



Back to the Future: Monetary Policy in the Middle Ages - Lessons for the Future

Nathan Sussman

Graduate Institute Geneva

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Can we learn anything from medieval monetary history?

A period of development of economic and political institutions

The rise of a national monetary system

The development of economic (monetary) theory.

A period of monetary experimentation.

Monetary Theory in the middle ages



Why Money was invented

‘When the Most High divided to the nations their inheritance, when He separated the sons of Adam, He set the bounds of the people.’¹ Next, men were multiplied on the earth, and possessions were divided to the best advantage. The result of this was that one man had more than he needed of one commodity, while another had little or none of it, and of another commodity the converse was true: the shepherd had abundance of sheep and wanted bread, the farmer the contrary. One country abounded in one thing and lacked another. Men therefore began to trade by barter: one man gave another a sheep for some corn, another gave his labour for bread or wool, and so with other things. And this practice persisted in some states, as Justin² tells us, till long afterwards. But as this exchange and transport of commodities gave rise to many inconveniences, men were subtle enough to devise the use of money to be the instrument for exchanging the natural riches which of themselves minister to human need.

with them as he has occasion for them. The greater part of his occasional wants are supplied in the same manner as those of other people, by treaty, by barter, and by purchase. With the money which one man gives him he purchases food. The old cloaths which another bestows upon him he exchanges for other old cloaths which suit him better, or for lodging, or for food, or for money, with which he can buy either food, cloaths, or lodging, as he has occasion.



Oresme 1360

Adam Smith 1776



State versus Private Money?

The most important function of money: medium of exchange

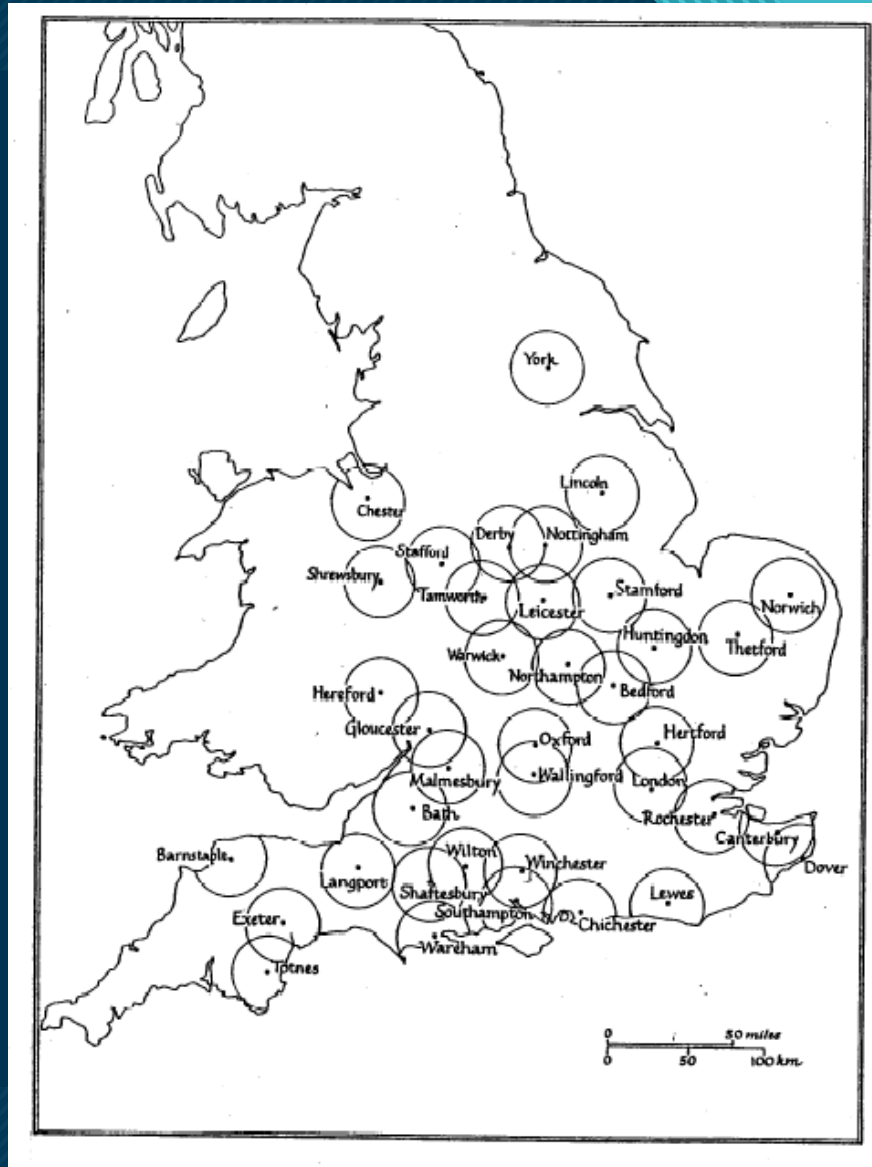
The most important function of a medium of exchange is to minimize transaction costs.

Universal acceptance of a medium of exchange is optimal.

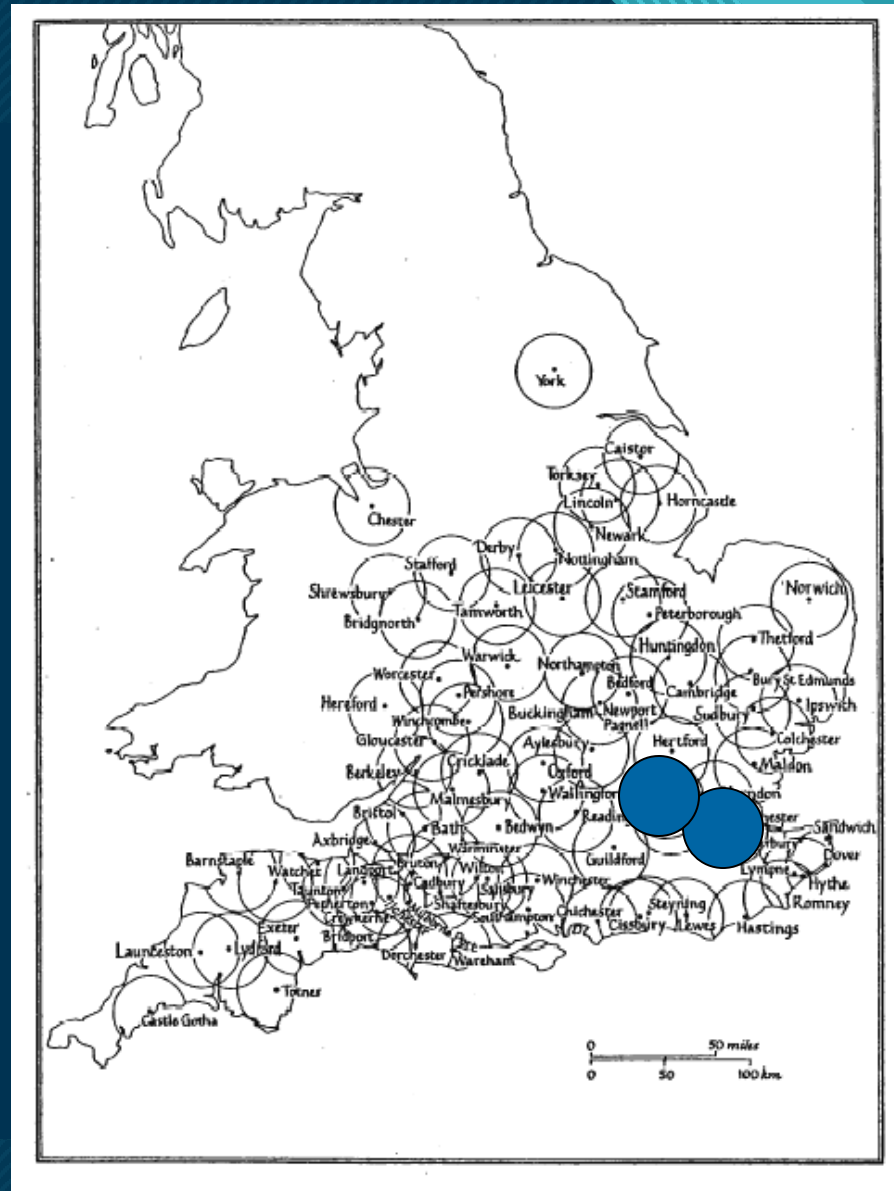
Universal acceptance is conditional on an intrinsic value that is agreed by all parties to exchange ex-ante and ex-post.

From private to National money- the English case

English mints c. 900 A.D



English mints: 973-1066 - centralization

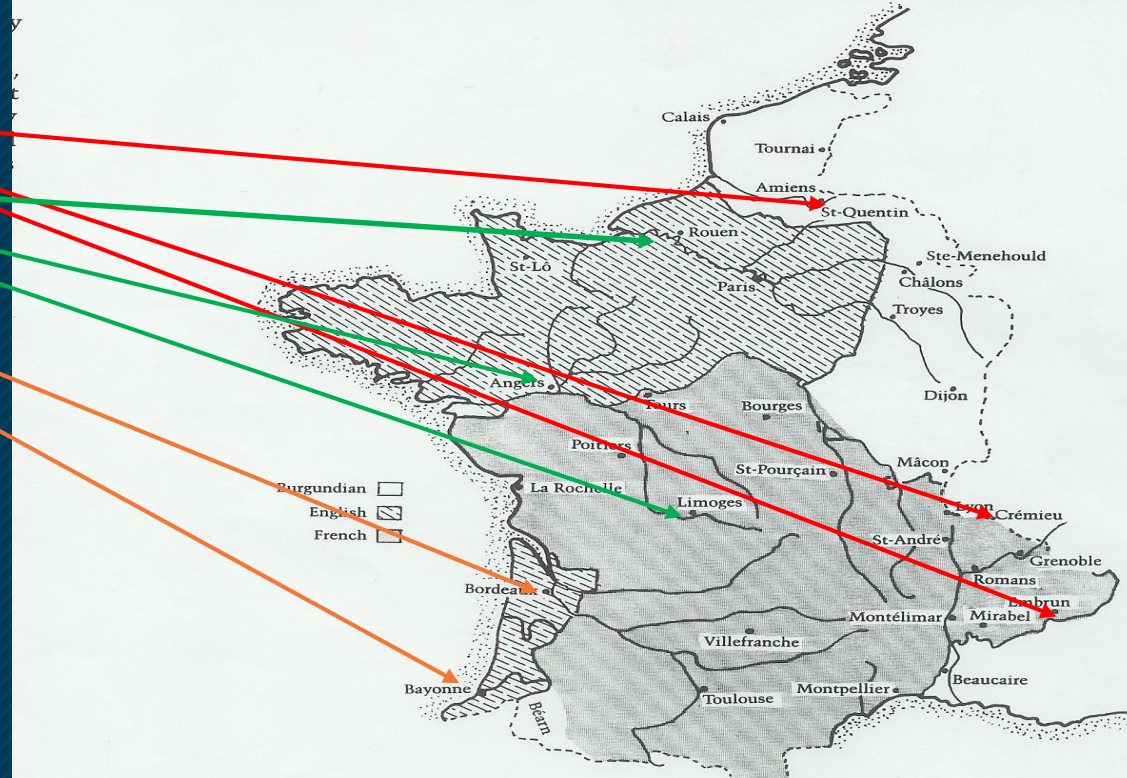


Establishing a national universally accepted
medium of exchange in a competitive currency
market: the case of France

French mints: 1300-1450- de-centralized

Strategic locations:
'Borders'
Rivers
Ports

France (1420 – 1436) and French Mints of the Fifteenth Century



Burgundian English French

Key to Map

French Mints Active between 1395 and 1495 and Dates of Recorded Activity

Amiens	1437-42	Montpellier	1402-22, 1436-43, 1490-95
Angers	1396-1431	Paris	1401, 1405-21, 1436-46, 1461-62, 1485-95
Bayonne	1495	Poitiers	1402, 1420-27, 1495
Beaucaire	1420-23	Romans	1401-95
Bordeaux	1459-64, 1495	Rouen	1401-02, 1491-95
Bourges	1419-1469	St. André	1401-06, 1417-22
Châlons	1495	St. Lô	1396-1417
Crémieu	1395-1448, 1457, 1485-95	St. Menehould	1402-04
Dijon	1400-60, 1490-95	St. Pourçain	1402, 1421-23, 1458-59
Embrun & Briançon	1409-17	St. Quentin	1402, 1437-39
Grenoble	1428-33, 1490-95	Toulouse	1402-44, 1495
La Rochelle	1402, 1422-33, 1490-95	Tournai	1402-03, 1423-33, 1458, 1494-95
Limoges	1402, 1422-28, 1473-74, 1484-87	Tours	1402-09, 1420-36, 1457, 1495
Lyon	1420-28, 1461-64	Troyes	1396-97, 1402, 1412-19, 1495
Mâcon	1401-21	Villefranche	1421-22
Mirabel	1401-05, 1417-26		
Montélimar	1427-63, 1477-95		

Creating credible commitment to quality and efficiency

1. Monetary system managed from Paris.
2. **Monetary court: 'cour de la monnaie.'**
3. Comptroller (in Paris)
4. **Local mint run by mint master (franchise)**
5. Royal overseers in local mint:
 1. Guards
 2. Quality control
 3. Engraver
6. **Labor employed by mint master**

Principles of monitoring and quality control

1. Reporting - Accounts
2. In-house quality control by royal employees
3. Quality control in Paris based on random samples of coins

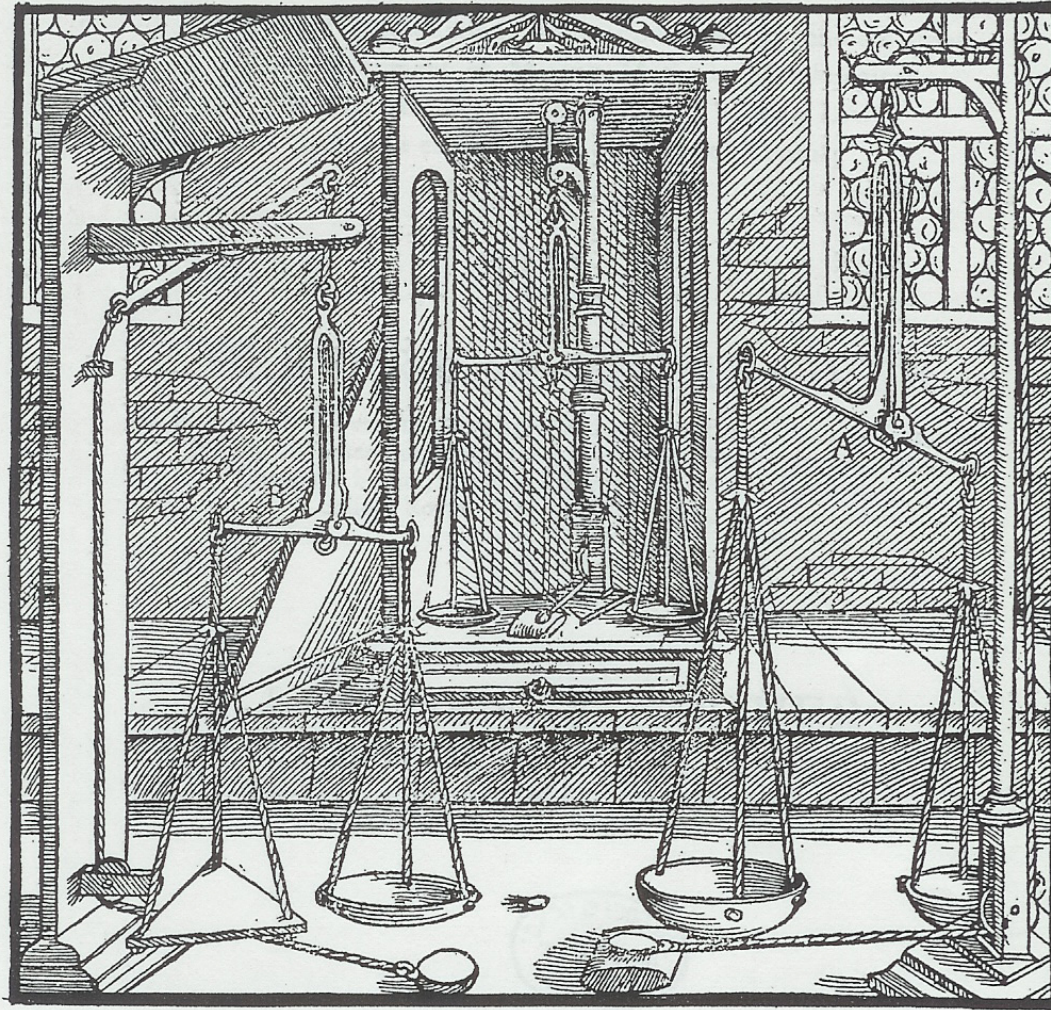
Reporting Accounting:

Le compte . . . Dime boise & la monnoie & le mou
ou de l'ime & d'ime & mou a l'isu qui ont ames pour
v. d. de la piece a. 6. d. vj. quene & les argent le Br
et d. 6. sy d. et le quart dim d'ime & pour un marc
de parus fait en culbat par piece au d'ime du reb.
Joue d'imeur lun mil d'ime et d'ime jusqu' au
v. d. de l'ime d'ime lun mil d'ime et d'ime et
d'ime pour ommeur et pour moure & d'ime. mou
d'imeur m. s. v. d. t. (d'ime d'ime. nul d'ime d'ime
len met en d'ime d'ime en boise et mou en la boise
en s. m. d. d'ime qui font m. s. m. mil d'ime d'ime
calt m. s. m. t. v. s. m. d. d'ime. Et parfont m.
m. s. m. mou. v. d. d'ime q. d'ime et d'ime
d'ime ou il r. a. 6. d'ime. mou. q. mou. m. s. d'ime.
q. d'ime et d'ime d'ime d'ime. d'ime argent
au par d. 6. s. le mou. et fu fait le p'ime
d'imeur le m. s. m. d'ime. lun mil d'ime d'ime

Leut pour d'ime mou d'ime. v. s. t.
calt m. s. m. t. v. s. m. d. d'ime

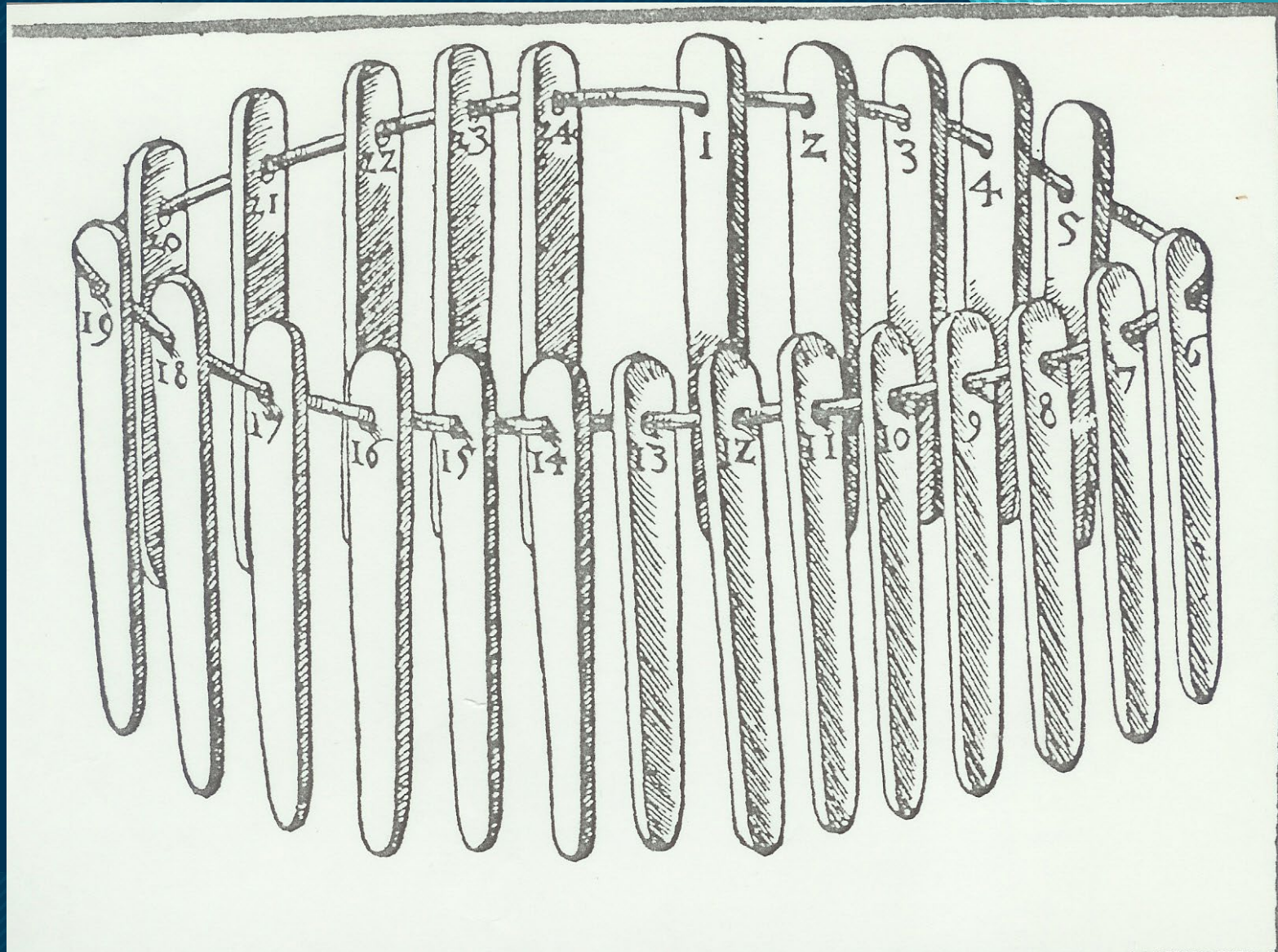
(Item il dit pour la d'ime boise qui fu faite a pour
en v. d. mou. q. d'ime d'ime et le que dim d'ime m. s. m. d'ime
Item, il dit p' mou boise qui fu faite a pour q. mou d'ime q.
mou d'ime. v. d. d'ime m. s. m. d'ime t.
Et q. m. s. m. d'ime

Quality control : Assaying weight of coins



A—FIRST SMALL BALANCE. B—SECOND. C—THIRD, PLACED IN A CASE.

Quality control : Assaying fineness of coins superior to public testing



First lesson: Ruler's coins (state) dominated private money:

1. Rulers had a comparative advantage because of economies of scale in creating credibility (quality).
2. Rulers control legal system and can treat preferentially contracts that used state currency.

Outcome: universal acceptance of state currency

From coinage to monetary policy (France 1270-1450)

To conduct monetary policy the state needs to control the **unit of account (nominal value)** of the currency. Not only the striking of coins.

Flexible exchange rate between unit of account and coins:

Coins have no engraved face value – it is declared by the state

How does medieval monetary policy work?

Policy instruments: Setting the exchange rate between precious metals and the **unit of account** and the seignorage rate

Recall the (Cambridge) quantity equation: $M=K(i)PY$

For a given stock of coins in the economy changing the nominal value of coins is equivalent to changing the nominal money supply **M**. Change to the seignorage rate are equivalent to changes in the interest rate and affect **k**

Maintaining price stability Example:

When the economy is expanding and the stock of coins is fixed the monetary authorities can increase the nominal value of coins to avoid price deflation. It can also reduce seignorage and attract more bullion to the mints and produce more coins.

Second Lesson: Monetary policy can work without banks or a (positive) interest rate. As long as there is a distinction between a medium of exchange (coins) and reserves (bullion).

Growing literature on monetary policy in the age of zero and negative interest rates (Kimball, Buiter, Rogoff).

Cash-reserve conversion (CRC) rate: a negative interest rate of 4% equivalent to CRC of 100 to 96.

Literature on the decline of banks and 100% reserve ratio for banks.

Debasements and inflation tax

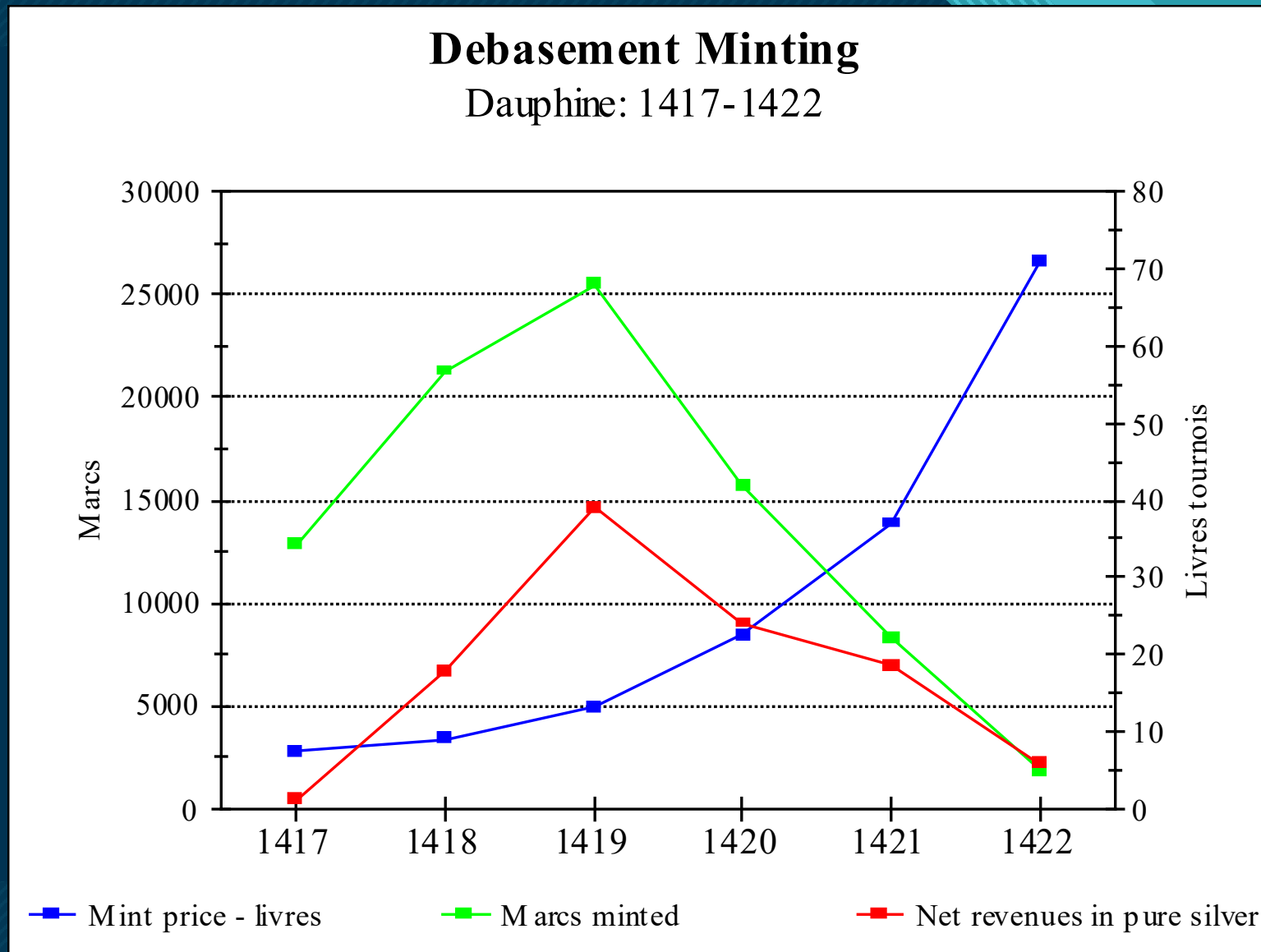
Monetary policy was used to raise inflation tax revenues.

(precedents in the Bible, China, ancient Greece and Rome)

Debasement (inflation tax): increasing the nominal value of coins and the seignorage rate at the same time.

Requirement: the government can enforce the use of the official unit of account (no Dollarization) and prices adjust with a lag to changes in the exchange rate (similar to competitive devaluations under fixed exchange rate regime)

Example: France during the 100 years war



Lesson 3: State monopoly over monetary policy can create moral hazard problems.

Oresme: Does the money belong to the people or to the ruler?

It belongs to the people and the ruler has to credibly commit to maintain its value

Precursor to the independence of central banks.

Summary

The medieval monetary experience suggests that

1. 'Public money' has a comparative advantage over 'private money' because of economies of scale in commitment technology and enforcement of contracts.
2. Monetary policy can function without banks (inside money) or positive interest rates.
3. The superiority of public money creates a moral hazard that calls not only for a commitment technology but also for credibility and accountability.

Thank You

Definitions and example:

Mint par – **L** : The nominal value (in money of account) of a unit of weight of pure metal.

The mint price – **Q** The nominal value paid by the mint to sellers of a unit of weigh of pure metal

Seignorage: **S** = $L - Q$ – the price pf money

N Number of coins struck from a unit of pure metal

F The fineness (in %) of the coins

V nominal value of the coin

Example:

$N = 100$ $V = 1 \text{ solidi (12 deniers)}$ $F = 50\%$

$L = 200 \text{ solidi} = 10 \text{ livre tournois}$

$s = 5\%$

$Q = 9.5 \text{ livres tournois}$

$$L = \frac{V \cdot N}{F}$$