



## Finance: The Good the Bad and the Ugly

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## National Economic Education Delegation

- **Vision**

- One day, the public discussion of policy issues will be grounded in an accurate perception of the underlying economic principles and data.

- **Mission**

- NEED unites the skills and knowledge of a vast network of professional economists to promote understanding of the economics of policy issues in the United States.

- **NEED Presentations**

- Are nonpartisan and intended to reflect the consensus of the economics profession.



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## Who Are We?

- **Honorary Board: 54 members**

- 2 Fed Chairs: Janet Yellen, Ben Bernanke
- 6 Chairs Council of Economic Advisers
  - o Furman (D), Rosen (R), Bernanke (R), Yellen (D), Tyson (D), Goolsbee (D)
- 3 Nobel Prize Winners
  - o Akerlof, Smith, Maskin

- **Delegates: 652+ members**

- At all levels of academia and some in government service
- All have a Ph.D. in economics
- Crowdsource slide decks
- Give presentations

- **Global Partners: 48 Ph.D. Economists**

- Aid in slide deck development

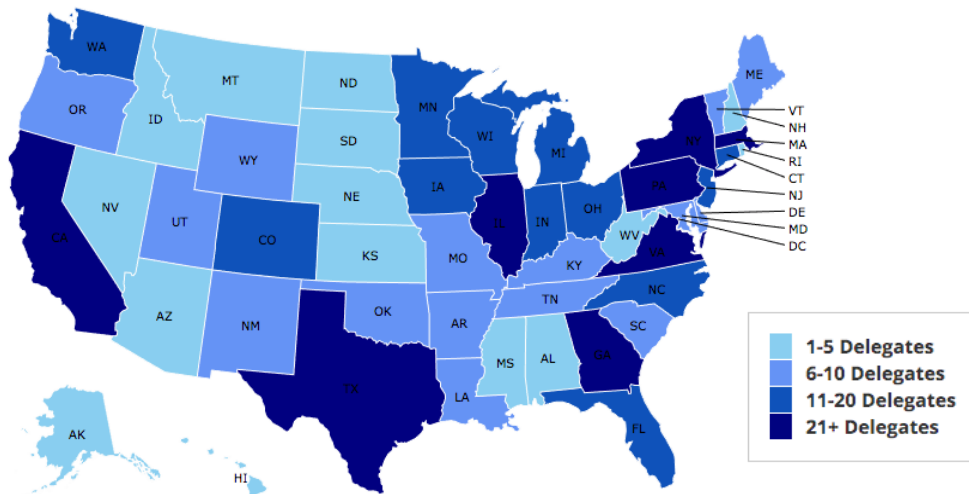


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## Where Are We?



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## Available NEED Topics Include:

- Healthcare Economics
- US Economy
- Climate Change
- Economic Inequality
- Economic Mobility
- Trade and Globalization
- Minimum Wages
- Immigration Economics
- Housing Policy
- Federal Budgets
- Federal Debt
- Black-White Wealth Gap
- Autonomous Vehicles
- US Social Policy



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## The Economic Role of Finance

- **The four major roles of finance are facilitating exchange, the efficient allocation of saving and investment, the management of risk.**
  1. Manage payments securely and at low cost.
  2. Saving: households need to decide how best to spread consumption over a lifetime.
  3. Investment: Firms need to decide on how much and which investment projects will maximize firm value for shareholders.
  4. Risk: Everyone needs to plan on how best to avoid risk and to pay to insure against risk that can't be avoided.

**Side Benefit: asset prices provide valuable information**

- **These roles are met, imperfectly, by financial assets, markets, and firms**



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## Financial Assets:

- **Financial Assets are promises to pay money in the future (IOUs).**

1. Households, firms and governments hold checking deposits to facilitate transactions.
2. Households save by buying stocks, bonds and savings accounts in the hope of earning a future return.
3. Firms finance investment by selling new shares and bonds.
4. Insurance Contracts allow households to pay a premium to avoid risk.
5. Derivative contracts, such as options and futures, allow parties to trade risk.
6. All financial assets are someone else's liabilities



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## Financial Markets

- **New York Stock Exchange, Chicago Mercantile Exchange**
- **The trading of financial assets puts a price on the promises of the issuer:**
  1. The price of future goods: "the time value of money"
  2. The riskiness of the promised payments.
- **The trading of **existing** financial assets on "secondary markets" makes these assets more liquid.**



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## Financial Institutions

- **Brokers and Dealers economize on transactions costs.**
- **Investment banks help firms to raise funds for new investment projects**
- **Insurance companies arrange contracts where the policy holder pays the average loss on all policies rather than the face his or her individual risk of loss.**
- **Mutual Funds: allow small investors to hold diversified portfolios and save for retirement.**
- **And, commercial banks...**

## Banks

- **Traditional Role of Banks:**
  1. Manage the payments system through checking accounts, credit cards, wire transfers.
  2. Generate information about the creditworthiness of small firms and households in order to meet their legitimate needs to borrow.

## Problematic Aspects of Finance

1. Liquidity.
2. Leverage.
3. Speculation.
4. The volume of trading.
5. Financial engineering.

For all 5 of these problematic aspects, there are some offsetting benefits.

6. Financial Crises or Systemic Risk: The Last will be first!



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## 6. Financial Crises in the 19<sup>th</sup> Century

- Financial Panics (and recessions) in the 19<sup>th</sup> century: 1819, 1837, 1857, 1873, 1893.
- Financial Panics are caused by a shortage of *liquidity*.
- **Illiquidity**: the value of liquid assets (cash, short-term Treasuries) are less than the value of liquid liabilities (short-term debt, bank deposits)
- **Insolvency**: the value of assets is less than liabilities, so unless conditions change, liabilities will not be fully paid off.



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## Illiquidity Can Lead to Insolvency

- Most banks are technically illiquid, which is not a problem in normal times because money is being deposited to offset the money that is being withdrawn.
- But during a panic solvency is no guarantee of survival (As George Bailey learned in *It's a Wonderful Life*)
- To meet pressing demands for cash, the bank may have to sell assets in a “fire sale,” leading to insolvency and a bank failure.
- One bank failure can cause “contagion,” leading to widespread failures, e.g., called systemic risk.



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## Walter Bagehot's and his Famous Dictum

- Walter Bagehot (1826-77): *Lombard Street*, 1873
- Save the solvent institutions while allowing the insolvent ones to fail.
- His “Dictum” during a panic the Central Bank should:
  1. Lend freely,
  2. At a high interest rate,
  3. To solvent institutions,
  4. On good collateral.



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## JP Morgan, “Lender of Last Resort?” (LOL)

- October 1907, JP Morgan cuts short his vacation to deal with a financial panic
  - Market falls by 50%
  - Runs on banks threaten a complete collapse of financial markets.
- Morgan calls a number of bankers to his offices to pledge money to provide liquidity to markets.



## The Aftermath: Federal Reserve Act of 1913

- **Original Roles of the Fed**
  1. Oversee Currency & Regulate Banks; 2. *Lender of Last Resort*.
- **Great Depression and the Banking Panics of the 30s**
  - Fed fails miserably.
  - RFC lent more money to the banks than did the Fed
- **Footnote on later LOL Roles:**
  1. 2008: Bernanke saves the world, but Congress is not happy.
  2. 2020: Powell goes even bigger, but the verdict is still out.



## 1. Liquidity, more generally

- The ability to transform an asset into money quickly with little loss of value.
- Increasing Liquidity: House, Share of Stock, Treasury Bill, Savings Account, Currency.
- Secondary markets, such as the NYSE greatly enhance liquidity.

## 1. Liquidity: the good

- Liquidity makes saving more attractive because it provides flexibility about when to enjoy future consumption.
- More attractive savings lowers borrowing costs to firms.

## 1. Liquidity and Information

- Trading on secondary markets provides an incentive to gather information.
- Trading on better information can be very profitable.
- Information advantage of proximity to exchanges.  
Michael Lewis, *Flash Boys*
- The security precautions for the release of the BLS reports on employment and CPI.
- All economists agree that information is quickly reflected in asset prices.



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## Is the Bond Market Informationally Efficient?



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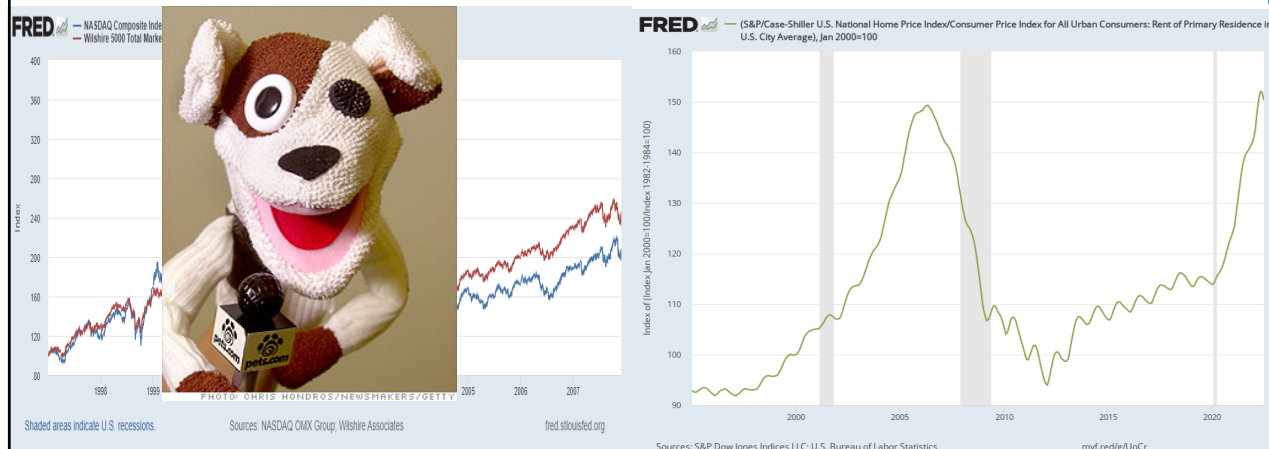
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# Information about What?

- **Optimists: Eugene Fama, Nobel laureate, 2013.**
- **Asset prices fully reflect all available information about promised future payments and the riskiness of these payments. Asset prices reflect “fundamental values.”**
  1. Stock prices provide informationally efficient signals about the value of firm’s investment projects: Announce a project and see if the stock price rises or falls.
  2. Firms that undertake risky strategies will pay a penalty in terms of increasing borrowing costs.
  3. Fed can learn a lot about the state of the economy from financial asset prices: a) the reaction of long-term interest rates; 2) inflationary expectations.



# Really? (personal comment)



## Fama's Response

I don't even know what a bubble means. These words have become popular. I don't think they have any meaning....

Now after the fact you always find people who said before the fact that prices are too high. People are always saying that prices are too high. When they turn out to be right, we anoint them. When they turn out to be wrong, we ignore them. They are typically right and wrong about half the time.

*New Yorker, 1/13/2010*

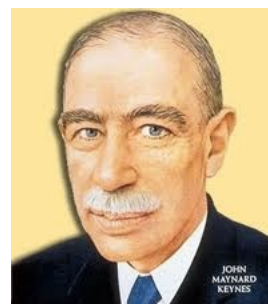


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## Information about What?

- Pessimist: John Maynard Keynes
- Asset prices reflect investor psychology and bear little relation to fundamental value
- Beauty Contest: Pick the girl that other people think is the prettiest
- "Animal Spirits" cause irrational and inefficient swings in investment and cause macroeconomic instability



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## Information about What?

- **Middle of the Roader (?):** Robert Shiller, also Nobel laureate, 2013.
- **Asset prices fluctuate unpredictably** around fundamental values.
- **Financial market bubbles can lead to inefficient investment.** e.g., Internet bubble.
- **Originated the phrase “irrational exuberance.”**



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## Informational Efficiency: 2 Kinds

1. **“No free lunch:”** It is impossible to use publicly available information to earn consistently above average returns
  2. **“Prices are Right”** Asset prices fully reflect all available information about fundamental values.
- **Fama and Shiller both believe in 1. Fama believes that 1. implies 2., and Shiller does not.**



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## 2. Borrowing and Leverage: the Good

- **Good Borrowing:**
  - Reasonable anticipation of higher income in the future: senior with a job borrows to buy a suit
  - Temporary need: borrow to repair damaged roof.
- **Firms: Borrow to finance profitable, but large investment project.**

## Borrowing to Increase Leverage and Returns

- **Borrowing to buy risky assets:**
  - In good states, gains are magnified because returns exceed borrowing costs.
  - In bad states, losses are magnified because interest on borrowing must be paid no matter what.
- **Borrowing increases average return, but also increases risk**
- **Modigliani-Miller 1958: Borrowing by itself does not create social value.**

## Then Why do Firms Borrow?

- Average debt/equity ratio for the S&P500 is about 1.5.
- Original M&M answer: Maybe borrowing allows the firm to pass on costs to others
- Corporate borrowing is tax deductible and by borrowing to finance investment, some of the costs of borrowing are paid by Uncle Sam.
- N.B. Borrowing may be privately beneficial without being socially beneficial



## Then Why do Firms Borrow (cont.)?

- The Attraction of Limited Liability
- Pass on Costs of Bad States of Nature to others
  - Heads I win big; Tails I don't lose as much
  - Zombie firms: S&L crisis and junk bonds
- Problem: if lenders see risk, they should increase borrowing costs or stop lending.

Something to think about: what about insured depositors and other lenders to institutions that are perceived to be "Too Big To Fail."

## Given M&M Why do Banks Borrow?

- Commercial banks and investment bank increased their leverage prior to the financial crisis,
- Largest Investment Banks had debt to equity ratios on the order of 30 to 1, pre-crisis. Much of the borrowing was interconnected. E.g., money market mutual funds bought Lehman Brothers financial assets
- Regulators allowed this leverage as a result of 2004 legislation pushed by none other than Hank Paulson, pre-Treasury days
- “Too big to fail:” makes bank borrowing a particular problem because the perception (and reality) was (is?) that the government would not impose losses on bank lenders.
- Therefore lenders did not “discipline” risky bank behavior by raising borrowing costs or withholding new loans.



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## But It Is Worse

- Large banks are, in fact, too big to fail.
- They pursue similar strategies and lend to one another.
- Therefore, large bank lending creates “systemic” risk.
- The failure of an S&L is a tragedy for shareholders and community
- The failure of Lehman precipitated a world-wide recession



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### 3. The Good: Hedging with Derivatives

- Derivative markets have an important role in eliminating and managing risk.
- Futures example of hedging: Farmer sells wheat futures and baker buys wheat futures to lock in the price, eliminating the risk of price fluctuations for both parties.
- Options work similarly, except they provide insurance against either a fall in the price of an asset you own (put option) or a rise in price of an asset you may want to buy in the future (call option).



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### Problems: Speculation (?)

- But what is the virtue of a derivative if only one side is hedging.
- Suppose in our futures example the farmer sells the futures contract to a hedge fund
  1. Hedge fund may be better able to bear the risk of price fluctuations than can the farmer, and earns a kind of insurance premium on the contract, or
  2. Hedge fund believes that the price of wheat is going to rise and will earn a capital gain on the contract.
- Number 1 OK, number 2 more problematic
- What is the role of trades when neither side is hedging?



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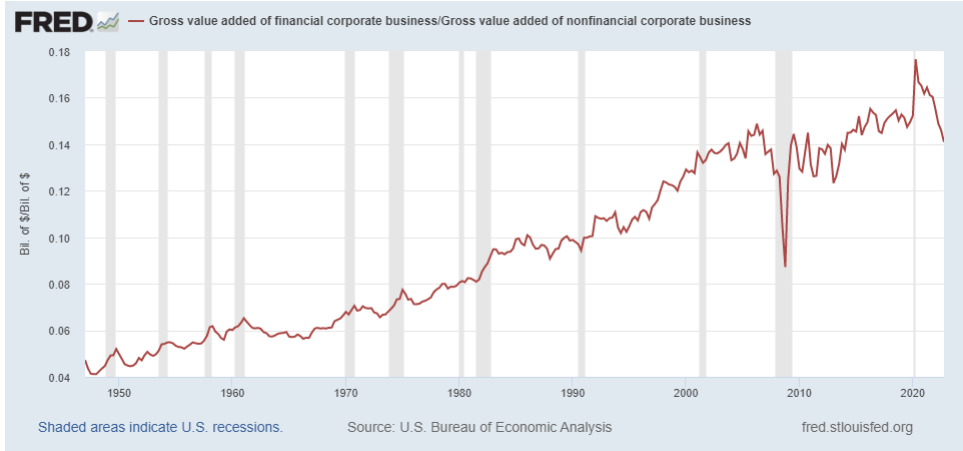
## Speculation with Derivatives

- Derivatives provide a kind of leverage: the small price of an option or futures gives control over large possible gains.
- Hidden and compound leverage: suppose I borrow money to buy a derivative contract.
- Derivative contracts can be complicated and poorly understood.
- What can justify the large volume of derivatives, mostly private contracts (OTC)?
- In 2002, Warren Buffet called derivatives, “financial weapons of mass destruction, carrying dangers, while now latent, are potentially lethal.”

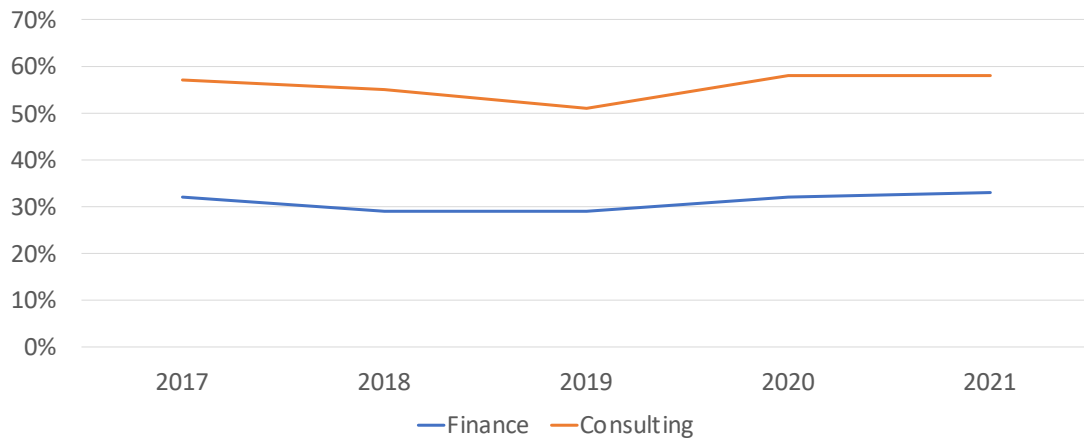
## 4. Trading Volumes

- Good:
  1. Trading provides liquidity that enhances saving investment.
  2. Trading allows prices to react quickly to new information.
- In terms of orders of magnitude, how much trading is needed to fulfill economic roles of saving investment and insuring against risk?
- Stock trading volume has fallen in the last few years, but it is usually about 100 percent of GDP and don't forget bond and derivative trading.
- Trading and other financial activities takes resources.

# We are devoting increasing resources to finance:



# New Harvard MBAs by Job Function



## Trading Volumes?

- What is all this trading accomplishing?
  - Speculation?
  - The creation of systemic risk?
  - Fama maybe, more information reflected in prices?

## 5. Financial Engineering: Its Not All Bad!

1. Savings Banks dual role: help unsophisticated savers find a good return.
2. Specialize in information on creditworthiness of local mortgage borrowers.
3. Manage the collection of mortgage payments
4. Does it make sense to pair 1. with 2. and 3. in “Originate and Hold” model?

## The Good Side of Securitization

- **Originate and distribute model:**
  - Thrifts should make as many good mortgage loans as they can find.
  - sell a bundle of loans to investment banks, so more mortgages can be made.
  - Investment bank bundle the mortgages and sells shares of the pool as Mortgage Backed Securities, MBS.
  - Savings bank manages the mortgage and passes payments to the Investment Bank, who pays owners of MBS.
- **Essentially, allows households to tap capital markets for mortgage financing at lower borrowing costs.**
- **MBSs designed with different credit “tranches,” to match individual investor preferences for risk and return. Provides (some) diversification or risk.**



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## What went wrong?

- **If the thrift (or mortgage lender) is not going to hold the mortgage, what incentive do they have to make only credit worthy loans.**
- **How can investors evaluate the credit worthiness of the mortgages in the pool.**
- **Credit ratings agencies had bad incentives to underestimate the riskiness of the securities.**
- **But it got much worse: Slicing and dicing.**



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## CDOs<sup>2</sup>

- MBS is a “collateralized debt obligation,” or CDO.
- Somebody had the brilliant idea of issuing a security that held tranches of many different mortgage backed securities.
- So, an investor could buy a security that held the lowest tranche of a whole bunch of regular MBS securities. Diversification(?)
- Really just complexity and opacity (fraud?).



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## Does Mortgage Securitization Prove that Financial Engineering is Bad?

- Absolutely not.
- It shows that poorly, designed and complicated financial engineering can lead to a lot of harm.
- It also shows that the market on its own will not eliminate “bad” products or bad behavior.



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## Therefore:

- Given the systemic risk created by finance, there is a role for regulation
- But what is that role?
- We don't want to throw the baby out with the bath water.
- How do we limit the excesses of finance, while still enjoying the considerable benefits provided by finance and financial innovations?
- That topic takes on particular relevance in our last session on cryptocurrencies.



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