to respond to COVID-19
What Do Investors Want?

Sharpe Ratio \( \equiv \frac{E[R] - R_f}{SD[R]} \)

U.S. Treasury Bills: SR 0.34
Stock Market: SR 0.33
Pfizer: SR 2.98
Fairfield Sentry: SR 2.98

Cumulative Return

16 March 2020
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What Do Investors Fear?

Urn A contains 100 balls:

- 50 red, 50 black
- Pick a color, then draw a ball
- If you draw your color, $10,000 prize
- Which color would you prefer?
- How much would you pay to play?
What Do Investors Fear?

Urn B contains 100 balls:

- Unknown proportion of black and/or red balls
- Pick a color, then draw a ball
- If you draw your color, $10,000 prize
- Which color would you prefer?
- How much would you pay to play?

The Unknown Unknowns
# Risk/Reward Trade-Offs

## Long-Term Returns of Various Assets

1928 to 2019

<table>
<thead>
<tr>
<th>Asset</th>
<th>Mean</th>
<th>SD</th>
<th>Min</th>
<th>Median</th>
<th>Max</th>
<th>CumReturn</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stocks</td>
<td>9.7%</td>
<td>19.6%</td>
<td>-43.8%</td>
<td>13.9%</td>
<td>52.6%</td>
<td>$ 5,024</td>
</tr>
<tr>
<td>Baa Corporate Bonds</td>
<td>7.0%</td>
<td>7.6%</td>
<td>-15.7%</td>
<td>6.5%</td>
<td>29.1%</td>
<td>$ 487</td>
</tr>
<tr>
<td>U.S. 10-Year Treasuries</td>
<td>4.9%</td>
<td>7.7%</td>
<td>-11.1%</td>
<td>3.3%</td>
<td>32.8%</td>
<td>$ 80</td>
</tr>
<tr>
<td>U.S. 3-Month T-Bills</td>
<td>3.4%</td>
<td>3.0%</td>
<td>0.0%</td>
<td>3.0%</td>
<td>14.0%</td>
<td>$ 21</td>
</tr>
</tbody>
</table>

Source: Aswath Damodaran ([http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/histretSP.html](http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/histretSP.html))

Risk/Reward Relationship Seems To Apply Over Long Periods
Risk/Reward Trade-Offs

1250-Day Rolling-Window Volatility and Return of CRSP Value-Weighted Return
March 19, 1930 to December 31, 2018

Risk/Reward Relationship Does Not Necessarily Apply Across Every Period!

Correlation = \(-59.9\%\)

Source: CRSP and author’s calculations.
Market Recap

VIX and S&P 500 Indexes, 2020

Top 10 Worst Days
1 Jan 1926 to 13 March 2020

19-Oct-1987 -19.5%
28-Oct-1929 -11.7%
29-Oct-1929 -10.0%
6-Nov-1929 -9.7%
12-Mar-2020 -9.5%
18-Oct-1937 -9.3%
15-Oct-2008 -9.0%
21-Jul-1933 -9.0%
20-Jul-1933 -8.9%
1-Dec-2008 -8.9%
Market Recap

U.S. Treasury Yield Curves

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Market Recap

Moody’s Baa Corporate /10Y TBond Spread
Market Recap

U.S. Treasury Yield Curves

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A Bit of Perspective

VIX and S&P 500 Indexes, 4 Jan 2016 to 13 March 2020

Feb 5, 2018

Dow plunges 1,175 -- worst point decline in history

What happened during the Dow’s worst single-day point fall ever

It was the scariest day on Wall Street in years.
S&P 500 Top 10 Worst Days 1 Jan 1926 to 13 March 2020

19-Oct-1987 -19.5%
28-Oct-1929 -11.7%
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6-Nov-1929 -9.7%
12-Mar-2020 -9.5%
18-Oct-1937 -9.3%
15-Oct-2008 -9.0%
21-Jul-1933 -9.0%
20-Jul-1933 -8.9%
1-Dec-2008 -8.9%

VIX Top 10 Highest Days 2 Jan 1990 to 13 March 2020

20-Nov-2008 80.9
27-Oct-2008 80.1
24-Oct-2008 79.1
12-Mar-2020 75.5
19-Nov-2008 74.3
21-Nov-2008 72.7
17-Oct-2008 70.3
29-Oct-2008 70.0
10-Oct-2008 69.9
22-Oct-2008 69.7

S&P 500 Top 10 Best Days 1 Jan 1926 to 13 March 2020

15-Mar-1933 16.8%
6-Oct-1931 12.6%
30-Oct-1929 12.3%
21-Sep-1932 11.8%
13-Oct-2008 11.5%
28-Oct-2008 10.7%
5-Sep-1939 9.9%
13-Mar-2020 9.3%
20-Apr-1933 9.3%
3-Aug-1932 9.1%

Will You Know **When** To Get Back In??

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There Will Be New Winners and Losers

Opportunities for active managers

For the rest of us, diversification
Comparisons

“History doesn’t repeat itself, but it often rhymes”
– Mark Twain (?)

- 1918 Influenza Pandemic (“Spanish Flu”)
- 2008 Financial Crisis
Summary

Most of the evidence indicates that the economic effects of the 1918 influenza pandemic were short-term. Many businesses, especially those in the service and entertainment industries, suffered double-digit losses in revenue. Other businesses that specialized in health care products experienced an increase in revenues.

Some academic research suggests that the 1918 influenza pandemic caused a shortage of labor that resulted in higher wages (at least temporarily) for workers, though no reasonable argument can be made that this benefit outweighed the costs from the tremendous loss of life and overall economic activity. Research also suggests that the 1918 influenza caused reductions in human capital for those individuals in utero during the pandemic, therefore having implications for economic activity occurring decades after the pandemic.
1918 Influenza Pandemic

U.S. Stock Market, 3 Jan 1916 to 30 Dec 1922

April 2, 1917
April 5, 1918
The Financial Crisis of 2008

Crisis on Wall Street as Lehman Totters, Merrill Is Sold, AIG Seeks to Raise Cash

Fed Will Expand Its Lending Arsenal in a Bid to Calm Markets; Moves Cap a Momentous Weekend for American Finance

Ultimatum By Paulson Sparked Frantic End

What’s News—
Business & Finance

Bank of America to Buy Merrill
The financial crisis triggered the worst recession since the Great Depression, which ultimately destroyed almost 9 million jobs and shrank the economy by hundreds of billions of dollars. The crisis was caused by, among other things, an unsustainable housing boom as shown below. The severity of the crisis is also illustrated by the rapid increase in corporate bond spreads in the fall of 2008 as well as the dramatic fall in household net worth.

Source: U.S. Treasury (2013)
The Financial Crisis of 2008

VIX and S&P 500 Indexes, 2 Jan 1990 to 13 March 2020

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VIX and S&P 500 Indexes, 2 Jan 1990 to 13 March 2020
The Financial Crisis of 2008

Moody’s Baa Corporate /10Y TBond Spread

Shaded areas indicate U.S. recessions

Source: Federal Reserve Bank of St. Louis

fred.stlouisfed.org
# Unprecedented Intervention

## The Crisis Response: Overview of the Government Response

<table>
<thead>
<tr>
<th>Category</th>
<th>Programs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small Business</td>
<td>Money Support for Companies</td>
</tr>
<tr>
<td>Autos</td>
<td>Support for Critical Manufacturing Industry</td>
</tr>
<tr>
<td>Financial Markets</td>
<td>Money Market Mutual Fund Liquidity Facility</td>
</tr>
<tr>
<td>Consumers</td>
<td>Money Support for Failing Auto, Credit Card, and Student Loan Lenders</td>
</tr>
<tr>
<td>Retirement</td>
<td>Money Support for 401(k) Investors</td>
</tr>
<tr>
<td>Housing</td>
<td>Money Support for Affordable Housing</td>
</tr>
</tbody>
</table>

Federal Reserve financing programs:
- Asset-backed commercial paper money market fund liquidity facility
- Commercial paper lending facility
- Currency swap lines with international central banks
- Money market financial intermediary facility
- Primary dealer credit facility
- Term auction facility
- Term securities lending facility

TARP bank investment programs:
- Capital Assistance Program (CAP)
- Capital Purchase Program (CPP)
- Community Development Capital Initiative (CDCI)
- Asset Guarantee Program (AGP)
- Targeted Investment Program (TIP)

Recovery Act:
- TALF credit market program
- FDIC bank debt insurance program (TUGP)
- TARP auto industry programs
- GM/Crysler restructuring
- Auto supplier support program
- Auto warranty commitment program

FDIC deposit insurance limit increase to $250,000

Treasury money market fund guarantee program

AIG stabilization effort

Source: U.S. Treasury (2013)

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**TARP:** $700 Billion

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Unprecedented Intervention

Source: U.S. Treasury (2013)
Unprecedented Intervention

Why??
“FDA is currently not aware of any adequate and well-controlled studies demonstrating that killing or decreasing the number of bacteria or viruses on the skin by a certain magnitude produces a corresponding clinical reduction in infection or disease caused by such bacteria or virus.”

– FDA (case #599132, 17 Jan 2020)
President Trump Signs Coronavirus Spending Bill

WASHINGTON—President Trump signed into law an $8.3 billion bill for fighting the coronavirus outbreak, funding efforts to develop a vaccine and assisting local and state governments’ responses, as officials said they were also weighing steps to bolster the U.S. economy.
Our Response To COVID-19 So Far

- Public health crisis is not like a financial crisis
- Just throwing money at the problem isn’t enough
- Need sustained attention and resources to monitor global health and prepare for outbreaks
- Vaccines and antibiotics are under-resourced
- CEPI, WHO, Gates Foundation are helping, but...
Take-Aways

- Short-, medium-, and long-term perspectives
- Things will probably get worse before they get better
- One size does not fit all; diversification is key
- Re-examine your goals, constraints, resources
- Don’t “freak out”; manage your fears, and beware of the madness of mobs
- Tools vs. solutions: if needed, seek financial advice ("fiduciary")
Conclusion

“So, first of all, let me assert my firm belief that the only thing we have to fear is fear itself—nameless, unreasoning, unjustified terror which paralyzes needed efforts to convert retreat into advance.”  Franklin D. Roosevelt

“Success consists of going from failure to failure without loss of enthusiasm.”  Winston Churchill

“If you’re going through hell, keep going.”  Winston Churchill
Thank You!