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Tutorial 1
Modules 1-5



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Module 1

Money and Currency

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What is Money?

Through history money has three important functions:

1. Medium of exchange
2. Unit of account
3. Store of value

Needs to be portable, durable, fungible

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Money and Currency Markets History

- Need for a better system than barter
- Money was created as a social contract to facilitate the median of exchange
- Exchange for payment for debts, labor, goods and services

The logo consists of a small globe icon followed by the text "BIG PICTURE" in a bold, sans-serif font.

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What is Money?

- Throughout history money was most commonly precious metal coin
- As early as the 6th century, the idea of printing a note that is backed by gold sitting in a vault would make it far easier to facilitate the "medium of exchange" as they are lighter, easier to store



Different Monetary Systems

History of different monetary systems around the world. While each country adopted unique variations, each era below generalizes the primary type of systems most commonly adopted in that time.

| Classic Gold Standard | Numerous war-time variations | Numerous war-time variations | U.S. Dollar Centric Fiat Currency Era |
|-----------------------|------------------------------|------------------------------|---------------------------------------|
| 1816-1913 | 1862-1878 | 1914-1923 | 1923-1934 |
| | | | |

| 1816-1913 | 1862-1878 | 1914-1923 | 1923-1934 | 1934-1944 | 1944-1971 | 1971-Present |
|-----------|-----------|-----------|-----------|-----------|-----------|--------------|
| | | | | | | |

Note that the history of monetary failures and monetary system resets are very common



Government vs. Private Bank Money



U.S. Fiat Greenback



Private Bank Note



Gold Backed vs. Fiat Money



In Gold Coin
Payable to the
Bearer on Demand



One Silver Dollar
Payable to the
Bearer on Demand



Federal Reserve Note



Currency Markets History

- After World War II, the world was in ruins
 - America had the majority of global gold reserves
 - Most of the western world was massively indebted to America for the war
 - It was an opportunity for Britain and America to create in their own words:

“The Making of a New World Order”



Bretton Woods Agenda - Britain



Harry Dexter White and John Maynard Keynes at Bretton Woods

- Lord John Maynard Keynes pushed for the creation of the IMF (International Monetary Fund) and the World Bank
 - Pushed for the creation of a one world currency to be called the “Bancor” to be used in international trade for multilateral clearing
 - Protect British Imperial Preference



Bretton Woods Agenda – U.S.



Henry Morgenthau

- Morgenthau and White agreed on the creation of the IMF and World Bank
- Saw the opportunity to create a U.S. centric monetary system
- Dismantle British Imperial Preference
- Use gold or a gold equivalent as the primary means to settle

Harry Dexter White



Bretton Woods



- During the Bretton Woods Conference, Harry Dexter White deceived Keynes and the British
- Pushed through that the U.S. Dollar would be convertible to gold and the U.S. Dollar would become the world reserve currency
- The rest of the western world currencies would be pegged to the U.S. dollar



Bretton Woods Gold Backed Dollar



- 1944-1973 was a global period where U.S. dollars were actively distributed globally
- Primary currency held in reserve by all central banks around the world
- Primary currency of trade for the international settlement of all trade



Bretton Woods Failure

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- Bretton Woods required the participation of United States, UK, Soviet Union and China
 - While the Soviets were on board during Bretton Woods, they later refused to join the IMF and the U.S. centric monetary world order
 - This gave birth of the cold war and the massive anti-communism movements across America



Bretton Woods Failure

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Richard Nixon
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- Young Congressman Richard Nixon ran the HUAC interrogations that included accusing Harry Dexter White of being a communist spy
 - Accused White of writing the Morgenthau Plan and denounced the plan for making reparations to the USSR



Richard Nixon

President Richard Nixon

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- Vietnam war was a disaster
 - Losing the cold war to the USSR
 - U.S. increasingly indebted and monetarily limited
 - Countries like France saw the writing on the wall and started demanding gold for dollars
 - Saw the Bretton Woods system as flawed and threatened to unravel America



Birth of the Fiat Currency System

- Advised on adopting a new currency regime, that freed bankers from the gold standard, America would win the cold war and be great again
- President Nixon shocked the world with what is now called the “Nixon Shock”
- On 15 August 1971, the United States unilaterally terminated convertibility of the US dollar to gold, effectively bringing the Bretton Woods system to an end and rendering the dollar a fiat currency



Modern Fiat Money



The Birth of the Fiat Currency Regime

- After a number of currency meetings, the Bretton Woods system ended
 - Smithsonian Agreement/Jamaica Accord
 - Ushered in the modern free-floating fiat currency system
 - Virtually every global currency in the world is now flat
 - The system works based on the confidence of its citizens and the lack of viable alternatives



Fiat Currency in Modern Monetary System

- Declared legal tender
 - No fixed value
 - No intrinsic value
 - Primary function is to facilitate a means of payment
 - To create an effective exchange of goods, services, labor and taxes



Modern Monetary Systems

- Government treasuries or central banks create the physical cash and coins
 - The vast majority of the creation of new money supply is done through the private sector in the commercial money center banks and created as deposits
 - Money is created as debt without needing to be collateralized against anything but reserve ratios



Modern Monetary Systems

- The efficient creation and allocation of money has been outsourced from the public sector to the private sector
 - The private sector banks compete to attract deposits and subsequently compete to create debt (through credit worthy loans)
 - Government neither controls money supply nor the allocation of that money



History 1971- Present

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- Unprecedented expansion of money supply
 - Central banks are now openly manipulating asset prices through “open market operations” like QE
 - Massive levels of debt that can only be sustained by historically low interest rates



How is Money Created?

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Monetary Base

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Monetary Base:

1. Commercial banks' reserves deposited with the central bank
 2. Currency circulating in the public in physical form as cash and coin



“Every circulating Federal Reserve Note represents in actuality a one dollar debt to the Federal Reserve system.”

Money Facts, House Banking and Currency Committee



Monetary Base

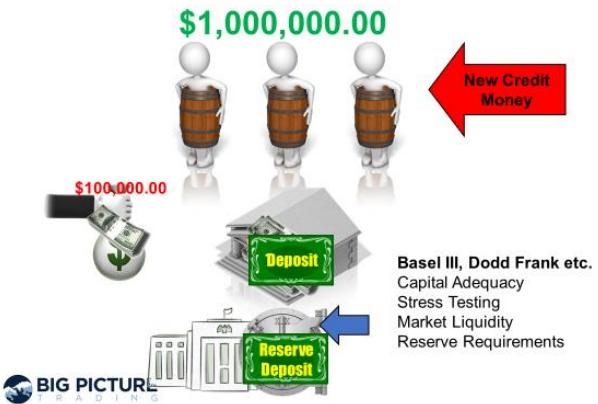


Monetary System

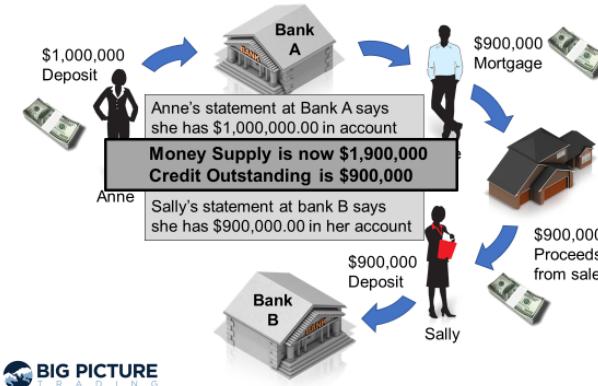
- Governments regulate (often with poor transparency) the central banks who autonomously create and manage the infrastructure and monetary operations



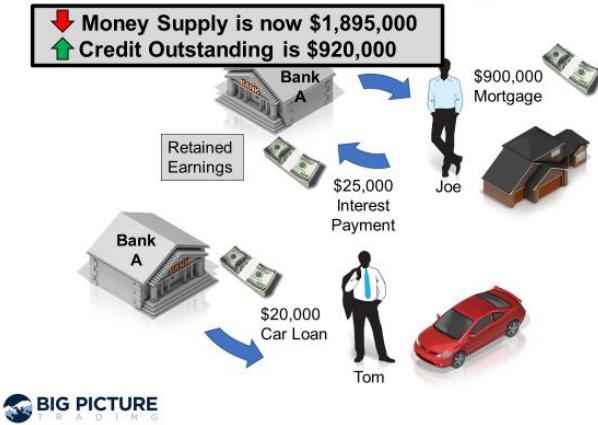
Fractional Reserve Lending



Fractional Reserve Lending



Fractional Reserve Lending



Fractional Reserve Banking

Physical cash accounts for less than 3 per cent of the total stock of money in the economy. Private bank credit money – credit and coexistent deposits – makes up the remaining 97 per cent of the money supply.*

*Where Does Money Come From?
Josh Ryan-Collins and Tony Greenham



U.S. Money Supply and Credit 2016



MONETARY BASE

| | |
|------|------------------|
| 1980 | \$ 0.14 Trillion |
| 1990 | \$ 0.30 Trillion |
| 2000 | \$ 0.60 Trillion |
| 2016 | \$ 3.50 Trillion |



MONEY SUPPLY

| | |
|------|------------------|
| 1980 | \$ 1.53 Trillion |
| 1990 | \$ 2.92 Trillion |
| 2000 | \$ 4.68 Trillion |
| 2016 | \$13.43Trillion |



CREDIT STOCK

| | |
|------|------------------|
| 1980 | \$ 4.31 Trillion |
| 1990 | \$13.00Trillion |
| 2000 | \$25.55Trillion |
| 2016 | \$66.85Trillion |



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Module 2

Inflation

Illusion of Constant Value

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Inflation

Investopedia

- Inflation is defined as a sustained increase in the general level of prices for goods and services.
- It is measured as an annual percentage increase.

Wikipedia

- In economics, inflation is a rise in the general level of prices of goods and services in an economy over a period of time.

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Alan Greenspan

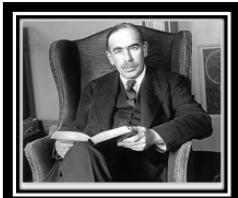
A black and white portrait of Alan Greenspan, an older man with glasses, wearing a suit and tie, framed by a thick black border.

*"In the absence of the gold standard, **there is no way to protect savings from confiscation through inflation. There is no safe store of value.***

– Alan Greenspan, Gold and Economic Freedom 1966

The logo for BIG PICTURE, featuring a stylized globe icon next to the text "BIG PICTURE".

John Maynard Keynes



John Maynard Keynes

By a continuing process of inflation (**printing money and creation of debt**), governments can confiscate, secretly and unobserved, an important part of the wealth of their citizens. By this method, they not only confiscate, but they confiscate arbitrarily; and, while the process impoverishes many, it actually enriches some.

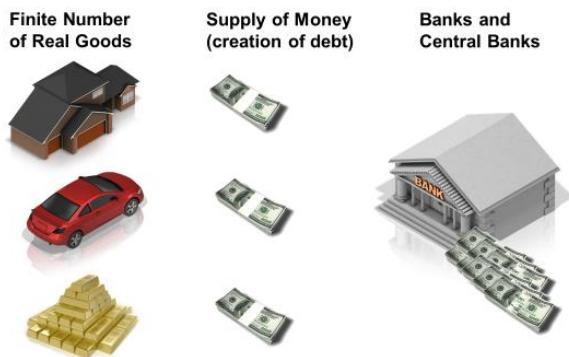


Inflation

- It is the devaluation of the purchasing value of money through the increase of money supply (creation of debt)
 - Today (in most countries) governments, and the treasury departments they control, no longer control money supply
 - Money supply growth is now privatized with central bank and private bank money creation through credit money



Inflation



U.S. Money Supply 2016



MONEY SUPPLY

1980 \$ 1.53 Trillion
1990 \$ 2.92 Trillion
2000 \$ 4.68 Trillion
2016 \$13.43Trillion



Canadian Prices in 1955



North America Comparing Costs

| 1913 | Cost | % of Salary |
|---------------------|------------|-------------|
| Average Salary | \$1,034.00 | |
| Average House Price | \$4,800.00 | 464.00% |
| Average Car Price | \$500.00 | 48.00% |



| 2013 | Cost | % of Salary |
|--------------------------|--------------|-------------|
| Average Salary | \$38,000.00 | |
| Average Household Income | \$68,000.00 | |
| Average House Price | \$270,000.00 | 710.00% |
| Average Car Price | \$33,500.00 | 88.00% |



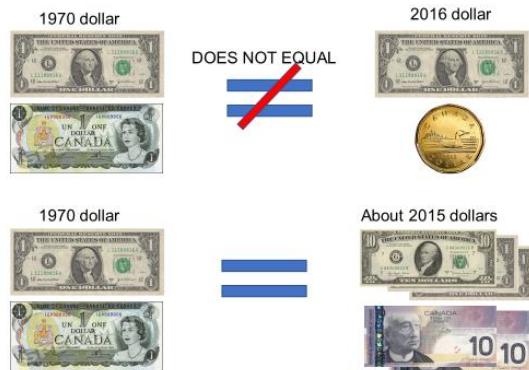
The Illusion of Constant Value

- Though not hidden, banks and governments have no incentive to educate the masses
 - Therefore the vast majority of people believe in constant dollars
 - “Dollar yesterday is worth a dollar today!”

Common example: *"I bought my house in 1970 for \$25,000, today it is worth \$400,000. I made \$375,000 on my home"*



Constant Dollar Illusion



Traditional Inflation Measures

- Measuring the rate of inflation has always focused on a basket of goods or cost of resources for production
 - Primary measures are:
 - CPI – Consumer Price Index
 - PPI – Producer Price Index
 - PCE – Personal Consumption Expenditures



Chained CPI

- Chained CPI is shorthand for "Chained Consumer Price Index for All Urban Consumers"
 - It's a way to index spending and taxes -- including Social Security benefits -- to the rate of inflation, or the rise in prices over time
 - Social Security benefits would increase at a slower rate than they do using the current index



Chained CPI

- Reflects substitutions consumers would make in response to rising prices of certain items
 - Example replacing steak with ground beef or pork



Fundamental Flaw in Measures

- For consumer prices to inflate, it would imply that the printed money was disseminating to the consumer driving prices higher
 - Prices within these baskets are subject to:
 - Price controls or price fixing/caps on food
 - Rent Controls
 - Minimum Wages
 - Agricultural Subsidy Programs
 - Substitution Rules
 - Internet and Central Distribution
 - Globalization and the importing of global wage levels



Poor Judge of Money Dilution

- CPI is an acceptable measure of what it costs for a common citizen to buy goods on a day-in-day-out basis
 - Why should CPI or PCE be a good judge for dilution in the financial markets on stocks, bonds and real estate?

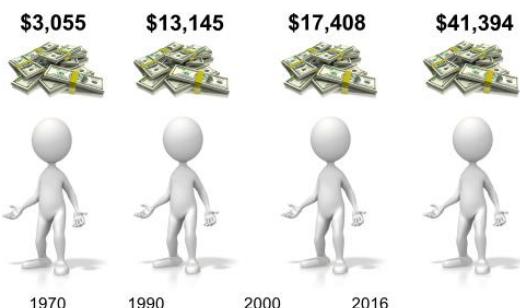


RMD – Rate of Monetary Dilution

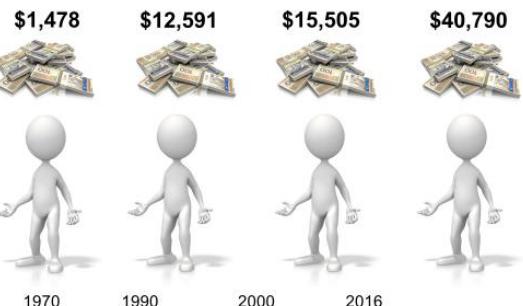
- Money is consistently losing its value each year by the RMD
 - RMD is the rate of the growth of money supply per capita
 - When new money (credit) enters the system, it inflates prices somewhere, therefore population adjusted money supply best fits our model of the rate of which money erodes



Money Supply per Capita (US)

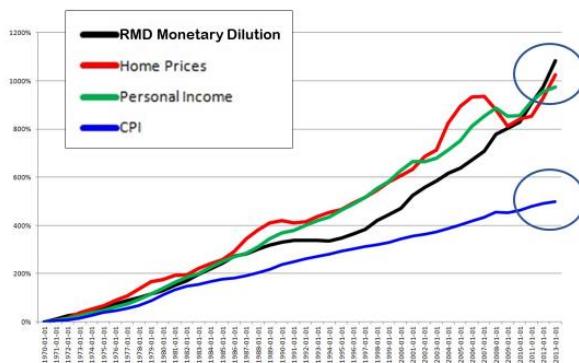


Money Supply per Capita (CAD)



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RMD vs. CPI



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U.S. RMD Rate of Monetary Dilution

Population adjusted Money Supply Dilution

2016 American Multiplier Chart

| | multiplier |
|------|------------|------|------------|------|------------|------|------------|------|------------|
| 1970 | 13.55 | 1980 | 5.88 | 1990 | 3.15 | 2000 | 2.38 | 2010 | 1.46 |
| 1971 | 12.10 | 1981 | 5.42 | 1991 | 3.11 | 2001 | 2.18 | 2011 | 1.34 |
| 1972 | 10.83 | 1982 | 5.00 | 1992 | 3.10 | 2002 | 2.08 | 2012 | 1.24 |
| 1973 | 10.25 | 1983 | 4.56 | 1993 | 3.10 | 2003 | 1.99 | 2013 | 1.19 |
| 1974 | 9.81 | 1984 | 4.21 | 1994 | 3.13 | 2004 | 1.89 | 2014 | 1.13 |
| 1975 | 8.80 | 1985 | 3.95 | 1995 | 3.04 | 2005 | 1.84 | 2015 | 1.09 |
| 1976 | 7.83 | 1986 | 3.62 | 1996 | 2.93 | 2006 | 1.75 | 2016 | 1.00 |
| 1977 | 7.18 | 1987 | 3.54 | 1997 | 2.81 | 2007 | 1.67 | 2017 | |
| 1978 | 6.74 | 1988 | 3.38 | 1998 | 2.62 | 2008 | 1.54 | 2018 | |
| 1979 | 6.32 | 1989 | 3.23 | 1999 | 2.50 | 2009 | 1.50 | 2019 | |

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Canadian RMD Rate of Monetary Dilution

Population adjusted Money Supply Dilution

2016 Canadian Multiplier Chart

| | multiplier |
|------|------------|------|------------|------|------------|------|------------|------|------------|
| 1970 | 27.58 | 1980 | 7.92 | 1990 | 3.24 | 2000 | 2.63 | 2010 | 1.41 |
| 1971 | 25.81 | 1981 | 6.90 | 1991 | 3.05 | 2001 | 2.50 | 2011 | 1.35 |
| 1972 | 23.20 | 1982 | 6.25 | 1992 | 2.97 | 2002 | 2.39 | 2012 | 1.22 |
| 1973 | 20.69 | 1983 | 5.89 | 1993 | 2.93 | 2003 | 2.28 | 2013 | 1.16 |
| 1974 | 17.59 | 1984 | 5.66 | 1994 | 2.87 | 2004 | 2.17 | 2014 | 1.12 |
| 1975 | 15.27 | 1985 | 5.24 | 1995 | 2.82 | 2005 | 2.06 | 2015 | 1.06 |
| 1976 | 13.65 | 1986 | 4.80 | 1996 | 2.73 | 2006 | 1.98 | 2016 | 1.00 |
| 1977 | 11.76 | 1987 | 4.34 | 1997 | 2.72 | 2007 | 1.83 | 2017 | |
| 1978 | 10.51 | 1988 | 4.08 | 1998 | 2.77 | 2008 | 1.73 | 2018 | |
| 1979 | 9.27 | 1989 | 3.64 | 1999 | 2.75 | 2009 | 1.51 | 2019 | |



Adjusting To Common Denominator



The majority of people look at this as a \$475,000 perceived profit

When normalized with the 1973 multiplier of 20.69, one can also look at it as the house was purchased for the equivalent of \$517,250 of today's dollars. All one can really say is that the house was a very good store of value as it protected the purchasing power of the homeowner.



Our Perspective

- Cash and deposits are a horrible asset over the long term
- Most real assets do a very good job protecting individuals from inflation (destruction of purchasing power)
 - Real Estate
 - Stocks
 - Bonds
 - Commodities (not all commodities)



Constant Dollar Perspective

Mrs. Smith deposits \$200,000 into a Canadian bank account because it is safe and does not want to risk the money.

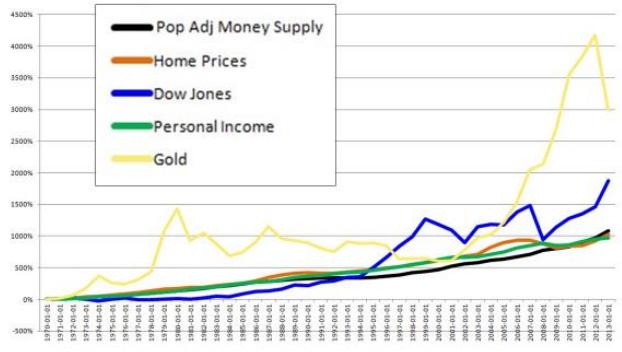


| Interest Paid 1% | Bank Account Balance |
|---------------------|-------------------------|
| 2000 | \$200,000 |
| 2015 | \$232,193 |

*2.36 multiplier for present value



Inflation Hedging Real Assets



Minimum Wage Example

- Canadian CPI
 - 1990 was at 75.00
 - 2014 was at 125.00
 - A 66% increase
- Canadian RMD multiplier
 - 1990 is 2.91 (2014)



Minimum Wage Example

Should be \$15.40 using RMD



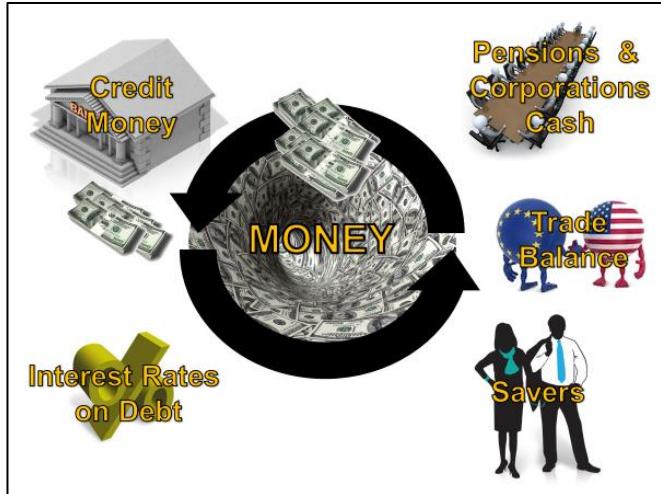
Minimum Wage Protests



Deflation and Deflationary Forces

- General decline in prices (in most part in broader asset prices and commodities)
- Scarcity of money
- Can be driven by:
 - Financial institution stress (think 2008)
 - Confidence level forcing a heightened savings coupled with a general unwillingness by businesses and consumers to borrow





Inflation and Changes in Currencies

- In addition to inflationary and deflationary pressures based on monetary policy, the changes in currency value drives money flow
 - Global demand for a currency adds further precipitating factors beyond the individual countries bank and central bank actions
 - ERPT – Exchange-rate pass-through is a measure of how responsive international prices are to changes in exchange rates

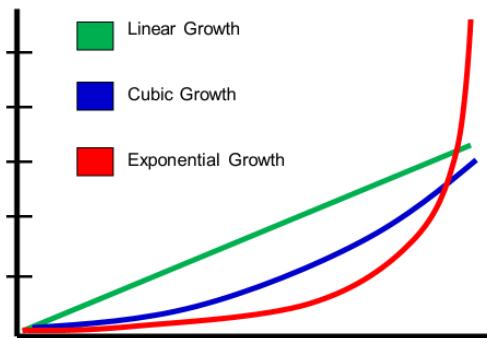


Module 3

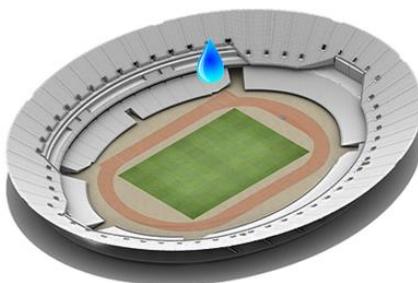
Debt Paradox



Methods of Growth



Exponential Growth



Monetary/Financial System

- Everything is anchored on exponential growth
 - Expected returns on investment, pensions etc.
 - Expected growth in corporate profits
 - Expected growth in the economy
 - Expected growth in the population



Rate of Economic Growth

- Economic Growth is anchored on:
 - Productivity (real)
 - Population growth and immigration (real)
 - Inflation or RMD (nominal)
 - Nominal vs. Real
 - Therefore GDP (or any growth measure) is

Rate of Monetary Dilution + Real Growth = Total Growth



Nominal vs. Real Growth

- In 1986, Bam Soda produced 1,000,000 bottles of pop
 - Sells them for \$0.50 each
 - \$500,000 gross revenue
 - \$400,000 in costs
 - \$100,000 in profits



Nominal vs. Real Growth

- In 2006 (20 years later), Bam Soda produced the same 1,000,000 bottles of pop
 - Raised prices 3.5% a year with inflation
 - Sells them now for \$1.00 each
 - \$1,000,000 gross revenue
 - \$800,000 in costs
 - \$200,000 in profits



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Nominal vs. Real Growth

- The 100% increase in revenues and profits was completely nominal
 - There was 0% real growth
 - If traded as a public company, the stock would have doubled in price over those 20 years



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Financial Engineering

- The common denominator in all asset pricing is not constant
 - Monetary policy is the primary tool to control growth through credit
 - Monetary policy can only control RMD
 - RMD is the rate of credit growth
 - Cost of credit (interest rates)
 - Health of the commercial banks (credit availability)
 - It cannot control productivity, employment (directly vs. indirectly), motivation to borrow

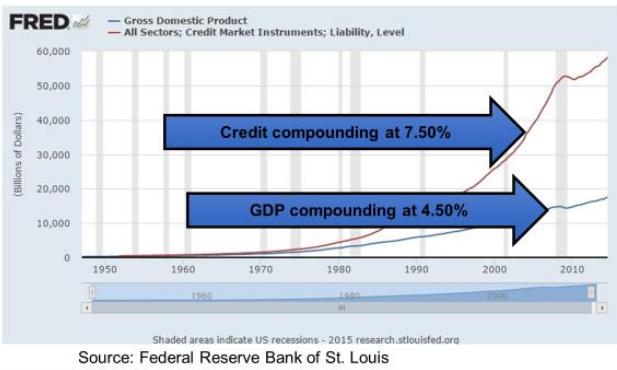
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Debt Paradox

- Debt is growing, (and most likely has to grow) at an exponentially faster rate than GDP
- As the disparity continues, it is taking an exponentially larger amount of credit growth to get 1 incremental unit of GDP growth



Credit Stock vs. GDP



Debt Paradox Outcome

- The debt super-cycle has to come to an end at some point in the future
- Could be delayed with:
 - Zero or negative interest rates
 - Central bank open market operations
 - Helicopter money
- Could end in multiple ways:
 - Hyperinflation and collapse
 - Massive restructuring of the debt in the system (think Cyprus)



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Debt Paradox Outcome

Why has it not yet collapsed?

- Very few understand it
- Everyone has a vested interest in seeing it perpetuate (citizens, governments, banks)
- No one benefits from its demise
- So everyone will accept more and more draconian intervention to keep it going
- It will likely survive much longer than most doomsayers suggest



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Module 4

Failure of Money

History

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Examples of Hyperinflation and the Exponential Growth of the Money Supply

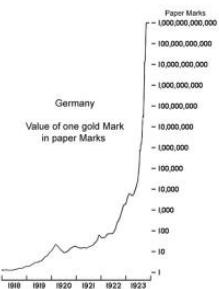
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German Mark 1920-1924

| | |
|---|---|
|  | <p>1 German Mark 1920</p> |
|  | <p>1,000,000 German Mark March 1923</p> |
|  | <p>1,000,000,000 German Mark January 1924</p> |

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Culmination Point



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Zimbabwe 1980 - 2008



5 Zimbabwe dollars
1980

500 Zimbabwe dollars
1990

100 Trillion Zimbabwe dollars
2008

BIG PICTURE TRADING

Culmination Point



BIG PICTURE TRADING

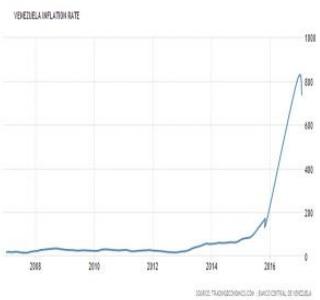
Venezuela Currently



Hector Retamal / Reuters
A woman counts bolivar notes as she pays for vegetables at a street market in Caracas on Oct. 1, 2015.



Photo credit: AP
People wait in line at a government store in Caracas, Venezuela, where workers made a adjustment to the price of products as the country's inflation rate continues to rise.



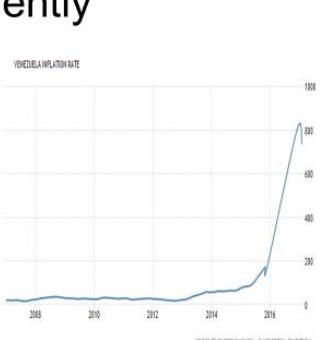
Venezuela Currently



Hector Retamal / Reuters
A woman counts bolivar notes as she pays for vegetables at a street market in Caracas on Oct. 1, 2015.



Photo credit: AP
People wait in line at a government store in Caracas, Venezuela, where workers made a adjustment to the price of products as the country's inflation rate continues to rise.



Failure of Money

Monetary scholar Edwin Viera:

- The average fiat currency has a life span of 27 years
- The average length of a global reserve currency's reign (and, by extension, the global monetary system that orbits it) is 35 years
- Every single fiat currency in history has failed. There are no demonstrable historical examples of a fiat currency which maintained its purchasing power over time. **None**



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Government Risk

- Countries that control their own money cannot go bankrupt
- Government can call upon the banks and central banks to create as much money (through debt creation) as required
- Rather, the risk is in
 - Inflation risk (internally rejected)
 - Foreign exchange risk (internationally rejected)



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Module 5

Interest Rates and Monetary Policy

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Monetary Policy

 WIKIPEDIA
The Free Encyclopedia

- Monetary policy is the process by which the monetary authority of a country, like the central bank or currency board, controls the supply of money, often targeting an inflation rate or interest rate to ensure price stability and general trust in the currency

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Monetary Policy

 WIKIPEDIA
The Free Encyclopedia

- Further goals of a monetary policy are usually to contribute to economic growth and stability, to lower unemployment, and to maintain predictable exchange rates with other currencies
- Monetary policy is referred to as either being expansionary or contractionary.

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Expansionary Monetary Policy

- An expansionary policy increases the total supply of money in the economy more rapidly than usual to stimulate
 - Lower interest rates (cheaper to borrow)
 - Less incentive to save as deposits (encourages capital investment)
 - Lower reserve requirements at banks to allow them more room to create credit
 - Accelerate creation of debt



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Contractionary Monetary Policy

- A contractionary monetary policy, which slows the rate of growth in the money supply or even shrinks it
 - Raise interest rates (more cost to borrow)
 - More incentive to save as deposits (slows capital investment)
 - Raise reserve requirements at banks to slow the pace they create credit
 - Slowdown creation of debt



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Contractionary Monetary Policy

- Has often preceded or induced a recession
- Often has been led by a yield curve inversion



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How are Interest Rates Determined?

Short-term Interest Rates on Investment Grade (IG) Debt

- Overnight bank lending rates are almost exclusively controlled by central banks
- Short-term money markets and Eurodollars are based on the overnight lending rate, but adjust for financial institution default risks



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How are Interest Rates Determined?

Long-term Interest Rates on (IG) Debt

- Are only modestly influenced by central bank short-term rates
- To influence, central banks must use intervention like:
 - Quantitative Easing
 - Yield Curve Control
 - Balance sheet expansion



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How are Interest Rates Determined?

Long-term interest rates are influenced by:

- Supply and Demand
- Currency Risk
- Default Risk
- Inflation Risk (dilution of face value)



How are Interest Rates Determined?

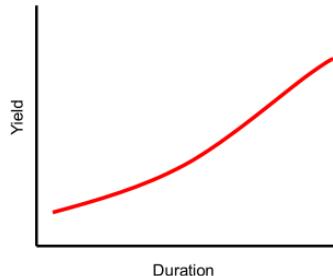
Corporate and Retail Interest Rates

- Need to pay a premium over bonds considered to be risk free
- The premium is referenced as the credit spread
 - Supply and Demand
 - Default Risk
 - Industry or company specific risk



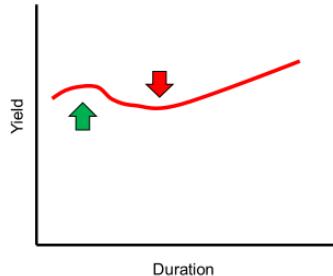
Normal Yield Curve

| Duration | Yield |
|----------|-------|
| 30 day | 0.50% |
| 90 day | 0.60% |
| 6 month | 0.70% |
| 1 year | 1.00% |
| 2 year | 1.25% |
| 5 year | 2.00% |
| 10 year | 2.50% |
| 30 year | 3.50% |



Inverted Yield Curve

| Duration | Yield |
|----------|-------|
| 30 day | 3.50% |
| 90 day | 3.75% |
| 6 month | 3.75% |
| 1 year | 3.50% |
| 2 year | 3.25% |
| 5 year | 3.00% |
| 10 year | 3.25% |
| 30 year | 4.00% |



Inverted Yield Curves

- Long dated bonds need to discount longer term inflation targets
- Short term rates are almost entirely controlled by central banks as a key monetary tool
- Inversions occur when the central banks are slowing borrowing to a point that there is risk of a recession and potentially deflationary pressures

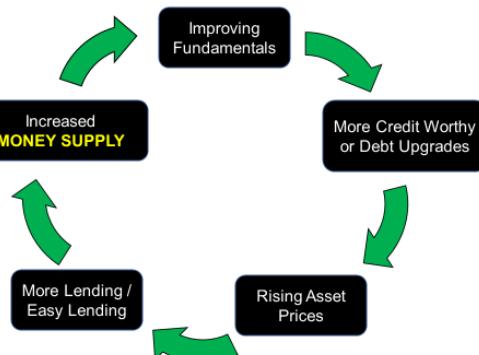


10/2 Yield Curve

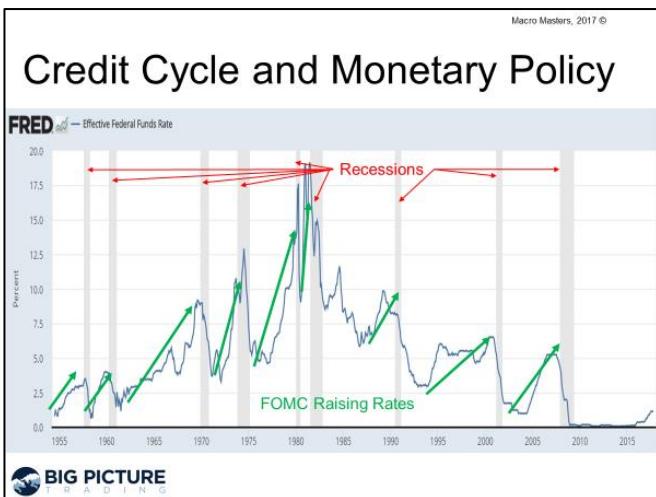
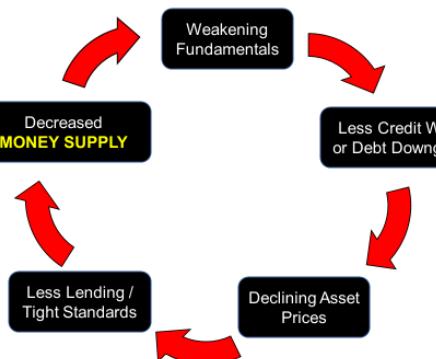
FRED — 10-Year Treasury Constant Maturity Minus 2-Year Treasury Constant Maturity



Credit Cycle - Feedback Loop



Credit Cycle - Feedback Loop



Central Bank Driver

- Central bank raising rates and tightening monetary conditions has been evident before almost every recession in the post WW2 period
 - While there are many potential drivers of recessions, the credit cycle and monetary policy are arguably the most influential