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Macroeconomic forecasting: A monetarist view

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Money, prices and output: the fundamentals

The Quantity Theory of Money

MV = PT, a truism

The truism becomes a **theory** when an appeal is made to economic behaviour

We propose that V is determined by variables other than the quantity of money and **is relatively stable**

V being the inverse of the Demand for Money

Stability of V, particularly in ‘normal’ (no crisis) times

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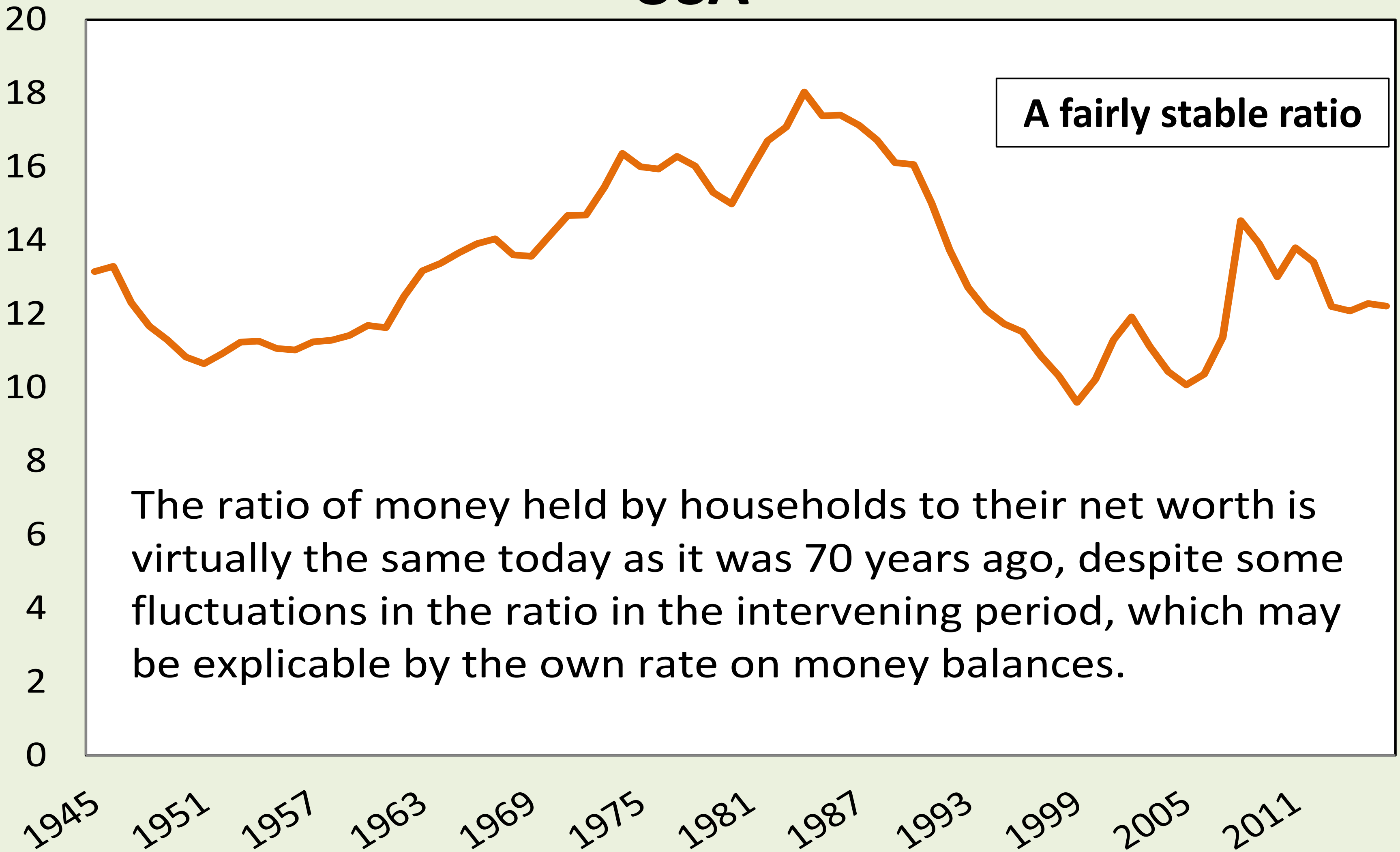
Ratio of money held to household net worth, %

USA



The Quantity Theory of Money

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What if V is not just stable, but **constant**?

Then % changes in M will be accompanied by *the same* % changes in PT. If M rises by 10%, then PT also rises by 10%.

This is the so-called "proportionality hypothesis"

The Quantity Theory of Money: does it work?

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US broad money and nominal income growth

	% annual growth rate:	
	M3	Nominal GDP
1960 – 2018	**7.4**	**6.5**
1960 – 1970	**7.7**	**6.8**
1971 – 1980	**11.4**	**10.3**
1981 – 1990	**7.7**	**7.7**
1991 - 2000	**5.6**	**5.6**
2001 - 2010	**7.1**	**3.9**
Eight years to 2018	**4.0**	**4.0**

The Quantity Theory of Money: does it work?

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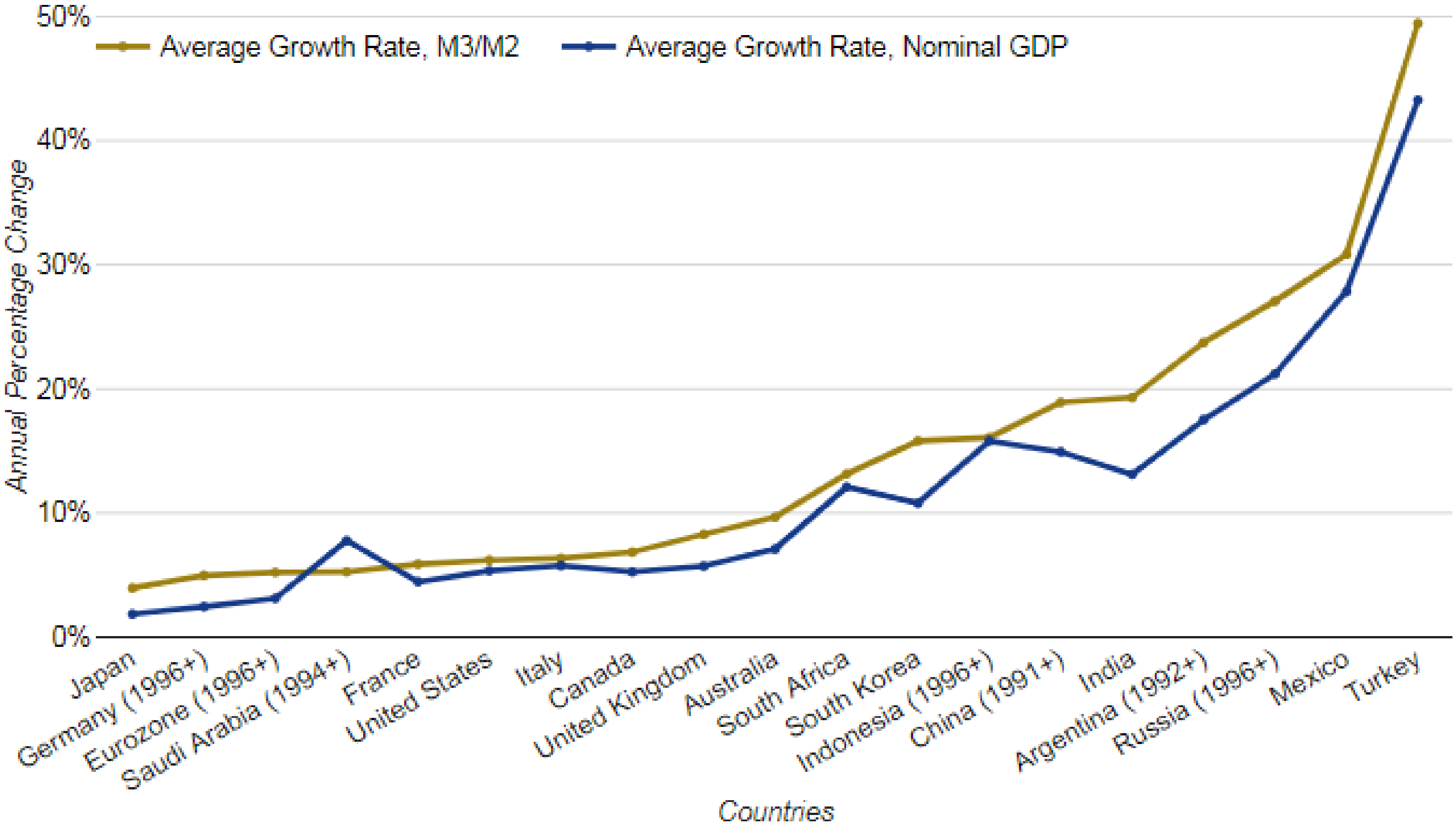

M3 Data from National Central Banks and Nominal GDP Data from various sources.

Policy recommendations: how much money to issue?

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For advanced economies, keeping a **stable rate of growth of money** (approx. 4-5% p.a.) is key to achieve sustainable economic growth over the long term, and avoid inflation and deflation.

This is compatible with 0-2% inflation and 2% trend output growth

This implies that real money growth should be around **2% per annum**

If an increase in the amount of money

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Portfolio adjustment

Agents will increase their demand of other assets: equity, real estate, bonds, … thus increasing their price

Direct effect: Stronger firms' balance sheets: greater investment and employment

Indirect effect: Higher asset prices; agents will increase their demand of goods and services ('wealth effect')

The Quantity Theory of Money: does it work?

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In the long run the growth rates of real broad money and real GDP are similar, if with some tendency in many countries for money to grow a little faster with greater financial sophistication

However, the effect is not immediate: 2-3 quarters lag for GDP changes and 4-5 quarters lag for changes in CPI prices (depending on the output gap)

Let us take the trend growth rate of real output to be 2% a year (UK for much of the last 50 years)

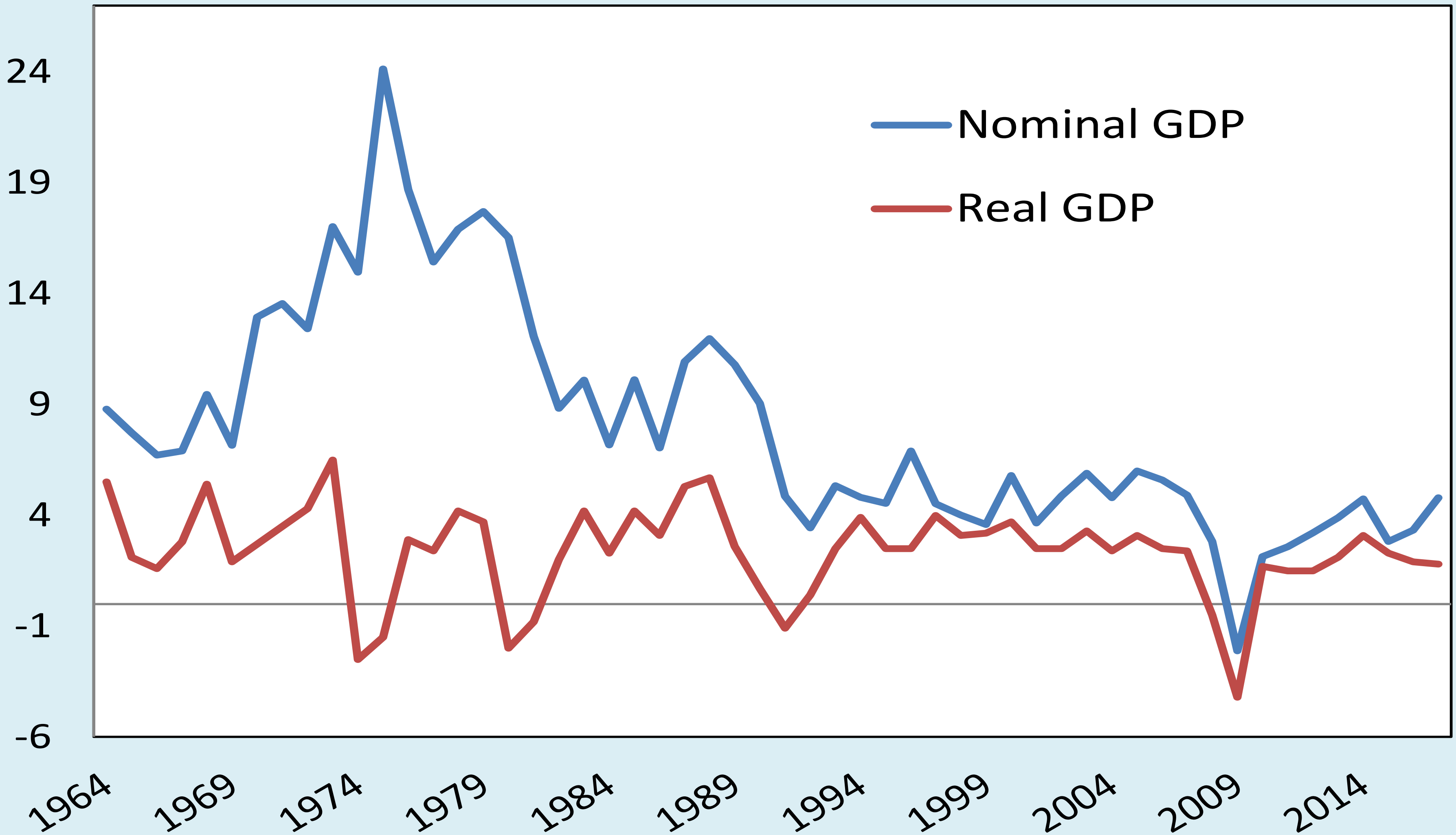
Money and the business cycle

- If real money growth is **much above 2%** a year, expect strong asset price inflation and above-trend growth in demand and output.

- If real money growth is **much beneath 2%** a year, expect weak asset price inflation (or even falling asset prices) and beneath-trend growth in demand and output (or even a recession).

Growth of GDP in the UK, 1964 - 2017

- % annual increases



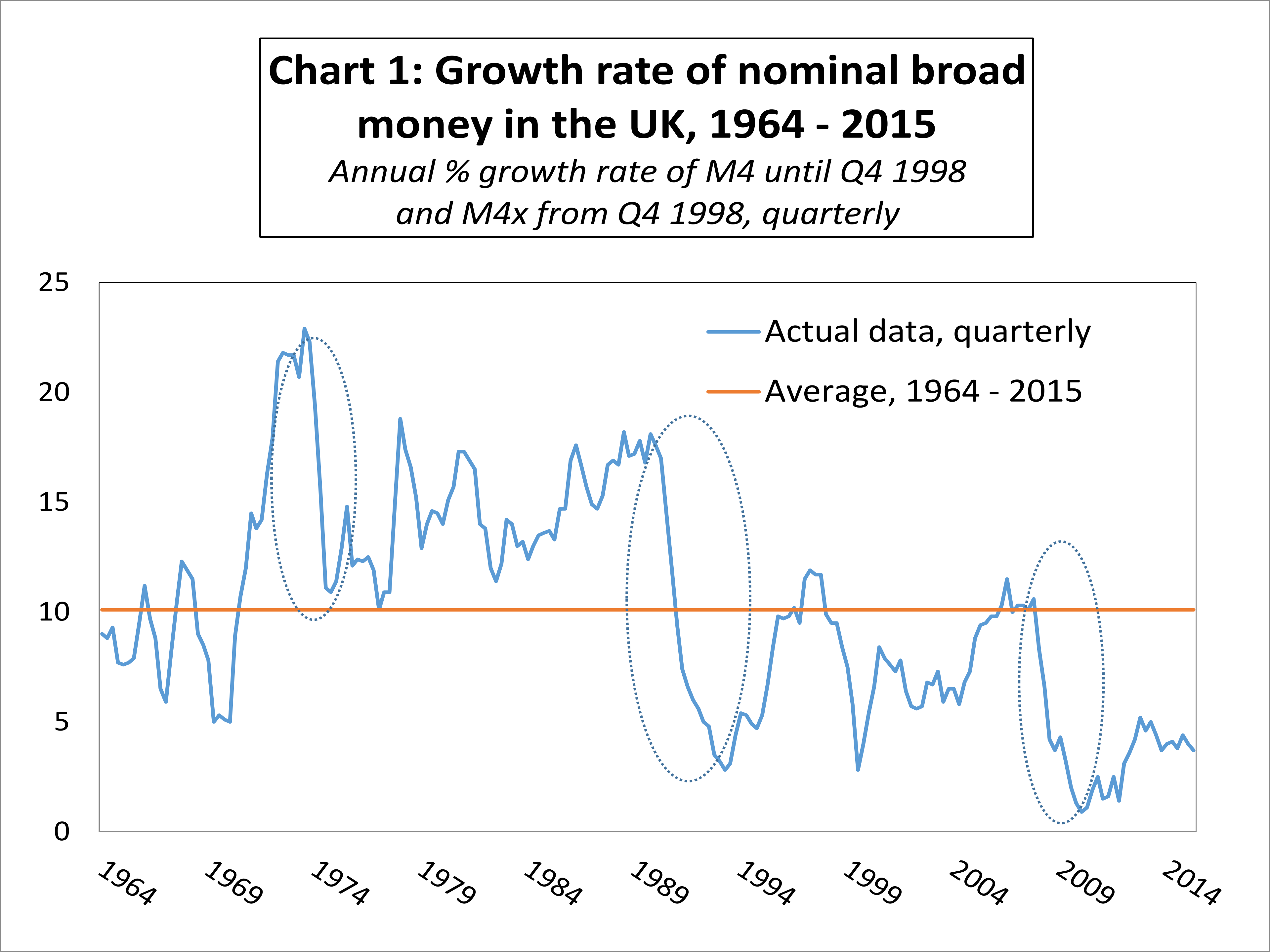
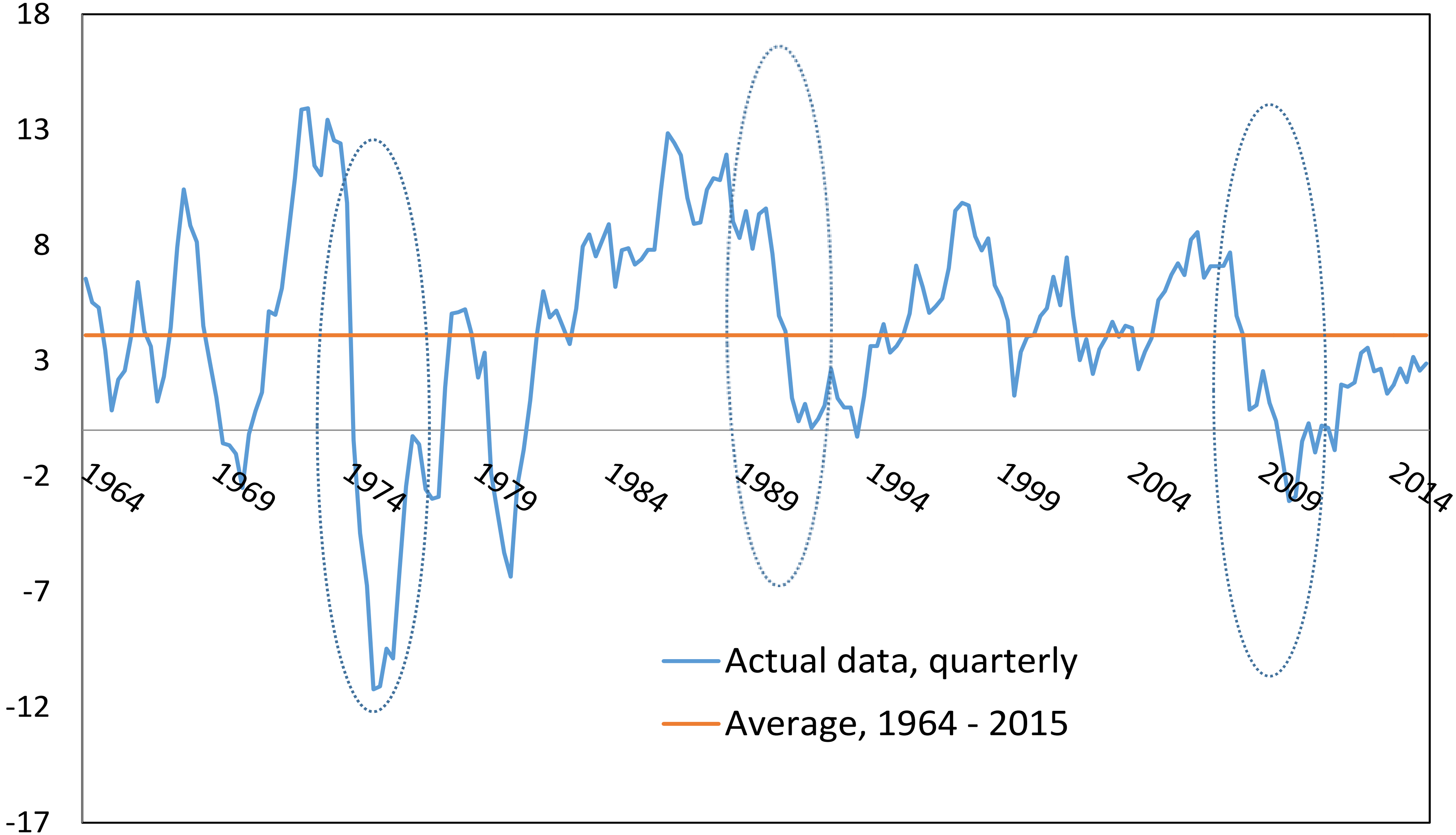


Chart 1: Growth rate of nominal broad money in the UK, 1964 - 2015
Annual % growth rate of M4 until Q4 1998 and M4x from Q4 1998, quarterly
25
20
15
10
5
0
Actual data, quarterly
Average, 1964 - 2015
1964
1969
1974
1979
1984
1989
1994
1999
2004
2009
2014

Chart 2: Growth rate of real broad money in the UK, 1964 - 2015

Annual % growth rate of nominal M4/M4x, adjusted for change in GDP deflator



The UK economy: central facts of monetary experience, 1964 - 2015

Average annual % increases:

Nominal broad money	10.1
Nominal GDP at mkt. prices	8.3
Real broad money	4.1
Real GDP	2.4

Application to portfolio/asset allocation decisions along the business cycle

A generalisation

- When output is above its trend level so the economy has a positive ‘output gap’, the change in inflation is positive, i.e., inflation is rising.
- When output is beneath its trend level so the economy has a negative ‘output gap’, the change in inflation is negative, i.e., inflation is falling.

A four-phase business cycle

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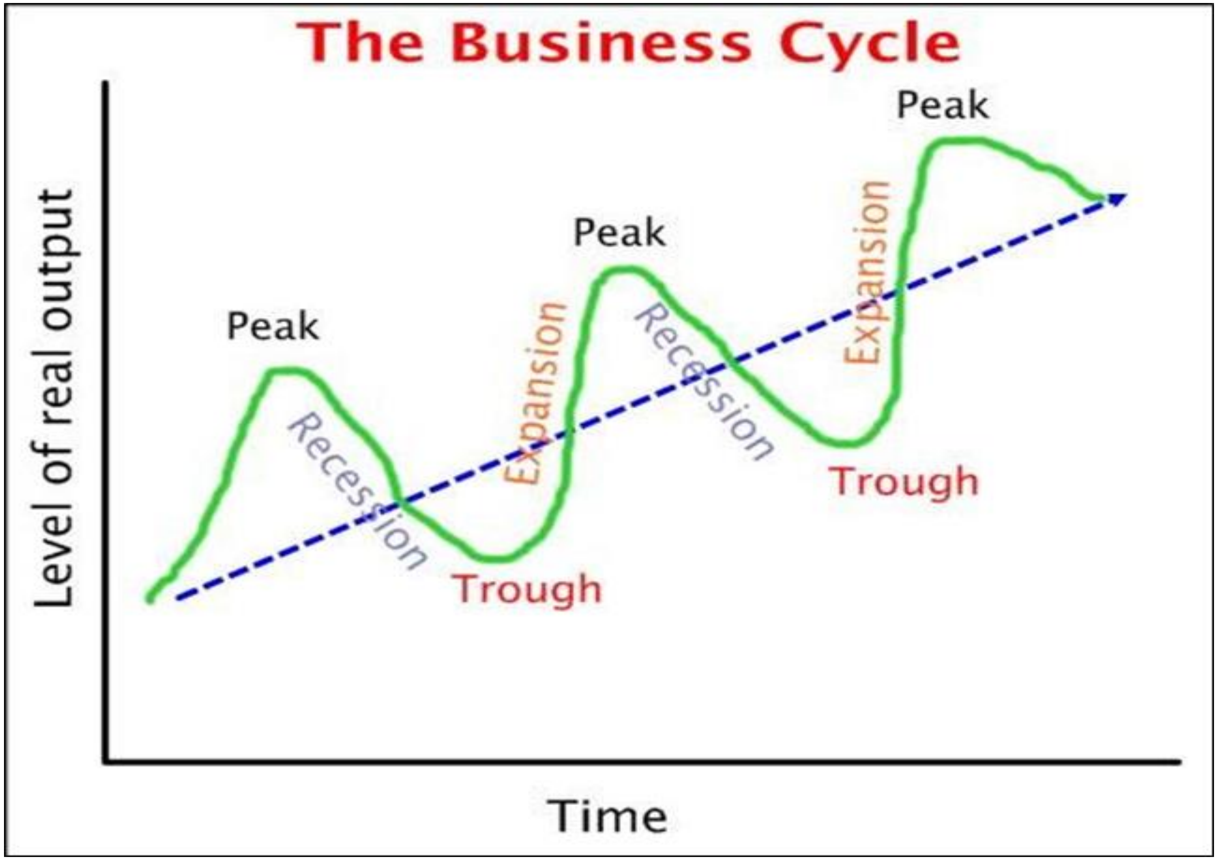

Peak
Recession
Trough
Expansion

The business cycle and inflation (1)

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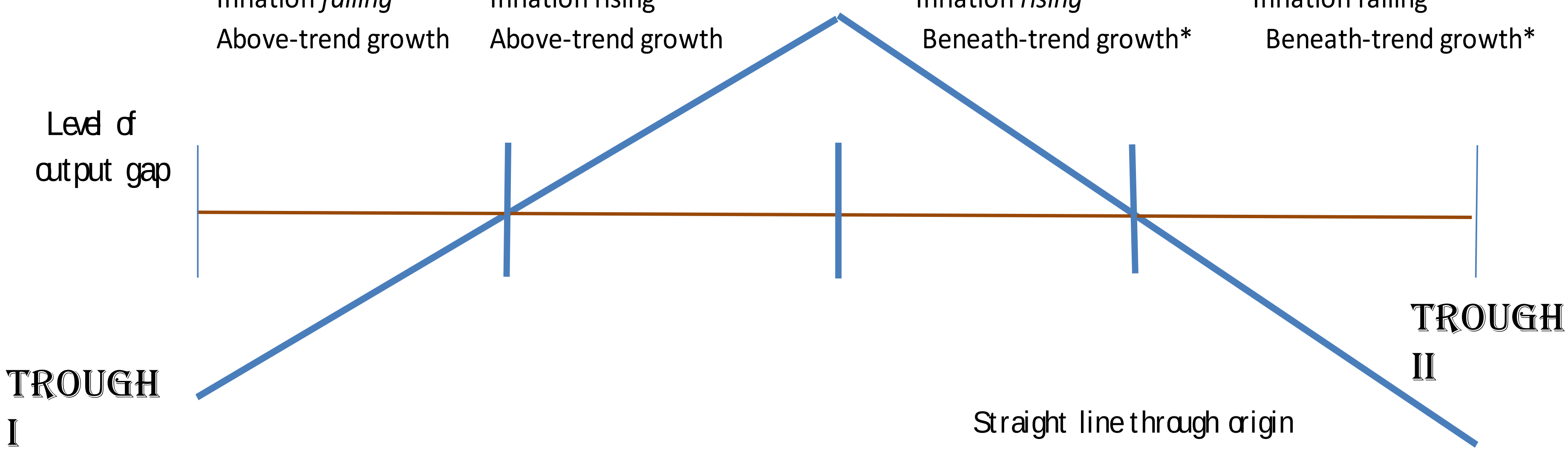
Recovery	Expansion		Downturn	Recuperation
Phase 1	Phase 2	PEAK	Phase 3	Phase 4
Output gap **negative**	Output gap **positive**		Output gap **positive**	Output gap **negative**
Inflation *falling*	Inflation rising		Inflation *rising*	Inflation falling
Above-trend growth	Above-trend growth		Beneath-trend growth*	Beneath-trend growth*



* Or even falling output (i.e., recession), although falling output is unusual in the recuperation phase.

Straight line through origin corresponds to zero output gap, space beneath is of negative output gap, etc.

The business cycle and inflation (2)

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Fluctuations in asset prices along the business cycle

To note that profit shares are highly pro-cyclical, and that equities are capitalisations of profits/dividends

The business cycle and inflation (3)

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- **Recovery.** Above-trend growth and **falling** inflation *of goods and services*. Good macro news. Above-trend growth of real broad money and, in association with that, financial sector growing faster than household money. **Asset prices – particularly equities – rising faster than prices of goods and services.**
- **Expansion.** Above-trend growth and rising inflation of goods and services. Money being transferred to companies to finance expansion.

The business cycle and inflation (4)

- **Downturn.** Beneath-trend growth/falling output and **rising** inflation *of goods and services*. Bad macro news. Beneath-trend growth of real broad money and, in association with that, financial sector growing more slowly than household money, or falling. **Asset prices – particularly equities – rising more slowly than prices of goods and services, *or falling.***
- **Recuperation.** Beneath-trend growth and **falling inflation of goods and services**. Balance sheets being straightened out, as agents try to recover 'monetary equilibrium'.

The business cycle and asset inflation

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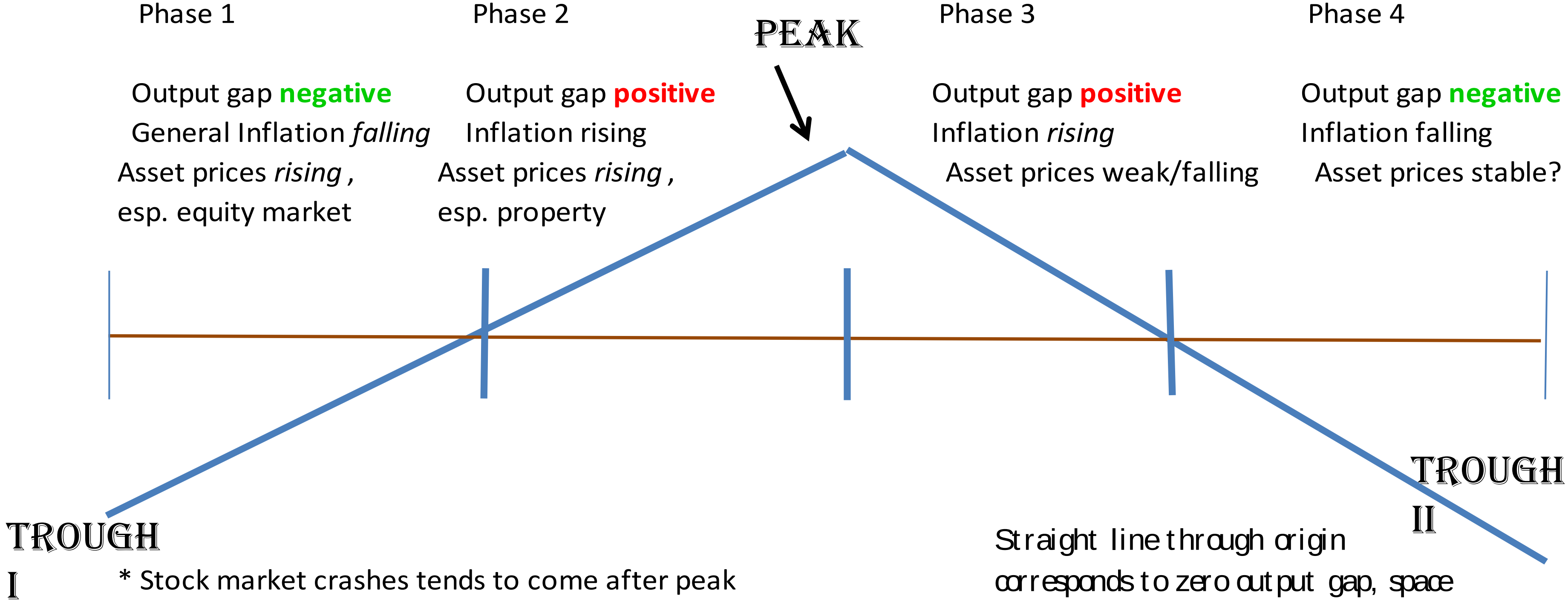
Recovery	Expansion	Downturn *	Recuperation
Phase 1	Phase 2	Phase 3	Phase 4
Output gap **negative**	Output gap **positive**	Output gap **positive**	Output gap **negative**
General Inflation *falling*	Inflation rising	Inflation *rising*	Inflation falling
Asset prices *rising* , esp. equity market	Asset prices *rising* , esp. property	Asset prices weak/falling	Asset prices stable?



* Stock market crashes tends to come after peak in output growth, when interest rates are rising to counter undue inflation

Straight line through origin corresponds to zero output gap, space beneath is of negative output gap, etc.

Important caveats

- Monetary information isn't everything – and cross-checks are needed to reliable advance pointers to demand from leading indicator indices.
- This approach assumes that there are no big changes in the supply side of the economy (no supply shocks)

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Prospects for 2020/2021

January 2020 data, IIMR

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Name of country/ jurisdiction	Share of world output		Growth rate of broad money		Comment
	In purchasing-power parity terms, %	In current prices and exchange rates, %	In last three months at annualised rate, %	In last twelve months, %	
USA	15.1	23.3	**10.5**	**8.4**	Strong money growth, partly due to monetary financing of large budget deficit.
China	18.7	16.1	**9.3**	**8.7**	Money growth steady & inflation under control, PBOC concerned to maintain steady growth.
Eurozone	10.6	16.4	**4.3**	**5.6**	Money growth high-ish, partly because of external inflows.
Japan	4.2	5.9	**2.3**	**2.3**	Credit and money growth down from the 3% figure seen for much of last decade, and very low.
India	7.7	3.3	**11.8**	**10.6**	Credit and money growth steady at high rates, amid social tension
UK	2.2	3.4	**4.5**	**4.0**	Money growth may be recovering to moderate rate.

Recent trends in US money growth

% M3 growth rates, with M3 estimated by Shadow Government Statistics