

MGT 4074, Fall 2025

Georgia Institute of Technology

Monday, August 18, 2025

Roadmap: Class Expectations, Class Material

- Class Expectations
 - Quizzes and Homeworks
 - Class Participation
 - Midterms
 - Final Project
 - Study Groups
- History of Financial Technology
 - What is Money?
 - What is Credit?

There is No Curve for This Class

- Every student can earn an A

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- Every student can earn an F
- (Apply the Intermediate Value Theorem)
- You are collaborators, not competitors

Class Participation

Full class participation grade requires that you have a **net positive impact** on class discussions

Example of **positive impact**:

Joe, you said [fact from the slides], but the reading said [fact which seems contradictory], how do you reconcile those two facts?

(this is productive!)

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Example of **postive** impact:

Joe, you said [fact from the slides], but the reading said [fact which seems contradictory], how do you reconcile those two facts?

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Example of **zero impact**:

My cousin from Athens once got his leg stuck in a lawnmower

(this is irrelevant)

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Example of **zero impact**:

My cousin from Athens once got his leg stuck in a lawnmower

(this is irrelevant)

Example of **negative impact**:

My classmate [name] is dumb and smelly

(this is rude)

Class Participation

My mantra regarding questions:

*There are no stupid questions,
rather, one becomes stupid by not asking questions*

If you ask a question that reveals you haven't understood anything in this class (or anything in life) up to this point, that is a *good* thing – we can identify the problem and correct the misperceptions!

Study Groups

I highly recommend you form study groups and meet regularly outside of class to prepare for quizzes and exams.

If you would like me to assign you to a random study group, please fill out this scheduling form by Wednesday:

<https://www.when2meet.com/?31699294-rcYcw>

I will try to assign you to a group with common availability to meet and study. If I assign you a group and you do not get along with them (or if they ghost you), please let me know and I will (quietly) assign you another group (i.e., you can ghost them back).

1 Class Expectations

2 History of Financial Technology

- What is Money?
- What is Credit?

- Money: How value can be stored, denominated, and transferred
- Credit: How investment contracts can be written and enforced

Roadmap

- 1 Class Expectations
- 2 History of Financial Technology
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What Is Money?

Money fulfills three roles in an economy:

- A Store of Value (Implies hard to counterfeit)
- A Medium of Exchange (Ownership can change)
- A Unit of Account (Units to list prices)

What ingredients are **necessary** to enable something to fulfill these roles?

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$$\text{Scarcity} + \text{Coordination} = \text{Money}$$

Any specific form of money is called a **currency**

What Problem does Money Solve?

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Money solves the “**double coincidence of wants**” problem (what does that mean?)

Enforcing Scarcity: Specie

It is obvious to use as money something that is naturally scarce, called **specie**, historically gold or silver

- **Coinage**, shaping specie into standardized denominations, made money much more convenient to use
- Coinage is vulnerable to **Clipping**: the practice of shaving small amounts of metal off the edges of coins

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- Sir Isaac Newton was appointed to Warden of the Royal Mint in 1696 and invented the practice of ridged indents into the sides of coins to prevent clipping

Enforcing Scarcity: Minting

Minting: Monopolizing a minting technique which is hard to counterfeit

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- Modern governments rely on **fiat** to enforce coordination when minting paper money
- The US Secret Service was originally created as an anti-counterfeiting unit
- **Cryptography** is a verifiable anti-counterfeiting technology using **no specie** and backed by **no fiat** – scarcity and coordination are all you need!

Example of **verifiably** counterfeit-proof money



Figure 2 Singapore dollar SGD100



Figure 3 SGD 100 banknotes which is exposed to
UV light

Source

Old-Fashioned Minting: The Blank (“Specie”)



Old-Fashioned Minting: The Upper Die





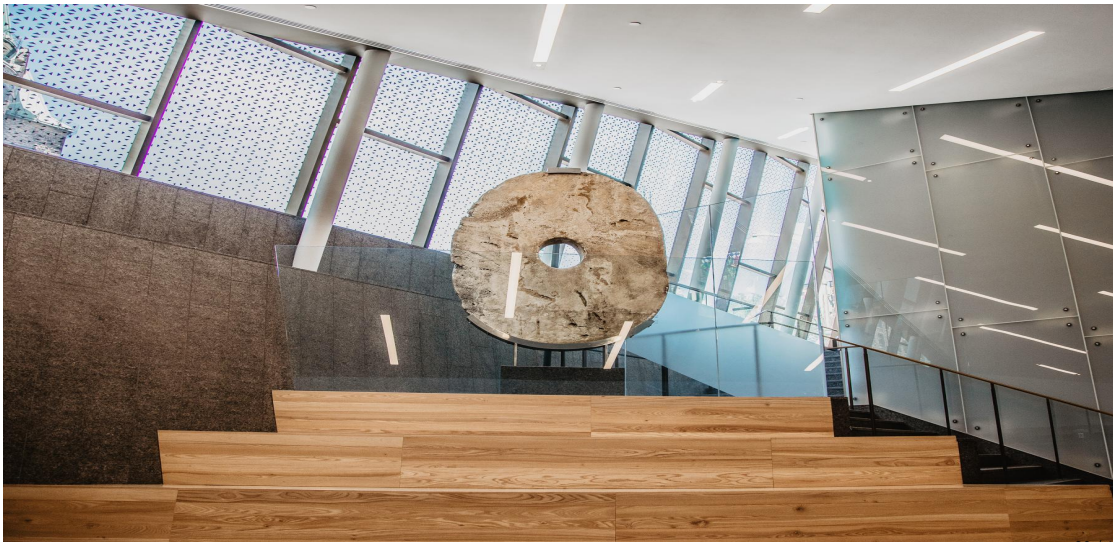
Old-Fashioned Minting: The Application of Force



Old-Fashioned Minting: The Result



“Convenience” is Not Necessary



The Yappese “Rai Stones”

There is a story—or possibly a legend—about a large stone that fell off a raft during a storm. After it sank, there was no need for the stone itself to be on hand; everybody knew it existed and to whom it belonged. It was still a functioning rai even at the bottom of the sea—like gold tucked away in an underground vault.

Source: [Bank of Canada](#)

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- In 2025, it is expected that input / output of the book must be very fast. VISA approves 15,000 transactions per second worldwide with zero downtime. The theoretical maximum for bitcoin is seven.

Desirable features of a currency:

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 - Helps with use as *unit of account*
 - "Bi-metallic standard" was used historically but proved unworkable

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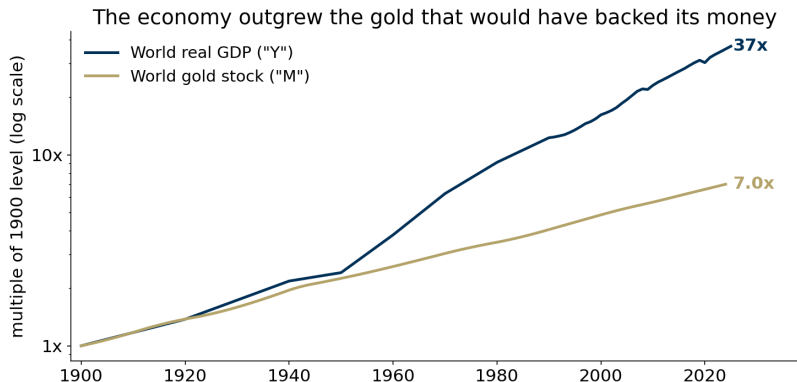
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 - “Real” meaning measured in units of real goods, not measured in currency units

Gold (“M”) Cannot Keep Up with GDP (“Y”)



- With money growing slower than output, prices must *fall* – the gold standard has deflation built in
- Note the two meanings of “inflation”: crypto engineers mean growth in the *money*

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- Deflation is bad because it disincentivizes investment and spending: money is hoarded instead of being invested and spent: monetary velocity falls further, creating a vicious spiral
- Modern monetary policy is to maintain a 2% rate of inflation: just enough so that investors need to put money into bonds and stocks instead of vaults
- With positive inflation, inefficient industries can slowly shrink in real terms without giving workers a nominal pay cut

Features of a currency which may or may not be desirable

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- **Interest:** Fed pays interest on U.S. bank reserves
 - The government surrenders some *seignorage* revenue in order to implement monetary policy (setting the economy-wide short-term interest rate)
 - 2025 GENIUS act prohibits interest on stablecoins: deposit-taking banks are protected from competition

Roadmap

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Credit is an investment contract. It can take many forms:

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Forms of credit can become money-like if they are *safe*

- Modern banks keep their money as Federal Bank Reserves, a form of credit
- Credit has a hard time being *fungible*: it is **informationally-sensitive** by design, in the sense of [Holmström](#)
 - The price of credit is a market signal of the price of risk and time. Money is meant to be insensitive to such things.

What is an “Investment Contract”

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The **Securities Exchange Act of 1934** gave the S.E.C., the **Securities Exchange Commission** authority to regulate “investment contracts”.

The Supreme Court in 1946 created the *Howey* test to define the term:

“An ‘investment contract’ exists when there is the investment of money in a common enterprise with a reasonable expectation of profits to be derived from the efforts of others”

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In other words, credit is “Man’s Confidence in Man”

Man's Confidence in Man



Man's Confidence in Man

“Commercial credit is the creation of modern times and belongs in its highest perfection only to the most enlightened and best governed nations. Credit is the vital air of the system of modern commerce. It has done more – a thousand times more – to enrich nations than all the mines of the world.”

Daniel Webster, 1834

Man's Confidence in Man



Joseph Hall at Harvard Business School, 2019

What technologies are needed to supply credit?

There are three key ingredients necessary to supply credit:

- **Funding:** the resource itself that you are lending (usually money)
 - If you do parts (2) and (3) below right, this becomes sustainable

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There are three key ingredients necessary to supply credit:

- **Funding:** the resource itself that you are lending (usually money)
 - If you do parts (2) and (3) below right, this becomes sustainable
 - Retail banks get cheap funding from depositors (does anyone here know their deposit rate?)
- **Screening:** a process to determine who to lend to
 - And **how much to lend**
- **Collections:** a process to compel borrowers to repay

The Oldest Financial Technology for Enforcing Investment Contracts



Enforcing Contracts is a Key Role of Government

“Common-law countries generally have the strongest, and French civil-law countries the weakest, legal protections of investors, with German- and Scandinavian-civil-law countries located in the middle... Concentration of ownership shares in the largest public companies is negatively related to investor protections, consistent with the hypothesis that small, diversified shareholders are unlikely to be important in countries that fail to protect their rights.”

-La Porta, Lopez-de-Silanes, Shleifer, and Vishny: “Law and Finance”

Can Contracts be Enforced Without Strong Governments?

About 590 million Africans live off the grid. Most of them rely on flame-based lamps powered by fossil fuels like kerosene. The light from these lamps is dim and comes with significant health and financial costs. A kerosene lamp may cost less than \$5, but fuel averages about \$57 per year. Sub-Saharan Africans burn up about \$10 billion annually on kerosene, and worldwide, kerosene costs people without electricity \$36 billion.

—Study by the International Finance Corporation (World Bank)

A Hugely Profitable Investment ... If You Can Enforce It



A \$30 solar lantern pays for itself in 8-10 weeks

Source: [Brett Green](#)

New *ReadyPay* Rates.



10W ReadyPay Home Eco 2	
Deposit:	19,000/-
Daily Rate:	600/-
Monthly Rate:	18,000/-
Duration:	35 months
Buy in Cash:	519,000/-
Buy on Loan:	649,000/-

Complete in 12 months
Buy on loan - DISCOUNT

10W ReadyPay Home Eco 2	
Deposit:	19,000/-
Daily Rate:	600/-
Monthly Rate:	18,000/-
Duration:	35 months
Buy in Cash:	519,000/-
Buy on Loan:	649,000/-

Complete
in 12 months
for a **100,000/-**
DISCOUNT



10W ReadyPay Home Plus	
Deposit:	39,000/-
Daily Rate:	1,000/-
Monthly Rate:	30,000/-
Duration:	25 months
Buy in Cash:	631,000/-
Buy on Loan:	789,000/-

Complete
in 12 months
for a **100,000/-**
DISCOUNT



17W <i>ReadyPay</i> Home Comfort	
Deposit:	49,000/-
Daily Rate:	1,350/-
Monthly Rate:	40,500/-
Duration:	24 months
Buy in Cash:	799,000/-
Buy on Loan:	999,000/-

Complete
in 12 months
for a **110,000/-**
DISCOUNT

Home Eco customers who pay well can **upgrade** to a Home Comfort in **3 months**

34W ReadyPay Home Deluxe	
Deposit:	99,000/-
Daily Rate:	1,800/-
Monthly Rate:	54,000/-
Duration:	24 months
Buy in Cash:	1,116,000/-
Buy on Loan:	1,395,000/-

Complete
in 12 months
for a **100,000/-**
DISCOUNT



34W ReadyPay TV Deluxe (Zuku)	
Deposit:	149,000/-
Daily Rate:	3,000/-
Monthly Rate:	90,000/-
Duration:	26 months
Buy in Cash:	1,999,000/-
	(Includes 1 Year Zuku subscription)
Buy on Loan:	2,539,000/-
	(Includes 3 Years Zuku subscription)

Complete
in 12 months
for a **270,000/-**
DISCOUNT



Pay well to be eligible for **UPGRADES** in 3 months!



Warranty:

- All systems come with a **3-year** limited warranty on the battery and panel.
- Accessories come with a **2-year** limited warranty.
- Any faults caused during manufacturing will be replaced for **FREE** at a **ReadyPay** service centre.

- Key Technology: Product is remotely deactivated if loan is defaulted

This Class

In this class, we will cover:

- *Why* the traditional finance industry is designed and regulated the way it is
- *What* new financial technologies have become possible due to recent advances in computing
- *How* the traditional financial industry is adapting to these changes

Reading for Wednesday 8/20

By Wednesday, 8/20, please read the following

“The Denarius and the Fall of Rome”
vaulted.com/nuggets/the-roman-denarius/

and

“Diocletian and Harris on Inflation and Price-Gouging”
by John Cochrane, Parts 1, 2, and 3
grumpy-economist.com/p/diocletian-and-harris-on-inflation

Please remember that every author, including the authors of these two essays, have political opinions – I am not asking you to agree with them! Your assignment is to learn the historical facts and to critically reflect on the authors' arguments.