

# Monetary Policy during the Bubble Economy

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## Abstract

This paper analyses some characteristic facts of monetary policy during asset price booms in G7 countries by considering financial and real variables and monetary policy stance during and around asset price booms. Not all booms produce large output losses for economic growth. The analysis also shows that asset prices rise strongly during the boom and crash in the postboom period. Real gross domestic product (GDP) growth is particularly strong during the boom, which is mainly driven by investment. Monetary restrictions are looser during the boom period as revealed by deviations from the ‘Taylor rule’. Not all asset price booms lead to a bust, and not all busts to a financial crisis. This analysis breaks boom samples into high- and low-cost types, depending on the relative postboom performance. This paper tests what variables discriminate between high- and low-cost booms. High-cost booms generally follow large growth in money and credit just before and early in the boom period and are associated with looser monetary policy conditions than in normal times.

## Introduction

Most developed countries have experienced asset price bubbles. Historically, asset price bubbles have been associated with declines in economic activity and financial instability. Policy authorities have come under pressure to responding appropriately and adequately.

This paper analyses asset booms in G7 countries. Real and monetary variables are estimated and the reasons for bubble booms are analyzed. Finally this letter considers what monetary policies should be enacted to overcome the effects of such booms and recover without damage.

## Asset Price Booms and Monetary Policy

This section reviews macroeconomic and policy indicators using Morgan Stanley Composite Index (MSCI) data to identify asset price booms <sup>(1)</sup>. Asset price boom periods are a time in which the index is continuously more than 10% above a trend is calculated using a one-sided Hodrick-Prescott filter. Table 1 indicates the year and duration of asset price booms in G7 countries.

**Table 1 Boom Years and Durations**

	High Cost	Low Cost	Boom Years
Canada	1988-1989		2
France		1989-1990, 2000-2001	4
Germany	1990		1
Italy		1981, 1990-1991	3
Japan	1973, 1986-1990		6
United Kingdom	1972-1973, 1985-1989	1998-2000	10
United States		1986-1987, 1996-2000	7

Boom episodes are not equally spread among the countries. In the Euro area, boom periods are relatively short, perhaps reflecting effects of monetary integration. Boom periods have lengthened since the 1980s <sup>(2)</sup>. Financial

(1) Borio and Lowe (2002) stated that deviations of asset prices from trends predict financial instability. In addition to financial developments, it is more appropriate to consider other economic prices ; however, MSCI stock prices generally reflect large parts of asset prices. The absence of data is the main reason.

deregulation and decreases in asset transaction costs in that period may also have had an impact. Asset booms were sluggish in the 1980s, but that trend has decreased since the 1990s.

To characterize the typical behavior of economies around asset price booms, Table 2 computes summary statistics aggregating information across the boom episodes and shows the median of average annual real growth rates over the period. Growth rates shown are real growth rates, that is, deflated by consumer price inflation. Percentage deviations are from trend growth rates or deviations from the trend of a variable's ratio to gross domestic product (GDP). Gap is a percentage deviation from ex-post trend. Preboom periods are two years<sup>(3)</sup>, postboom periods are two years after the boom, and the normal period is the median of all other periods.

**Table 2 Overall Financial and Real Developments during Aggregate Asset Price Booms : Medians**

	Preboom Period	Boom Period	Postboom Period	Normal Period
Asset Prices	9.0	12.9	-8.2	1.9
Asset Prices Gap	-4.8	13.2	-7.5	-9.8
Real GDP	3.5	3.6	1.4	2.5
Output Gap	-0.8	1.7	0.4	-0.4
Consumption	3.4	4.0	1.7	2.2
Consumption/GDP Gap	-0.3	-0.5	1.0	0.2
Investment	7.0	7.1	-3.4	2.2
Investment/GDP Gap	-1.8	4.0	2.1	-1.9

First, asset prices fall significantly in the postboom period, and the growth rate of asset prices is high in the preboom period. The movement of real GDP

(2) Due to the same method in this paper, asset boom occurred in Finland from 1981 to 1989, and in Spain from 1986 to 1990. This hides a lot of variations across asset price booms, so it should be analyzed carefully.

(3) The length is surely arbitrary.

mirrors the behavior of asset prices. The GDP gap shows that asset price booms are accompanied by business cycle upturns. Contrary to investment, postboom consumption remains positive.

The following section addresses monetary variables. Table 3 shows the behavior of monetary developments around boom episodes.

**Table 3 Overall Monetary Developments during Aggregate Asset Price Booms : Medians**

	Preboom Period	Boom Period	Postboom Period	Normal Period
Credit	4.3	7.0	1.0	3.5
Credit/GDP Gap	-2.9	0.7	1.9	2.6
Money	4.5	5.3	1.8	2.7
Money/GDP Gap	-1.6	-0.5	0.4	-0.3
Taylor Gap	0.8	-0.3	-0.2	0.2
CPI	4.4	4.2	5.4	6.2
Inflation Gap	-1.0	0.2	1.3	-0.2
Nominal Interest Rate	7.4	8.4	9.8	8.3
Nominal Interest Rate Gap	-1.0	0.2	1.5	-0.5
Real Interest Rate	3.5	3.6	4.7	2.2
Real Interest Rate Gap	-0.3	0.4	0.4	-0.4

Note. A positive sign in the Taylor gap indicates a high interest rate compared with the Taylor rule. Money and credit rate are real growth rates.

Note that inflation is ‘stable’ high. Inflation seems to be a poor indicator of financial imbalances (Borio, English, and Filardo, 2003). Interest rates indicate a loose monetary policy stance. Monetary conditions are relatively loose during asset price booms and tend to be tightened postboom. Credit and real money growth, which are very strong before and during the boom (and fall rapidly in the postboom period), confirm this.

Overall, the stylized facts described above are consistent with a credit-driven asset price boom and bust cycle. Loose monetary conditions contribute to high

money and credit growth, which stimulates spending and leads to an increase in asset prices, which in turn results in even looser financing conditions, higher lending, and growth. These developments are reversed when asset prices drop. The sharpness of the resulting contraction in asset prices and economic activity suggests that the financial accelerator mechanism is at work. As Borio, English, and Filardo (2003) suggested, inflation does not increase during the boom. Inflation is a poor indicator of asset price booms. In contrast, estimated gap measures that attempt to estimate the degree of real and financial imbalances, such as money, credit, and investment, increase substantially during the boom.

The asset price booms were followed by a sharp drop in real GDP growth rate (high-cost booms) or were succeeded by a relatively mild slowdown in real growth (low-cost booms). Table 4 shows economic developments in high-cost (H) and low-cost (L) asset price booms. High-cost booms are those that were followed by a drop of more than three percentage points in average real growth, comparing the three years postboom with the average growth during the boom (as per Detken and Smets, 2004). The other booms are characterized as low-cost booms. Table 4 focuses on developments for the average preboom, boom, and postboom periods. The 'W' column indicates significance status with regard to the Wilcoxon signed ranks test, which computes the absolute value of the difference between each observation and the mean and then ranks these observations from high to low.

Concerning asset prices, it is clear that most do not differ significantly in high-cost and in low-cost booms, perhaps because they last longer on average, as revealed by the significant difference in the average asset price gap during the boom and postboom.

Real GDP growth rates during the high-cost asset price booms are greater than those during low-cost booms and smaller postboom. More interesting is the fact that consumption growth is significantly higher during a high-cost than during low-cost boom. This might suggest that there is less consumption smoothing during high-cost booms and that the asset price increase is perhaps partly, and wrongly, considered to be permanent (Detken and Smets, 2004).

**Table 4 Financial, Real, and Monetary Developments**

	Average Preboom			Average Boom			Average Postboom		
	H	L	W	H	L	W	H	L	W
Asset Prices	13.0	8.3		11.9	17.0		-10.3	-5.9	***, ***
Asset Price Gap	-1.9	-5.8		16.0	11.7	**, *	-9.8	-5.6	**, **
Real GDP	3.5	3.7		4.4	3.1	***, **	0.2	1.8	***, **
Output Gap	-2.2	-0.7	***, **	2.0	1.1	***, **	0.7	0.3	
Consumption	3.4	3.6		4.2	3.5	***, ***	-0.2	2.5	***, ***
Consumption/GDP Gap	-0.8	-0.2	**, **	-0.6	-0.3		1.2	0.6	
Investment	6.3	7.5	**, **	7.8	6.5	**, **	-5.9	-2.0	***, ***
Investment/GDP Gap	-3.0	-1.8	**, **	4.8	3.9	**, ***	2.6	0.4	**, *
Credit	3.3	4.8	*, **	9.8	6.0	**, **	-0.7	1.3	*, ***
Credit/GDP Gap	5.5	-1.6	***, *	2.3	0.2		1.3	2.4	**, ***
Money	5.4	4.1	**, **	8.8	4.8	***, ***	1.0	2.8	**, ***
Money/GDP Gap	-2.3	-1.4		-0.7	-0.8		-0.4	0.4	*, **
Taylor Gap	1.2	0.4	***, ***	-0.6	-0.7	**, **	-1.4	0.5	*, ***
CPI	6.7	3.1	*, **	6.4	3.0	*, **	5.5	4.0	*
Inflation Gap	-1.0	-0.4	*	0.1	0.1		1.5	0.2	*, **

Note. \*\*\*/\*\*/\* denotes significance at 1, 5, 10% levels respectively.  
The left part of W corresponds to H and right L.

Investment imbalances accumulate not only during the boom but also late in the boom as indicated by large differences in investment. This sometimes occurred with bad loans in financial institutions. Japan is the typical case.

Considering monetary developments, it appears that money and credit growth may be useful relatively early on to distinguish high- from low-cost booms. Inflation is significantly higher in high-cost booms in the preboom period. Monetary authorities must provide adequate policies, which must be based on more accurate expectations. Finally, there is a smaller rise in the output gap and relatively stable inflation at the same time, which may suggest that supply-side factors are more dominant after asset price developments.

Monetary policy according to the Taylor rule is tighter during high-cost preboom years. On the other hand, the result is looser during the boom period. The policy stance is finally significantly looser for the high-cost postboom years.

## Conclusion

This letter analyzed financial, real, and monetary policy developments during the asset price booms. It shows that asset prices rise strongly during the boom and crash in the post boom period. Real GDP growth is particularly strong during the boom, which is mainly driven investment. Monetary policy is looser during the boom period as is revealed by deviations from the Taylor rule.

Not all asset price booms lead to a bust and not all busts to a financial crisis. So the sample of boom was broken into high and low cost booms. The most important difference can be seen for the post-boom period. Investment growth drops significantly than in post-high-cost boom period. Inflation gaps are higher, monetary policy looser, and reductions in real money growth and gaps and real credit growth and gaps significantly larger in post-high-cost boom periods.

The stronger loosening of monetary policy seems to be a passive monetary policy choice. Why? A possible explanation is that monetary policy authorities are uncertain about the cause of asset price boom. The other explanation would be that central banks feel trapped between price stability and asset price and are reluctant to actively trade-off one against the other. It would be inadequate to criticize financial authorities without thinking these thoughts.

## References

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