



UNIVERSITÄT
LEIPZIG

Development of Financial Markets and Institutions

IX. Inflation vs. Deflation

Leipzig University | December 11, 2023

Dr. Kristoffer J. M. Hansen | Institute for Economic Policy

IX. INFLATION VS. DEFLATION

1. Understanding Inflation
2. Understanding Deflation
3. Central Bank Policy and Inflation
4. Deflation – Good or Bad?
5. Literature

1. UNDERSTANDING INFLATION



PRICE AND MONETARY INFLATION

Two Meanings

- Price inflation: a rise in the general price level
- Monetary inflation: a rise in the money supply
- Generally, price inflation is meant nowadays

Central Bank Focus

- Low but positive price inflation the main focus
- Note a built-in assumption: the price level is the inverse of the value of money
- Central banks really target stable money à la Irving Fisher
- But the value of money is influenced by literally all changes in the economy
- So stable value requires a much more active CB

THE EQUATION OF EXCHANGE AND INFLATION

The Key to Monetarist Theory (Bordo 2008)

- $MV = PQ$
- M: the money supply
- V: velocity of money
- P: prices of goods
- Q: quantities of goods

Understanding the Equation

- PQ can also be seen as nominal GDP
- Velocity is the “turnover” of money
- M is the *average* supply of money over a given period

THE EQUATION OF EXCHANGE AND INFLATION

Seeing Inflation in the Equation

- If M goes up and V and Q are constant, then P must necessarily increase
- An increase in the money supply necessarily leads to an increase in the price level
- “Inflation is always and everywhere a monetary phenomenon” – Friedman

Problems of the Approach

- It assumes neutrality of money
- it obscures the process of money creation and money inflow into the economy, the Cantillon effect

MONETARY INFLATION: STEP-BY-STEP

The Cantillon Effect (Revisited)

- An increase in the aggregate P is the final outcome of the process of inflation
- New money always enters the economy at certain points
- The cash holdings of some individuals/firms/institutions increase before others'

Consequences of Money Inflows

- The cash holdings for some are now above demand for money → increased spending
- Increased spending → price increases for specific goods
- Suppliers to the first receivers of new money now have increased cash holdings
- The process repeats – as concentric circles outwards from point of inflows
- Inflow of new money leads to change in *relative prices* not only a general rise in prices

MISES (1953, 139) ON THE INFLOW OF MONEY

An increase in a community's stock of money always means an increase in the amount of money held by a number of economic agents... For these persons, the ratio between the demand for money and the stock of it is altered; they have a relative superfluity of money and a relative shortage of other economic goods. The immediate consequence of both circumstances is that the marginal utility to them of the monetary unit diminishes. This necessarily influences their behaviour in the market. They are in a stronger position as buyers. They will now express in the market their demand for the objects they desire more intensively than before; they are able to offer more money for the commodities that they wish to acquire. It will be the obvious result of this that the prices of the goods concerned will rise, and that the objective exchange-value of money will fall in comparison.

But this rise of prices will by no means be restricted to the market for those goods that are desired by those who originally have the new money at their disposal... [T]he increase of prices continues, having a diminishing effect, until all commodities, some to a greater and some to a lesser extent, are reached by it.

MONETARY INFLATION: REDISTRIBUTION OF WEALTH

Change In Prices, Change In Incomes

- An inflow of money leads to a change in incomes
- Those who receive new money first, before prices increase, gain
- Those who receive new money later, after prices have adjusted, lose

Redistribution of Wealth

- Those who own assets that increase in price early gain – even if they don't sell
- E.g., usually real estate and financial assets in general
- The redistribution of wealth and incomes always the result of inflation
- The Cantillon effect leads to permanent changes in the economy

INFLATIONARY EXPECTATIONS

Inflation and Expectations

- An ongoing inflation can trigger expectations that it will continue
- People observe prices continue to rise and the value of money to fall
- As a result, they will reduce their cash holdings, spend their incomes more quickly → the demand for money falls

Expectations and Inflation

- Inflationary expectations add to the inflation: prices rise even faster
- But inflationary expectations are strictly derivative: they depend on the ongoing inflation/increase in the money supply
- If the inflation stops, expectations will quickly be reversed

INFLATIONARY EXPECTATIONS AND THE LOAN MARKET

The Fisher Effect (Fisher 1930)

- Inflationary expectations lead to a positive or negative premium in the rate of interest
- $i = r + p$
- The price premium p emerges because capitalists want to be repaid with more real purchasing power than they lent

Theoretically Dubious

- Expectations regarding the value of money influence the value of money primarily
- The value of money is its purchasing power – not limited to the loan market
- The price premium is better seen as a special case of the Cantillon effect
- But the Fisher effect is widely accepted – with some reservations (Mishkin 1992)

2. UNDERSTANDING DEFLATION



DEFINING DEFLATION

Monetary vs. Price Deflation

- Monetary deflation means the money supply falls
- Price deflation means prices fall
- The first usually leads to the second

Voluntary vs. Coercive Deflation

- Voluntary deflation results from free actions of individuals
- Coercive or fiat deflation is the result of government intervention

TYPES OF DEFLATION

Kinds of Price Deflation

- Growth-induced deflation: increased production leads to greater output
 - More goods and services mean that prices of goods falls → price deflation
- Demand-induced deflation: increase in demand for money to hold leads to lower prices
 - An increase in demand for money lead to an increase in the commodity money supply

Kinds of Monetary Deflation

- A decrease in demand for money can lead to a fall in the commodity money supply
 - Demand for money falls → prices rise → higher value of nonmoney use of commodity
 - → money shifts to nonmonetary uses → money supply falls
- Credit deflation: the fiduciary issue of banks contract
- Fiat deflation: the government intervenes to destroy a part of the money supply

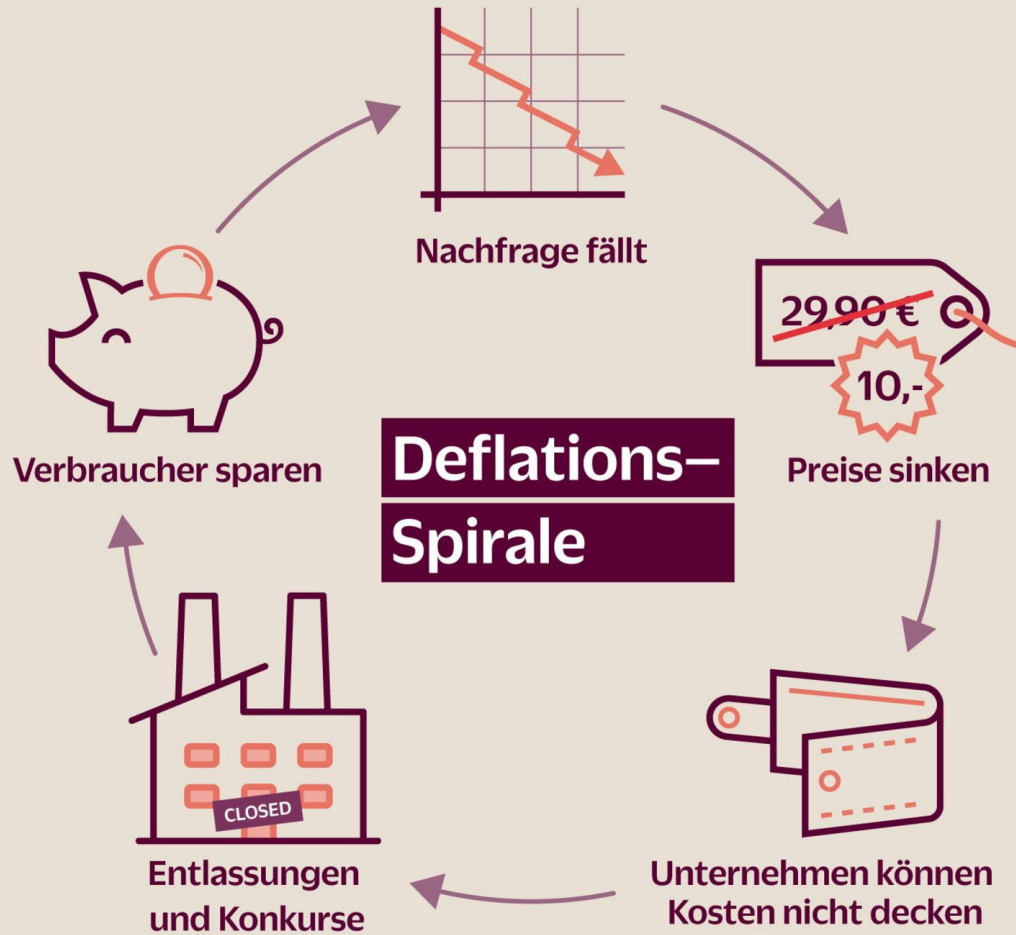
DEFLATIONARY EXPECTATIONS

Deflationary Expectations

- When people expect the value of money to rise, so they increase money holdings
- Can lead to a negative Fisher effect – limited by the zero lower bound
- But again, Fisher effect is problematic

A Deflationary Spiral?

- Can deflation induce a deflationary spiral?
- People expect lower prices → postpone purchases → economic activity shrinks
- But deflationary expectations lead to a rise in the demand for money
 - Expectations simply accelerate the adjustment of the market to the lower price level
- Only with assumptions about sticky prices and menu costs can deflation be a problem



3. CENTRAL BANK POLICY AND INFLATION



INFLATION TARGETING

Dogma

- Price deflation is bad, always. Stable, or slowly rising, prices are good
- This translates in practice into a low positive price inflation target

The Central Aim of Central Banking

- Virtually all central banks are focused on inflation targeting as the central policy goal
- A positive rate of inflation is a buffer against deflation
- A positive rate gives more room for interest rate manipulations per the Fisher effect

ECB AND FED INFLATION TARGETS

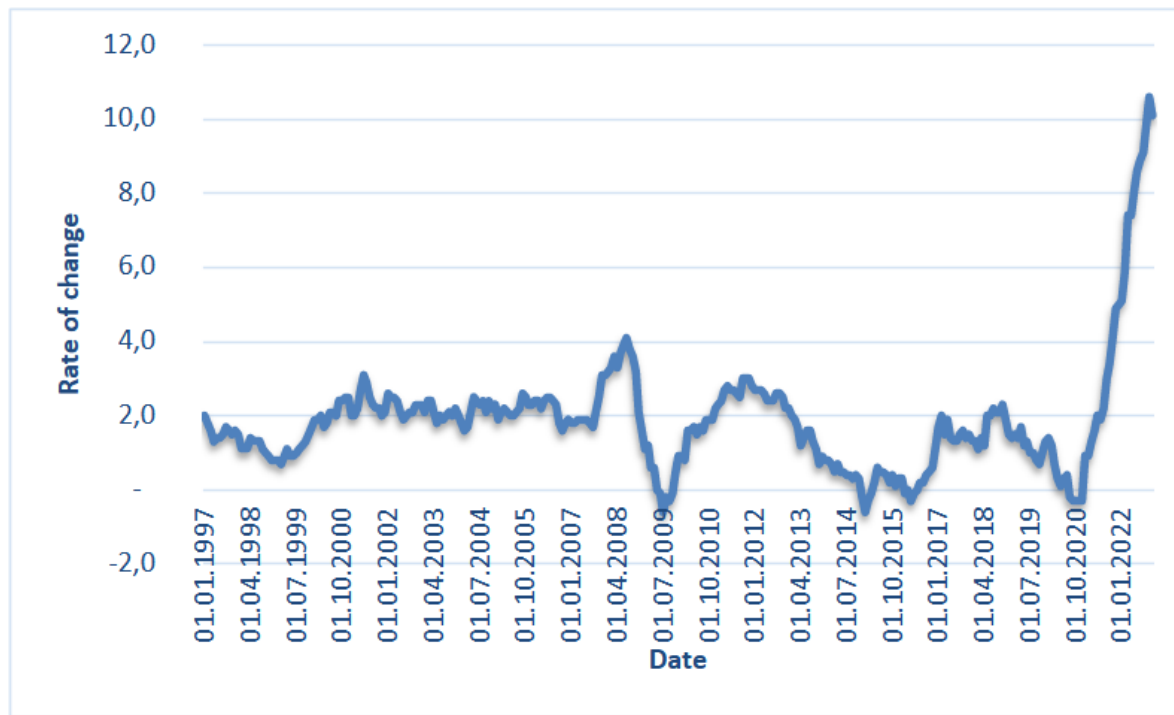
ECB Inflation Target

- Stable prices defined as close to but below 2 percent inflation over the medium term
- Inflation measured by euro-area wide HICP
- After policy review: “symmetric” 2 percent target
- A period of “undershooting” can be followed by a period of “overshooting” the target

Federal Reserve Target

- Official mandate: full employment, price stability and moderate long-term interest rates
- Inflation target of 2 percent over longer run, measured by the consumer price index
- From 2020: average inflation targeting
- Inflation can rise and fall such that it over time averages 2 percent

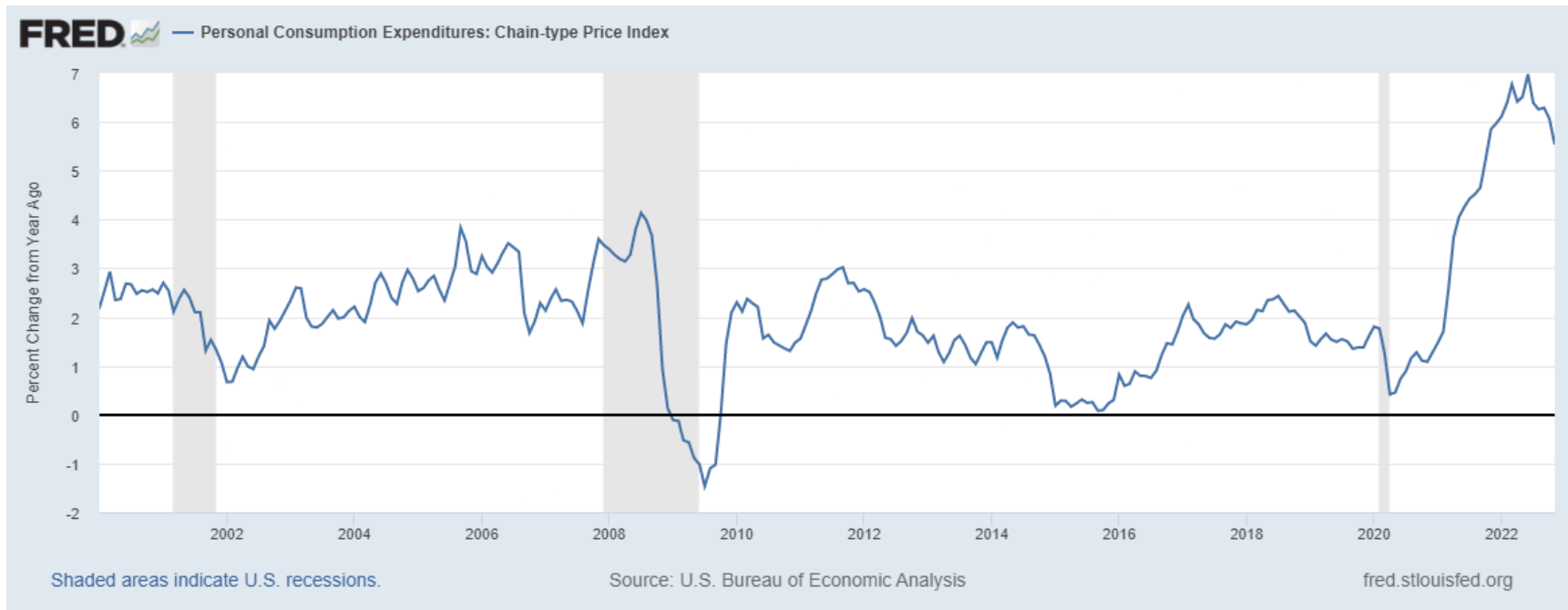
HICP RATE OF INFLATION 1997-2022



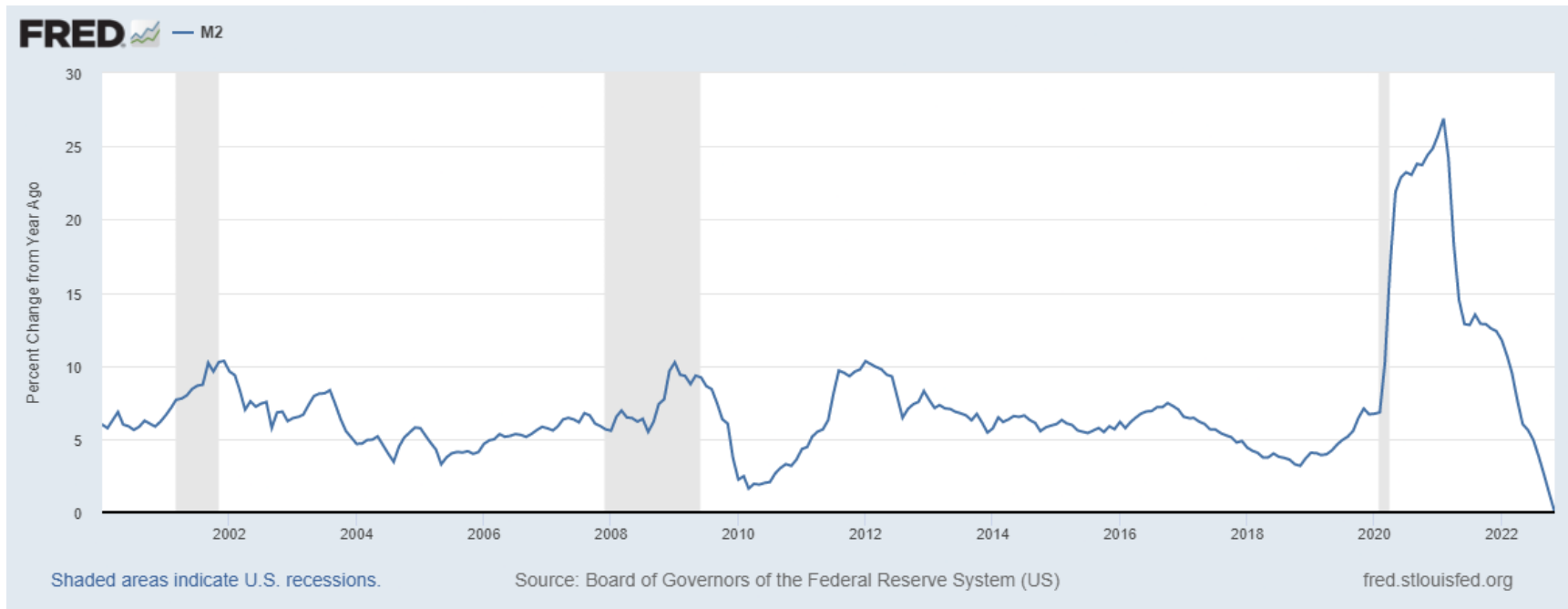
EURO AREA MONEY SUPPLY (M3) 2000-2022



US CPI INFLATION 2000-2022



US MONEY SUPPLY (M2) 2000-2022



FORWARD GUIDANCE

Managing Expectations

- Central banks try to manage inflationary expectations – and thereby interest rates
- Central banks signal (through press releases, official speeches, etc.) that and how they will pursue their targets
- The goal: managing markets without explicit intervention
- Famous example: Draghi’s bazooka 2012, the ECB will do “whatever it takes”

Limits to Forward Guidance

- It cannot stand alone eventually, central banks must intervene to maintain credibility
- Expectations derivative – therefore, so is forward guidance
- Central banks’ main tool is still control of the money supply



Deflation

4. GOOD AND BAD DEFLATION

TWO VIEWS ON DEFLATION

(Price) Deflation is Bad

- It leads to economic downturns, decreases in economic activity
- Due to sticky wages and generally menu costs
- Business calculation becomes difficult in a deflationary environment
- This is the dominant view

Deflation is Good

- There are two versions
- All deflation that results from free-market processes is good
- Deflation from productivity increases is good, but deflation from the money side is bad
- Good here simply means compatible with a well-functioning market

THE PRODUCTIVITY NORM

Good Deflation

- Prices fall as the rate of productivity increases – this is unproblematic (Selgin 1997)
- Money growth is not necessary to accommodate increased production
- The stream of nominal spending (nominal GDP) is stable, entrepreneurs can therefore adjust prices, costs

Endogenous to the Market Process

- Price falls due to productivity are endogenous to the economy, not external shocks
- Monetary equilibrium is maintained in such a deflationary environment (Horwitz 2000)

THE PRODUCTIVITY NORM

Bad Deflation

- Bad deflation is from changes on the money side
- A decline in the money supply or an increase in the demand for money
- Such changes disrupt the stream of spending, make it hard for entrepreneurs to adjust
- Due to sticky prices and menu costs

“Internal” vs. “External” Shocks

- The monetary system is neutral toward endogenous changes (from productivity)
- But it must compensate “external” shocks, e.g., from a rise in the demand for money
- The goal: to avoid monetary disequilibrium

THE PRODUCTIVITY NORM

In Terms of $MV = PQ$

- MV must be stable, and PQ must be stable
- If Q increases, P falls “automatically” as part of the price or market system
- If V falls, M must increase to compensate; a fall in M is compensated by an increase in (a different part of) M
 - V is the inverse of money demand – a fall in V is a rise in the demand for money

Deflation and Crisis

- If MV falls, production declines → factors of production become unemployed
- A fall in MV means a fall in nominal spending
- P is sticky downwards, therefore Q must fall

THE PRODUCTIVITY NORM AND NGDP TARGETING

NGDP Targeting as Policy Rule

- NGDP: nominal GDP, nominal spending (roughly)
- The central bank is to assure NGDP growth according to trend, e.g., 5 percent per year
- Real growth may be 3 percent, then the money supply must grow by 2 percent
- In the case of crisis, the money supply picks up the slack
 - If real GDP growth falls to 1 percent, the money supply grows by 4 percent

Goal of the Rule

- This stabilizes nominal spending, maintains monetary equilibrium
- Sumner (2012) and Christensen (2011) pioneers of NGDP targeting, as well as Selgin

AGAINST THE PRODUCTIVITY NORM

Various Critiques

- Bagus and Howden (2011) deny the importance of price stickiness
- Salerno (2015) argues that the money side and the goods side are completely integrated
- For the individual entrepreneur, why does it matter that a price fall is induced by an increased demand for money (i.e., a decline in the spending stream) or from increased output of goods?

Stickiness

- The problems of price stickiness and menu costs are overstated
- “Stickiness” is simply the result of consumer behaviour and entrepreneurial decisions
- It’s different when prices are sticky due to controls – e.g., minimum wages

BEYOND MONETARY DISEQUILIBRIUM

Aggregation Hides Reality

- This is a general problem of the equation of exchange
- Is it really the same whether spending is done by one group on one set of goods?
- or by another group on another set of goods? If we only look at aggregates, it is

The Adjustment Process

- The adjustment process and the Cantillon effect are hidden by aggregating
- Extra assumptions needed to make an adjustment to change in money demand impossible
- Especially permanently sticky prices is a questionable assumption

GOOD DEFLATION (SALERNO 2003, BAGUS 2015)

Cash-Building Price Deflation

- A desire for higher cash balances on the part of individuals lead to a fall in prices
- Cash balances rise by spending less and/or offering more goods and services for sale
- Prices fall, same nominal cash balance now have a higher purchasing power
- Spending resumes at lower price level

Bank Credit Deflation

- Credit contraction in crisis accelerates fall in prices → speeds up adjustment
- Supply of money available to banks and borrowers contracts

Growth Deflation

- The supply of goods and services increases, leading to fall in prices

COERCIVE MONETARY DEFLATION (BAGUS 2015)

Confiscation

- Money confiscated and destroyed, e.g., Germany 1948 (Lutz 1949)

Fiscal Deflation

- tax revenues destroyed or used to increase bank reserves

Bond Deflation

- Government borrows money, destroys it or uses it to increase (central) bank reserves
- E.g., Danish currency reform 1814-1839

Legal Tender Deflation (Hülsmann 2004)

- Legally undervalued money driven out, replaced by legally overvalued money
- But the replacement takes time – short term, the money supply contracts

COERCIVE MONETARY DEFLATION

Necessary Policies?

- Such deflations are usually part of monetary reforms
- Are there alternatives?

Welfare Concerns

- Any kind of coercive measure imposes hardship on some people to the benefit of others
- Can this be justified on welfare-economic grounds?

“Reverse” Cantillon Effect

- Is there a kind of reverse Cantillon effect – hardship especially experienced in the markets and for the people who first or preponderantly lose money?

5. LITERATURE



LITERATURE

Bagus, P. 2015. *In Defense of Deflation*. Heidelberg: Springer.

Bagus, P. and D. Howden. 2011. Monetary Equilibrium and Price Stickiness: Causes, Consequences, and Remedies. *Review of Austrian Economics* 24, no. 4: 383-402.

Bordo, M. D. 2008. Equation of Exchange. *The New Palgrave Dictionary of Economics*. London: Palgrave Macmillan.

Christensen, L. 2011. Market Monetarism: The Second Monetarist Counter-Revolution. Working paper.

Fisher, I. 1930. *The Theory of Interest*. New York: The Macmillan Company.

Horwitz, S. 2000. *Microfoundations and Macroeconomics: An Austrian Perspective*. London: Routledge.

Hülsmann, J. G. 2004. Legal Tender Laws and Fractional Reserve Banking. *Journal of Libertarian Studies* 18, no. 3: 33-55.

LITERATURE

Lutz, F. A. 1949. The German Currency Reform and the Revival of the German Economy. *Economica* 16, no. 62: 122-42.

Mises, L. v. 1953. *The Theory of Money and Credit*. New Haven: Yale University Press.

Mishkin, F. S. 1992. Is the Fisher Effect for Real? *Journal of Monetary Economics* 30, no. 2: 195-215.

Salerno, J. T. 2003. An Austrian Taxonomy of Deflation – With Applications to the U.S. *Quarterly Journal of Austrian Economics* 6, no. 4: 81-109.

Salerno, J. T. 2015. A Simple Model of the Theory of Money Prices. In *Money: Sound and Unsound*. Auburn, Ala.: Ludwig von Mises Institute, pp. 131-51.

Selgin, G. A. 1997. *Less than Zero: The Case for a Falling Price Level in a Growing Economy*. London: Institute for Economic Affairs.

Sumner, S. 2012. The Case for Nominal GDP Targeting. Working paper, Arlington, Va.: The Mercatus Center.