

Bubbles and Central Banks: Historical Perspectives

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I. Introduction

II. Characteristics of asset price bubbles

III. Severity of crises

IV. Policy responses

How should central banks react to asset price booms?

- ▶ Should central banks behave passively and intervene only when a bubble bursts?
 - ⇒ **“Cleaning up the mess”** (Greenspan view)
- ▶ Or should they try to prevent the emergence of bubbles early on?
 - ⇒ **“Leaning against the wind”** (BIS view)
- ▶ If central banks should “lean against the wind”, how should they intervene?
 - ▶ Should they *raise interest rates*...
 - ▶ ... or use *macroprudential tools*?

Why monetary policy **should not** react to asset prices

- ▶ Bubbles cannot be *identified* with confidence
- ▶ Monetary policy is *too blunt* to contain a bubble in a specific market
- ▶ High *costs of intervention* because it may damage other parts of the economy
- ▶ Bubbles are a problem only in combination with *unstable financial markets*
 - ▶ Problems should be tackled by financial regulation rather than monetary policy

Why monetary policy **should** react to asset prices

- ▶ Even if bubbles are hard to identify, it is not optimal to do nothing
- ▶ Expected *costs of bursting bubbles* outweigh the costs of intervention
- ▶ Cleaning after a bubble is an *asymmetric* policy, which risks creating the *next bubble*
- ▶ Financial regulation may not be fully effective
 - ▶ *Regulatory arbitrage* limits the reach of financial regulation
 - ▶ Monetary policy also reaches the *shadow banking sector*

Contribution of this paper

- ▶ Analyze and categorize 23 prominent asset price booms from the past 400 years:
 - ▶ Types of assets involved
 - ▶ Holders of assets
 - ▶ Economic environment during emergence
 - ▶ Severity of crises
 - ▶ **Policy responses**

Selection problem

- ▶ **Selection bias:** Historical reporting of asset price bubbles is more likely if . . .
 - ▶ they were *not* tackled and burst,
 - ▶ they were tackled *by mistake*,
 - ▶ they resulted in *severe crises*
- ▶ Therefore, we also searched for asset price booms not resulting in severe crises
- ▶ High selectivity has to be kept in mind when interpreting results

Overview of sample

	Event	Time	Place
1	Tulipmania	1634-1637 (crisis: Feb. 1636)	Netherlands
2	Mississippi bubble	1719-1720 (crisis: May 1720)	Paris
3	Crisis of 1763	1763 (crisis: Sept. 1763)	Amsterdam, Hamburg, Berlin
4	Crisis of 1772	1772-1773 (crisis: June 1772)	England, Scotland
5	Latin America Mania	1824-1825 (crisis: Dec. 1825)	England (mainly London)
6	Railway Mania	1840s (crises: April/Oct.1847)	England
7	Panic of 1857	1856-1857 (crisis: Oct.1857)	United States
8	Gründerkrise	1872-1873 (crisis: May 1873)	Germany, Austria
9	Chicago real estate boom	1881-1883 (no crisis)	Chicago
10	Crisis of 1882	1881-1882 (crisis: Jan.1882)	France
11	Panic of 1893	1890-1893 (crisis: Jan. 1893)	Australia
12	Norwegian crisis of 1899	1895-1900 (crisis: July 1899)	Norway
13	US real estate bubble	1920-1926 (no crisis)	United States
14	German stock price bubble	1927 (crisis: May 1927)	Germany
15	US stock price bubble	1928-1929 (crisis: Oct. 1929)	United States
16	Lost decade	1985-2003 (crisis: Jan. 1990)	Japan
17	Scandinavian crisis: Norway	1984-1992 (crisis: Oct. 1991)	Norway
18	Scandinavian crisis: Finland	1986-1992 (crisis: Sept. 1991)	Finland
19	Asian crisis: Thailand	1995-1998 (crisis: July 1997)	Thailand
20	Dotcom bubble	1995-2001 (crisis: April 2000)	USA
21	Real estate bubble in Australia	2002-2004 (no crisis)	Australia
22	Subprime housing bubble	2003-2010 (crisis: 2007)	USA
23	Spanish housing bubble	1997-? (crisis: 2007)	Spain

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II. Characteristics of asset price bubbles

- ▶ Bubbles occurred in a wide range of assets:
 - ▶ Especially in the early part of the sample: *Commodities* (tulips, grain, sugar)
 - ▶ 19th century: Large *infrastructure* projects (railroads, canals)
 - ▶ Throughout the sample: *Securities* and *real estate*

II. Characteristics of asset price bubbles

- ▶ Bubbles occurred in a wide range of assets:
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 - ▶ Throughout the sample: *Securities* and *real estate*
- ▶ *Holders* of assets:
 - ▶ In most instances, bubble assets were held widely
 - ▶ In a few cases bubble assets were only held by specific groups, such as specialized traders or wealthy individuals
 - ▶ Often *banks* were among the speculators

Economic environment

▶ Bubbles ...

- ▶ emerged when the stance of *monetary policy* was *expansive* (also: issuing of bank notes by private banks, gold discoveries)
- ▶ were accompanied by *lending booms*, often related to *financial innovation* (acceptance loans in 1763, securitization in 2007/2008), mutual reinforcement of lending booms and asset bubbles
- ▶ were sometimes fueled by *capital inflows* (Railway mania 1840s in England, German stock price bubble of 1927, Scandinavian crises 1991, US subprime crisis 2007-09)

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III. Severity of crises

- ▶ Crucial factor: *Debt financing* of bubbles
- ▶ Lending booms \Rightarrow severity increases
 - ▶ Examples: Tulipmania 1634-37 vs. crisis of 1763, dot-com crisis 2000 vs. Railway mania 1840s
 - ▶ Real-estate bubbles typically debt-financed & severe counterexample: Chicago real estate boom 1881-1883
- ▶ if also *banking crises* \Rightarrow severe recessions
 - ▶ if banks hold bubble assets *fire sales* amplify examples: crisis of 1763, Australian panic of 1893
 - ▶ *bank balance sheets* weaken \Rightarrow ground for a later crisis, example: German stock price bubble of 1927

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IV. Policy Responses

- ▶ Little empirical evidence on the effectiveness of policy responses
- ▶ There are only few episodes where policies were explicitly *targeted at curbing asset prices*
- ▶ This is especially true for *policy rate changes*, which were often driven by other considerations (depending on the central bank mandate, exchange rate regime etc.)
 - ▶ It is not possible to distinguish between *intentional* and *unintentional* measures
- ▶ *Macroprudential* interventions were typically *targeted at curbing loan volumes*

IV. Policy Responses

- ▶ We distinguish between the following policies:
 1. *Cleaning* = *only* cleaning: No significant policy reaction before the bursting of the bubble
 2. *Leaning interest rate policies* = Increases in policy interest rates in the run-up phase of the bubble
 3. *Macroprudential policies* = All policy reactions using other tools than interest rates, such as loan-to-value ratios, quantity restrictions for lending, specific reserve requirements etc. (sometimes also referred to as *quantity instruments*)

Hypothesis 1: Pure cleaning is costly ✓

- ▶ Pure cleaning strategies are only found in relatively *immature* financial systems
- ▶ Example 1: Crisis of 1763
 - ▶ No authority felt responsible or was capable of mitigating the lending boom
 - ▶ Severe disruptions in the financial sector and the real economy
- ▶ Example 2: Australian panic of 1893
 - ▶ Boom in mining shares and land and the accompanying lending boom were not mitigated by any policy intervention
 - ▶ Burst of the bubble led to a deep depression and the breakdown of the financial system

Hypothesis 2: Leaning interest rate policies may mitigate crises (✓)

- ▶ There are *instances of successful leaning*
- ▶ Example 1: Norwegian crisis of 1899
 - ▶ Early increase in interest rates seems to have mitigated the real estate bubble and may explain the relatively mild recession
- ▶ Example 2: Australian real estate bubble of 2002-04
 - ▶ Stepwise tightening of monetary policy
 - ▶ Housing prices decelerated without any severe disruption
- ▶ Evidence suggests that leaning in principle can be effective
- ▶ However, in most instances of leaning interest rate policies there were *severe recessions nevertheless*

Hypothesis 3: Leaning interest rate policy may be ineffective if it is too weak or comes too late ✓

- ▶ Interest rate increases *too weak* to curb the bubble
 - ▶ Example 1: Gründerkrise 1872/73
 - ▶ Interest increases were not sufficient to mitigate the boom in stocks and real estate
 - ▶ Example 2: US subprime housing bubble 2003-2010
 - ▶ Fed started raising rates in 2004, but housing prices continued to rise until 2006
- ▶ Interest rate increase came *too late*
 - ▶ Example 1: Railway mania 1840s
 - ▶ Bank of England reacted too late to speculation
 - ▶ Bursting followed by deep recession and one of the worst British banking panics
 - ▶ Example 2: US stock price bubble 1929
 - ▶ Discount rate was raised shortly before the bubble burst

Hypothesis 4: Leaning interest rate policy may be harmful if it is too strong (?)

- ▶ When the policy response late, may force sharp rate increase, ⇒ “*pricking*” bubble
 - ▶ Example: Japan’s lost decade
 - ▶ Bank of Japan was criticized for having promoted the recession by pricking the bubble (Patrick 1998)
- ▶ Pricking *not always* lead into a recession,
 - ▶ Examples: Mississippi bubble 1719-20, dot-com bubble 1995-2001
- ▶ Problem: *Counterfactual* is unclear - late leaning may still be better than allowing the bubble to expand further

Hypothesis 5: Macroprudential instruments may mitigate crises. (✓)

- ▶ *Macroprudential instruments* were not used in the early episodes but have become more common since the *20th century* and were sometimes *quite successful*
- ▶ Example 1: US real estate bubble 1920-26
 - ▶ Under the National Banking Act, loans were subject to loan-to-value restrictions of 50 percent (White 2009)
 - ▶ Total real estate lending was limited to 25 percent of a bank's capital
 - ▶ Most banks survived the bursting bubble relatively well, stability of the financial system was not threatened
- ▶ Example 2: Australian real estate bubble 2002-04
 - ▶ Higher capital requirements for certain loans, including home equity loans
 - ▶ Policy was accompanied by a leaning interest rate policy and appears to have been successful

Some lessons learnt

- ▶ Lesson 1: *Type of financing* (debt vs. equity) matters more than the type of bubble assets
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- ▶ Lesson 4: No instrument appears to be dominant to deal with asset price bubbles