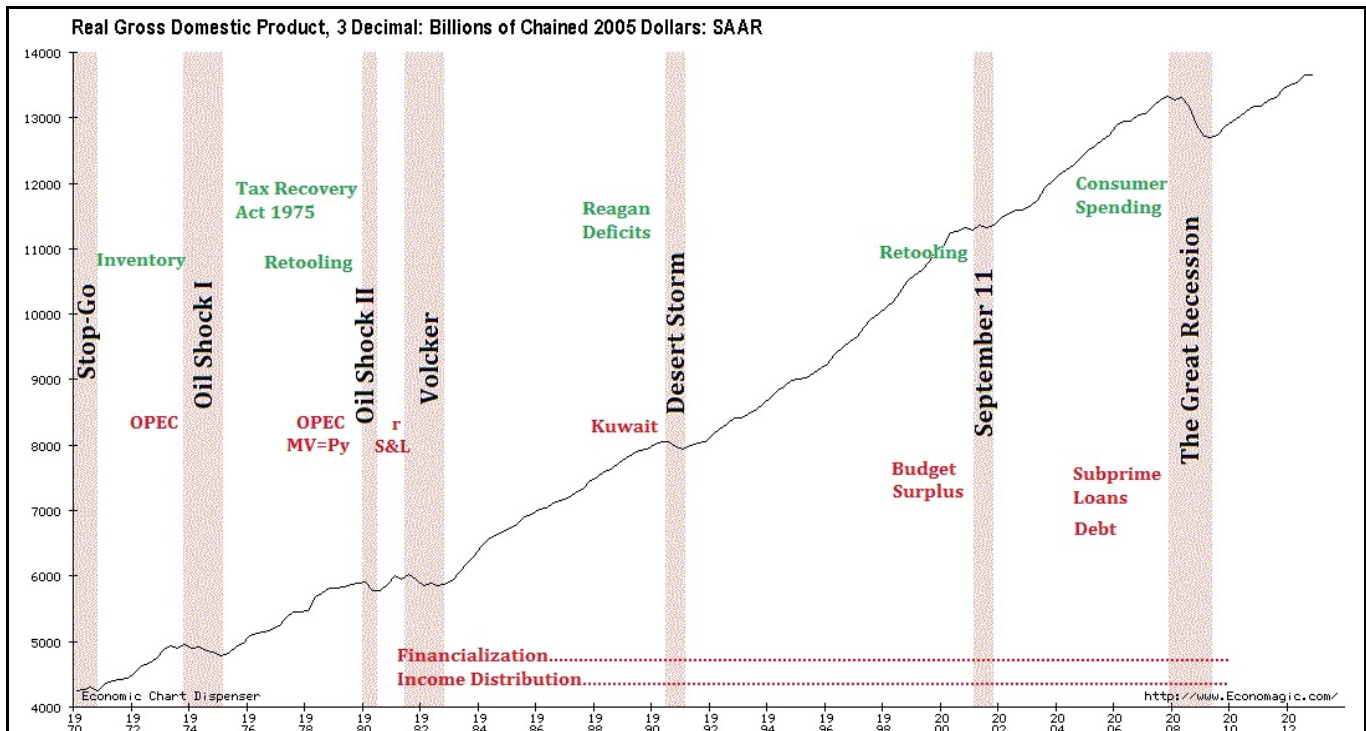


Perspectives in Macroeconomics

Recessions Since 1970 (Revised November 6, 2013; July 14, 2015)

The seven recessions since 1970 are outlined below. I have given each a descriptive name to make it easier to remember, but note that I selected those names more on the basis of what would be easy for you to remember than what caused the recession. For example, though it is indeed true that Paul Volcker caused the Aug 1981 to Nov 1982 downturn,¹ the Apr 2001 to Nov 2001 one was obviously almost over by September 11. The official dates for each were set by the *National Bureau of Economic Research* (www.nber.org). For the exams you need only know the abbreviated ones. References to non-monetary numbers below are based on deflated data.



¹ Please try not to get a recession named after you once you leave TCU—it could be really bad for recruiting.

The Stop-Go Recession

Official Dates: Jan 1970 to Nov 1970.....11 months

Abbreviated Dates: 1970

Lead up to Recession: Expansion before this was longer than three previous combined. Spending for Vietnam War and LBJs Great Society program were significant factors. Twice, we almost went into recession but did not. Late in the expansion, the government raised interest rates (up about 2.5 percentage points from first quarter 1969) in attempting to lower economic activity. Fed started easing rather quickly into 1970, however. A major General Motors strike at the end of the year delayed recovery.

Orthodox View: Year to year consumer price inflation had accelerated from 1.6% in 1965 to 5.5% in 1969. Unemployment, meanwhile, sat at a 15-year low (3.5%). The tight labor market had obviously pushed us to a high point on the Phillips Curve and it was therefore necessary to restrain economic activity in order to move back down. Fed Funds rate doubled in nominal terms in 24 months.

Post Keynesian View: Real wages were rising no faster in the second half of the 1960's than they had in the first half, though inflation had more than tripled. Energy prices had increased 360%, however. This is cost push and therefore has nothing to do with the Phillips Curve. If the government truly contributed to the recession, it led to a pointless reduction in output and employment (unemployment rose from 3.5% to 5.9%, representing over two million people). More likely, however, this was simply a Keynes-style downturn in which investment declined. Note that the data do not clearly support this if one compares the last year of the upturn to previous years, but if you take into account the two shadow recessions (that were prevented by ↑G) then it does.



Source:

http://customerexperienceleaders.typepad.com/customer_experience_leade/customer_experience_management/

The Oil Shock Recession

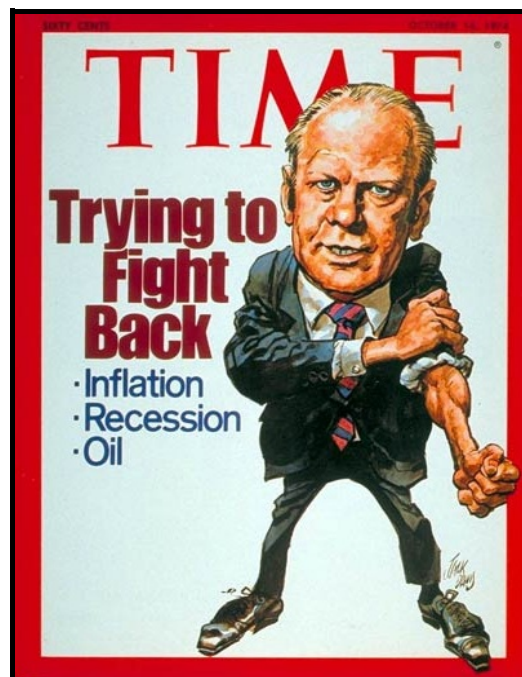
Official Dates: Dec 1973 to Mar 1975.....16 months

Abbreviated Dates: 1974-1975

Lead up to Recession: Expansion started off with a massive jump in investment, no doubt from rebuilding inventories after the strike. Investment and profits had fallen, but optimism was high—it was not clear that there was going to be a recession. But, OPEC oil embargo in October changed all that. It became the longest post-war recession to date.

Orthodox View: Inflation had risen 3.2% in 1972 to 6.2% in 1973. This indicated that expectations had shifted and it was necessary to restrain economic activity until they adjusted (the federal funds rate jumped from 3.54% in 1972:I to 10.56% in 1973:III).

Post Keynesian View: While it is true that real wages were rising almost 70% faster in the early 1970's than they had in the 1960's, inflation had actually decelerated from 1969 through 1972. There was a jump in late 1973, but this coincides with the first Arab Oil Embargo. Again, there seems to be little logic in inducing recession. What really happened was a big drop in investment combined with a significant decline in confidence due to oil shock (confidence had actually been pretty high before that).



Time Magazine cover Oct. 14, 1974.

Oil Shock II Recession

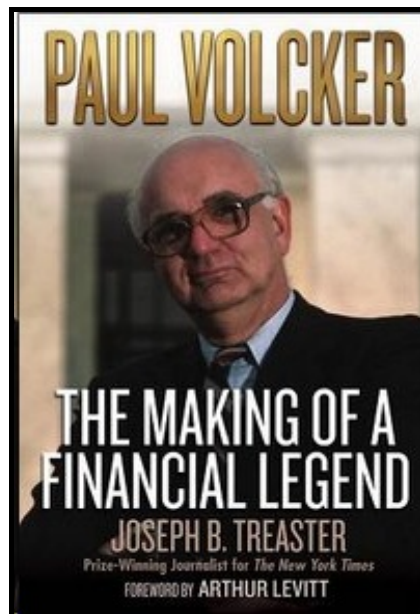
Official Dates: Feb 1980 to Jul 1980.....6 months

Abbreviated Dates: 1980

Lead up to Recession: Economy still sluggish as it emerged from Oil Shock recession, but Tax Recovery Act of 1975 helped. Combined with automatic stabilizers, new antirecession programs, and the need to retool to meet new government regulations, GDP growth stayed strong until 1980.

Orthodox View: The Federal Reserve had adopted a full-fledged monetarist approach (along with an explicit acceptance of Say's Law), and had therefore shifted to targeting monetary aggregates rather than interest rates (starting in October 1979). Since the cause of the inflation was excessive inflationary expectations it was necessary to hold economic growth down until they adjusted.

Post Keynesian View: Energy prices had risen by just over 10% *per year* over the 1970's (almost 15%/annum since 1973). Meanwhile, there had actually been slight decline in real wages since the Oil Crisis. The inflation was clearly cost push and the government had again needlessly increased unemployment (which rose from 5.8% in 1979 to 7.1% in 1980, or 1.5 million people). What really happened was a decline in C/GDP and a fall in investment, the latter surely aggravated by the historically high interest rates.



The Volcker Recession

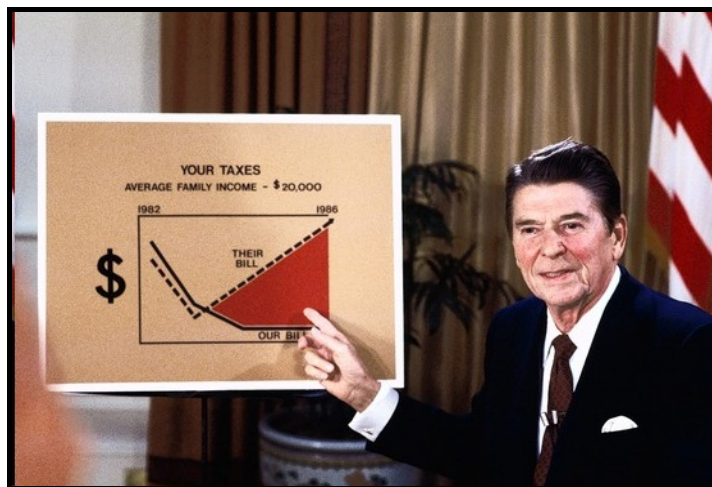
Official Dates: Aug 1981 to Nov 1982.....16 months

Abbreviated Dates: 1981-1982

Lead up to Recession: Despite incredibly high interest rates, investment did rise again. However, expansion was only three quarters long! Part of that was due to a car rebate program. But it eventually expired, plus there was the savings and loan crisis. Continued tight monetary policy led interest rates to reach historical highs, causing large declines in investment and consumer durables purchases.

Orthodox View: A continuation of the philosophy leading to the 1980 recession. Clearly, the plan worked as inflation dropped from 11.3% and 13.5% in 1979 and 1980 to 10.3%, 6.2%, and 3.2% over the next three years. A great victory for monetarism and the Federal Reserve.

Post Keynesian View: Since 1973:II, real wages had been falling at an average of about 0.62% per year (through 1981:II). Meanwhile, over the same period energy prices had been rising at an annual rate of over 20%. Which one caused the consumer price inflation that averaged over 9%? But, if the Fed's policy was based on faulty logic, why did inflation suddenly come under control? Because OPEC agreement over quotas collapsed. Look at energy price inflation from 1980 to 1986, the very period over which inflationary expectations were supposedly adjusting and monetarism's great victory was won: 30.9%, 13.6%, 1.5%, 0.7%, 1.0%, 0.7%, and -13.2%. The inflation was cost push, and the Volcker recession (which raised unemployment to the highest level since the Great Depression) accomplished nothing positive. Worse yet, it encouraged policymakers and neoclassical economists that if we again experience high inflation, the cure is a deep recession. Meanwhile, the recession was basically an extension of the previous one, extended by the terribly high interest rates.



Desert Storm Recession

Official Dates: Aug 1990 to Mar 1991.....8 months

Abbreviated Dates: 1990-1991

Lead up to Recession: Inflation finally fell and firms were ready to invest after the long recession. First two years of expansion very strong, but then a sudden and dramatic drop in investment. However, Reagan administration was creating very large deficits, so this offset it. Investment recovered, but not at rates seen earlier in expansion, and economy grew but was sluggish. Invasion of Kuwait by Iraq in 1990 added uncertainty and final nail in coffin of expansion.

Orthodox View: Due to monetary tightening in response to accelerating inflation.

Post Keynesian View: Due to saturation of demand for investment goods and consumer durables.



Time Magazine cover Jan. 13, 1992. Technically, the recession was over, but unemployment continued to rise until June of that year.

September 11 Recession

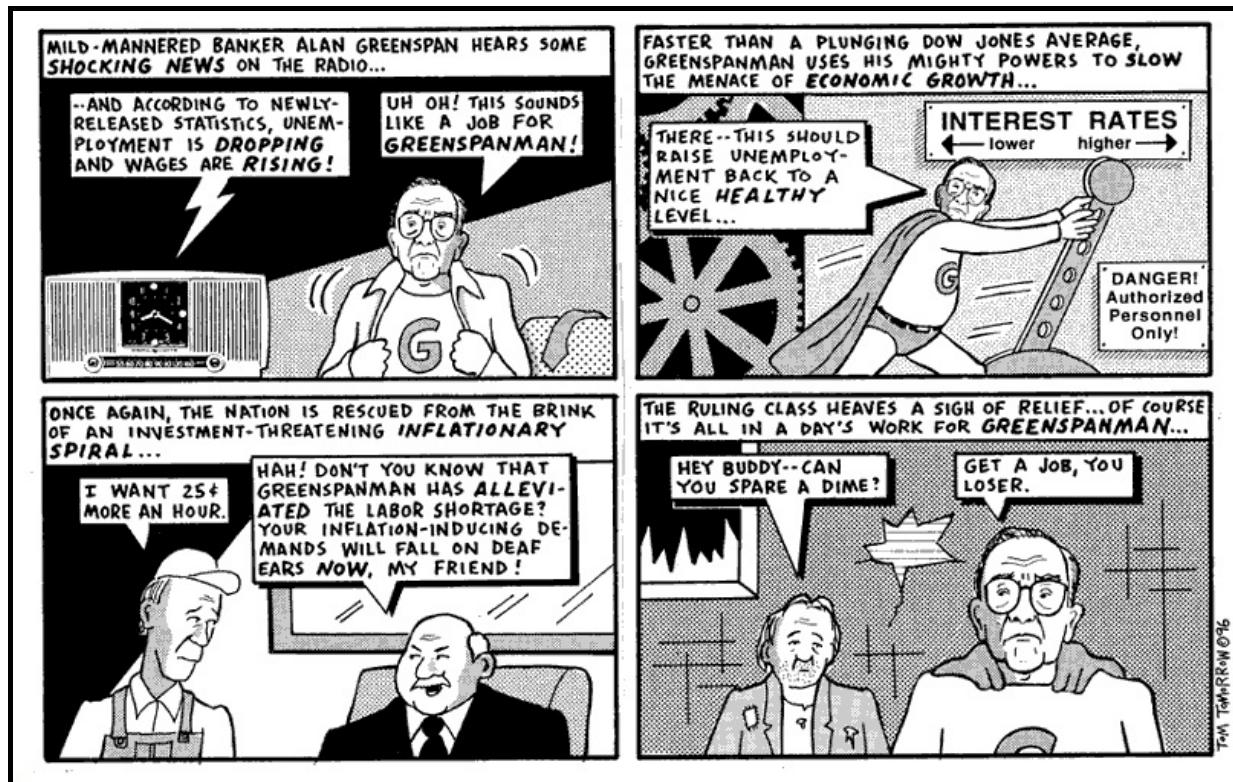
Official Dates: Mar 2001 to Nov 2001.....8 months

Abbreviated Dates: 2001

Lead up to Recession: Steady, if not strong, surge of investment (driven to a great extent by businesses purchasing computer technology) led to longest peacetime expansion in history (ten years). Finally came to a close in 2000 (rate of change of consumer durable spending also turned negative). Fiscal policy, already contractionary, had turned increasingly so. Terrorist attack didn't cause the recession, but it didn't help.

Orthodox View: Due to monetary tightening in response to accelerating inflation.

Post Keynesian View: Inflation was almost non-existent. The recession was really driven by the saturation of demand for investment goods and consumer durables. The growth of investment (and, therefore, the stock of capital) over the previous expansion was massive.



Source: <http://www.thismodernworld.org/arc/rar/TheNation/800Wide/Greenspanman.gif>

The Great Recession

Official Dates: December 2007 to June 2009

Abbreviated Dates: 2008-2009

Lead up to Recession: Expansion was the weakest of any since 1950. Recession could have started sooner, but consumer spending kept the economy going (which raised private sector debt levels). Defaults in the subprime mortgage market then added to woes and these led to a credit crunch and a collapse of real economic activity.

Orthodox View: Excesses in spending in gov't budget, current account, and consumption finally led to downturn. We spent beyond our means.

Post Keynesian View: Investment never really recovered and so expansion was fueled by consumer spending financed by increasing levels of debt and overvalued equities. Once the defaults started, the interlocking debt structure collapsed and finance was no longer forthcoming for working capital or investment. All this was exacerbated by three long-term issues: the financialization of the US economy, increasingly uneven income distributions, and increasing debt-income ratios.



Summary Versions for Exam

The Stop-Go Recession

Abbreviated Dates: 1970

Lead up to Recession: Long expansion driven by Vietnam War and LBJs Great Society program.

Orthodox View: The tight labor market pushed us to a high point on the Phillips Curve and it was therefore necessary to restrain economic activity in order to move back down.

Post Keynesian View: A decline in investment almost caused a recession twice already—it finally did.

The Oil Shock Recession

Abbreviated Dates: 1974-1975

Lead up to Recession: Solid expansion and not clear there was going to be a recession up to the OPEC oil embargo.

Orthodox View: Monetary-policy induced recession necessary to adjust upwardly rising inflationary expectations.

Post Keynesian View: Big drop in investment combined with a significant decline in confidence due to oil shock caused recession.

Oil Shock II Recession

Abbreviated Dates: 1980

Lead up to Recession: Sluggish recovery but expansionary government programs helped.

Orthodox View: Monetary-policy induced recession necessary to adjust upwardly rising inflationary expectations.

Post Keynesian View: Decline in C/GDP and a fall in investment aggravated by historically high interest rates.

The Volcker Recession

Abbreviated Dates: 1981-1982

Lead up to Recession: Expansion lasted only a year.

Orthodox View: Monetary-policy induced recession necessary to adjust upwardly rising inflationary expectations; it worked and was a great victory for monetarism and the Federal Reserve.

Post Keynesian View: The recession was basically an extension of the previous one, extended by the terribly high interest rates.

Desert Storm Recession

Abbreviated Dates: 1990-1991

Lead up to Recession: Expansion pretty strong at first and even when it faltered, the massive Reagan administration deficits kept it going.

Orthodox View: Monetary-policy induced recession necessary to adjust upwardly rising inflationary expectations.

Post Keynesian View: Due to saturation of demand for investment goods and consumer durables.

September 11 Recession

Abbreviated Dates: 2001

Background: Ten-year expansion driven by steady investment, helped by computer technology surge.

Orthodox View: Monetary-policy induced recession necessary to adjust upwardly rising inflationary expectations.

Post Keynesian View: Due to saturation of demand for investment goods and consumer durables.

The Great Recession

Abbreviated Dates: 2008-2009

Lead up to Recession: Expansion was the weakest of any since 1950; recession could have started sooner, but consumer spending kept the economy going.

Orthodox View: Excesses in spending in gov't budget, current account, and consumption finally led to downturn.

Post Keynesian View: Investment never really recovered and finally collapsed, exacerbated by long-term factors.

Post Keynesian View of the Business Cycle: saturation of investment demand and disappointment. Look for investment and profits to decelerate at the end of expansions and for the change in profits to be unexpected.

Cycle	Avg real GDP growth	Avg Unemp	Avg % change in investment (apr), first part of expansion vs last year †	Avg % change in corporate profits (apr), first part of expansion vs last year †	Expectations Early/Mid/Late 0 = neutral <0 = pessimistic >0 = optimistic ‡
expansion: 71-73	5.66	5.53	17.3% to 8.8% ☺	22.2% to 0.7% ☺	-0.17/1.32/2.69 ☺
Oil Shock: 74-75	-2.31	5.93	-13.3%	-7.5%	-0.85
expansion: 76-79	3.34	6.96	21.3% to -4.0% ☺	26.5% to -11.1% ☺	-1.05/1.02/0.23 ☺
Oil Shock II: 80	-6.13	7.10	-20.1%	-21.9%	-2.34
expansion: 80*	3.65	7.41	47.3% to -17.7% (3 qtr) ☺	17.9 to 4.9% (3 qtr)☺	-0.87/-1.34/-0.52 (3 qtr)
Volcker: 81-82	-0.98	9.08	-9.9%	-0.1%	-2.55
expansion: 83-89	3.77	6.78	34.6% to -1.1% ☺	24.8% to 5.3% ☺	0.59/0.39/-0.76
Desert Storm: 90-91	-3.44	6.14	-15.8%	5.3%	-1.90
expansion: 92-00	2.78	5.57	3.99% to 4.8%	3.7% to -9.2% ☺	-1.30/0.07/0.13 ☺
September 11: 01	0.87	4.74	-12.5%	8.6%	-1.72
expansion: 02-07	2.62	5.29	4.9% to -2.0% ☺	14.3% to -6.8% ☺	-0.78/0.15/-0.56
Great Recessn: 08-09	-2.88	6.50	-19.5%	0.6%	-1.88

† data from Harvey, John T. "Using the General Theory to Explain the US Business Cycle: 1950 to 2009," **Journal of Post Keynesian Economics**, 2014, vol. 36, no. 3, pp. 391-414.; ‡ data derived from Harvey, John T. "Teaching Keynes' Business Cycle: An Extension of Paul Davidson's Capital Market Model," **Journal of Post Keynesian Economics**, 2014, vol. 36, no. 4, pp.589-606; * Insufficient observations for test.

Investment works 5/6, profits work 6/6, expectations work 3/6.

Monetarist View of the Business Cycle: unexpected inflation (caused by money growth) leads to fall in unemployment. Look for unemployment to rise when money growth, inflation, or unexpected inflation decelerates.

Cycle	Avg real GDP growth rate	Avg Unemp	Avg deflated M2 growth	Avg nominal M2 growth	Avg Consumer Price Inflation	Unexpected Inflation†
expansion: 71-73	5.66	5.53	6.94	11.54	4.61	NA
Oil Shock: 74-75	-2.31	5.93	-5.22 ☺	6.04 ☺	11.26	NA
expansion: 76-79	3.34	6.96	2.36	10.48	8.12 ☺	2.11
Oil Shock II: 80	-6.13	7.10	-4.24 ☺	8.64 ☺	12.89	2.90
expansion: 80	3.65	7.41	-1.59	9.02	10.61 ☺	3.92
Volcker: 81-82	-0.98	9.08	2.70	8.72 ☺	6.02 ☺	2.48 ☺
expansion: 83-89	3.77	6.78	3.61 ☺	7.40	3.79	0.95
Desert Storm: 90-91	-3.44	6.14	-1.58	4.11	5.69 ☺	1.12 ☺
expansion: 92-00	2.78	5.57	1.42 ☺	4.09	2.67	0.73
September 11: 01	0.87	4.74	8.08 ☺	9.97 ☺	1.89	0.90 ☺
expansion: 02-07	2.62	5.29	2.84 ☺	5.64 ☺	2.80	0.66 ☺
Great Recessn: 08-09	-2.88	6.50	6.39	8.04	1.66 ☺	1.05

† Actual inflation minus U of Mich survey (both are four quarter moving averages, with the latter starting one quarter earlier because it asked “What will inflation be for next four months?”). Should really be testing this: when unexpected inflation >0, unemp falls; when unexpected inflation <0, unemp rises. But, that requires the data to be very accurate.

Deflated M2 works 6/11 times; M2 works 5/11 times, Inflation works 5/11 times, Unexpected Inflation works 4/9 times.

Neoclassical Keynesian View of the Business Cycle: monetary and fiscal policy causes fluctuations in output and employment.
 Look for rising fiscal impulse and falling interest rates to cause expansion/accelerating GDP growth.

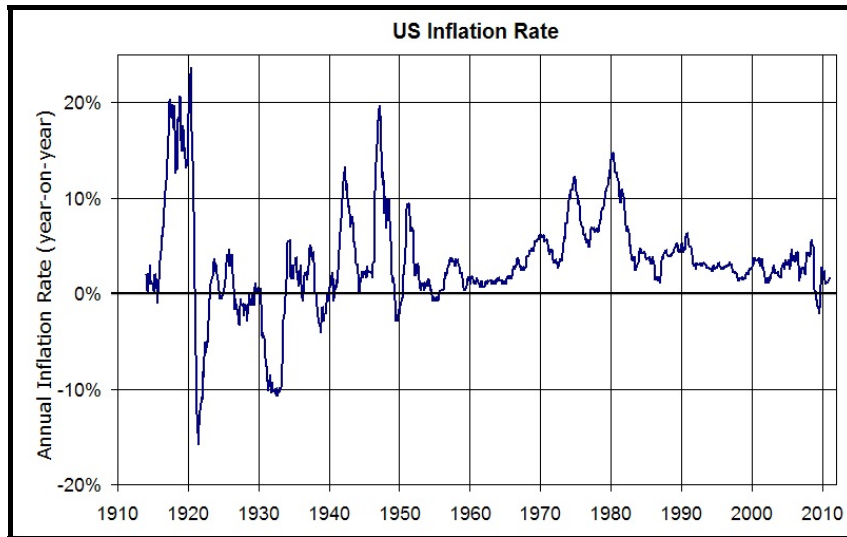
Cycle	Avg real GDP growth rate	Avg Unemp	Cyclically Adjusted Budget Balance, deflated with CPI*	Avg Fed Funds Interest Rate	Avg Deflated (CPI) Fed Funds Interest Rate
expansion: 71-73	5.66	5.53	-53	5.57	0.96
Oil Shock: 74-75	-2.31	5.93	-43 ☺	9.72 ☺	-1.54
expansion: 76-79	3.34	6.96	-77 ☺	7.15 ☺	-0.97
Oil Shock II: 80	-6.13	7.10	-73 ☺	12.52 ☺	-0.36
expansion: 80	3.65	7.41	-67	16.73	6.12
Volcker: 81-82	-0.98	9.08	-68	13.37	7.34 ☺
expansion: 83-89	3.77	6.78	-152 ☺	8.24 ☺	4.45 ☺
Desert Storm: 90-91	-3.44	6.14	-173	7.44	1.75
expansion: 92-00	2.78	5.57	-60	4.92 ☺	2.25
September 11: 01	0.87	4.74	47 ☺	3.89	2.00
expansion: 02-07	2.62	5.29	-126 ☺	2.82 ☺	0.02 ☺
Great Recessn: 08-09	-2.88	6.50	-129	1.80	-0.14

* Congressional Budget Office (data were annual so put same value down for each quarter of given years), billions of 1982-4 dollars.
 Negative means budget deficit; rising deficit should stimulate the economy.
 Fiscal works 6/11; nominal interest works 6 /11; real interest works 3/11.

Perspectives in Macroeconomics

Inflationary Experience Since 1960

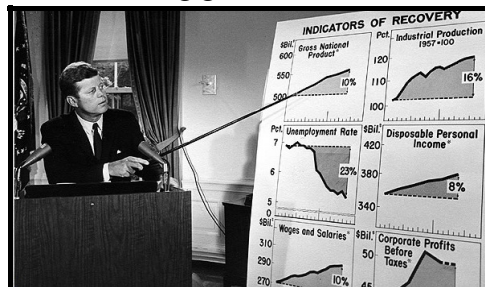
The eight inflationary experiences since 1960 are outlined below. I have given each a descriptive name to make it easier to remember, but, as with the recessions, I selected them more on the basis of what would be easy for you to remember than what caused them. There are no official inflationary periods so I used my judgement to break them down. For the exams you need only know the abbreviated ones. References to non-monetary numbers below are based on deflated data. Note that these explanations are not as detailed as those above because the discussions of recessions included a great deal about inflation. This was necessary because mainstream economic policy choices focus their theory of an inflation-unemployment tradeoff.



Source:
http://upload.wikimedia.org/wikipedia/commons/8/83/US_Inflation.png

Camelot: 1960-5

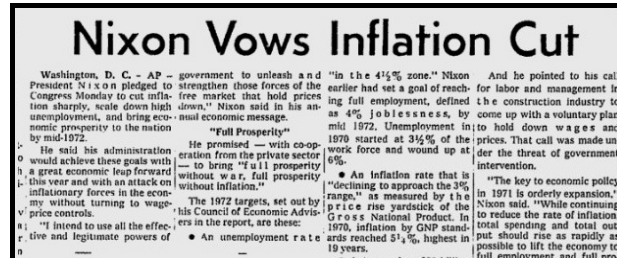
Overview: Moderate inflation and strong growth—nirvana!



Source:
<http://plbirnamwood.blogspot.com/2013/08/john-f-kennedy-addresses-current.html>

Wage-Price Spiral: 1966-72

Overview: Continued strong growth, but, at least by the standards of the day, accelerating inflation—oligopolies and unions?



Even before the OPEC Oil Embargo, US policy makers were worried about inflation (source: <http://capitalistpig.com/wp-content/uploads/2013/02/Nixon-Inflation-1.jpg>).

Oil Crises: 1973-81

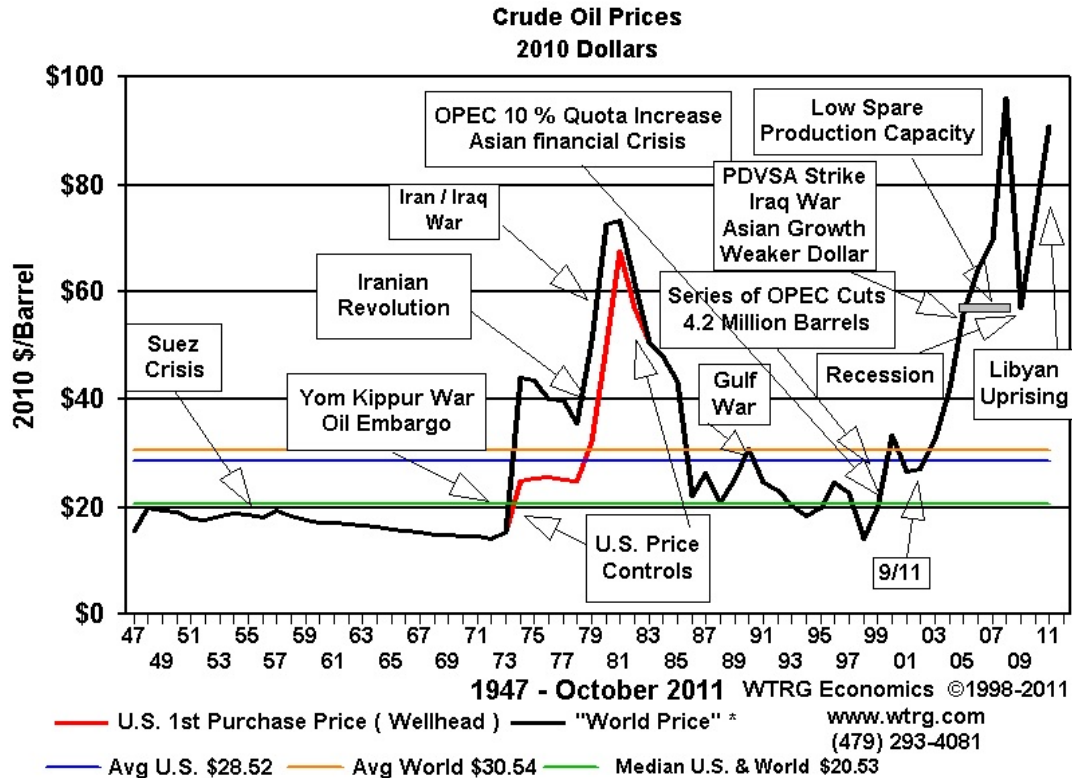
Overview: Egypt and Syria invade Israel in October of 1973 and appear to be winning. After they ultimately lose, OPEC punishes the west with an embargo.



Source: <http://we-make-money-not-art.com/archives/2009/08/sorry-out-of-gas-architectures.php>

Oil Glut: 1982-8

Overview: Industrial countries have time to shift away from oil, non-OPEC countries increase output, and OPEC countries cheat.



Source: <http://www.wtrg.com/prices.htm>

Desert Storm: 1989-91

Overview: Saddam Hussein says Kuwait is selling too much oil and they should cut back—or else. Or else happens and UN intervenes.



Source:
<http://www.theguardian.com/business/gallery/2009/jan/22/recession-margarethatcher>

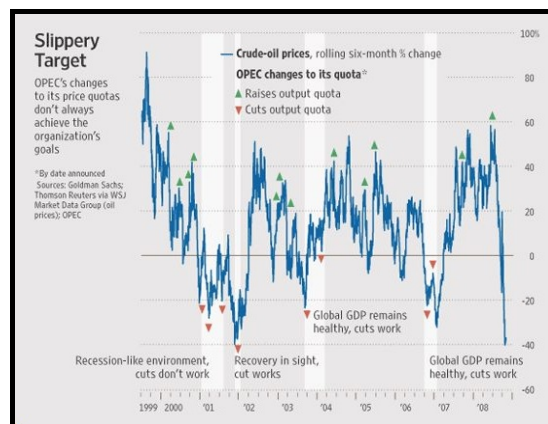
Peacetime Expansion: 1992-8

Overview: Longest peacetime expansion in US history, but no inflation?



OPEC Production Cuts: 1999-2002

Overview: OPEC misses the old days and introduces a series of production cuts.

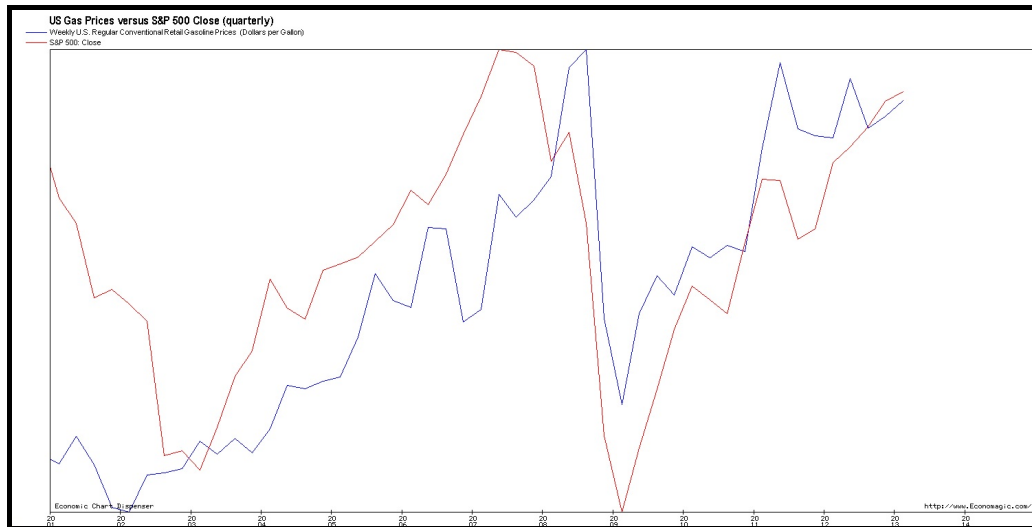


Source:

<http://seekingalpha.com/article/100909-will-opec-cut-production-to-prevent-producer-deficits>

Speculation: 2003-13

Overview: President Clinton signed into law the Commodity Futures Modernization Act in 2000 which, among other things, allowed speculation oil futures, a market that had been previously dominated by end users. Gas prices thus become linked to financial market activity. Other events, like the invasion of Iraq and Hurricane Katrina, also affected oil supplies, but the graph below shows the link that evolved between gas prices and the stock market.



Source: <http://www.forbes.com/sites/johntharvey/2013/03/09/why-gas-prices-are-rising/>

Post Keynesian View of Inflation: Cost Push. Look for CPI to accelerate when oil prices rise and productivity falls.

Period	Average Annual Percent Change CPI	Average Annual Percent Change Oil	Average Annual Percent Change Productivity	Average Annual Percent Change OPEC Production	Average Annual Percent Change Manufacturing Wages
Camelot: 60-65	1.31	-1.22	3.44	NA	1.68
Wage-Price Spiral: 66-72	4.13	0.03 ☺	2.78 ☺	NA	1.64
Oil Crises: 73-81	9.04	19.94 ☺	1.42 ☺	-1.1	-0.24
Oil Glut: 82-88	3.83	-2.95 ☺	1.81 ☺	-0.58	-0.24
Desert Storm: 89-91	4.82	6.97 ☺	1.58 ☺	4.73	-1.29
Peacetime Expansion: 92-98	2.60	-8.17 ☺	1.92 ☺	3.37	0.14
OPEC Production Cuts: 99-02	2.49	18.82	3.15 ☺	-1.28	0.75
Speculation: 03-08	2.88	19.90 ☺	2.21 ☺	3.26	-0.45

Oil prices work 6/7; productivity works 7/7.

Monetarist View of Inflation: $MV=Py$. Look for CPI to accelerate when money grows faster than real GDP (in fact, excess growth should equal inflation).

Period	Avg Annual Percent Change CPI	Avg Annual Percent Change nominal GDP	Avg Annual Percent Change real GDP	Avg Annual Percent Change M2	Excess Money Growth
Camelot: 60-65	1.31	6.03	4.75	7.10	2.35
Wage-Price Spiral: 66-72	4.13	8.09	3.96	8.04	4.08 ☺
Oil Crises: 73-81	9.04	10.86	1.82	9.26	7.44 ☺
Oil Glut: 82-88	3.83	7.26	3.43	8.33	4.9 ☺
Desert Storm: 89-91	4.82	5.53	0.71	4.47	3.76
Peacetime Expansion: 92-98	2.60	5.54	2.94	3.34	0.4 ☺
OPEC Production Cuts: 99-02	2.49	4.61	2.12	7.34	5.22
Speculation: 03-08	2.88	5.69	2.81	5.32	2.51

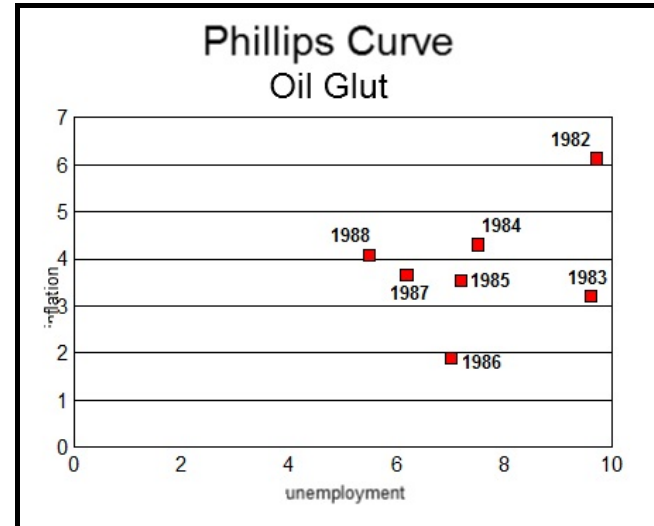
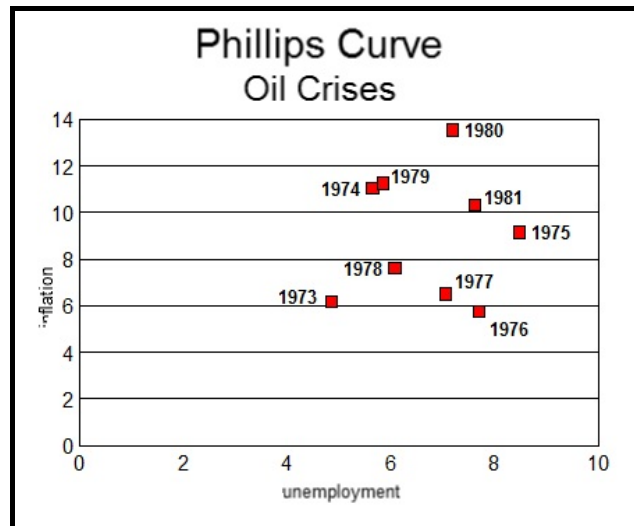
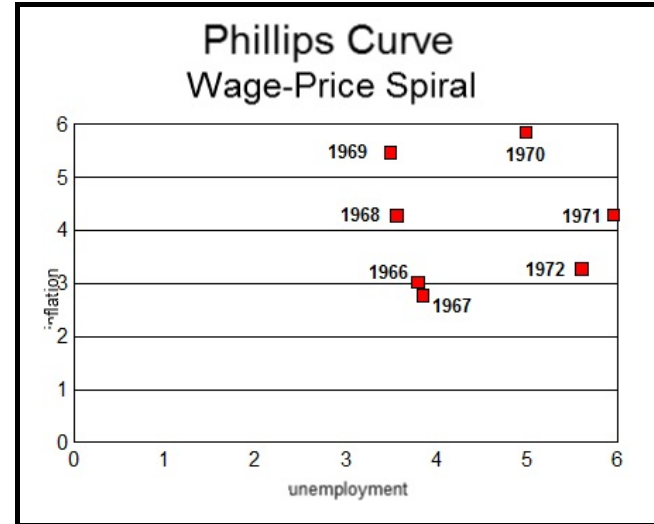
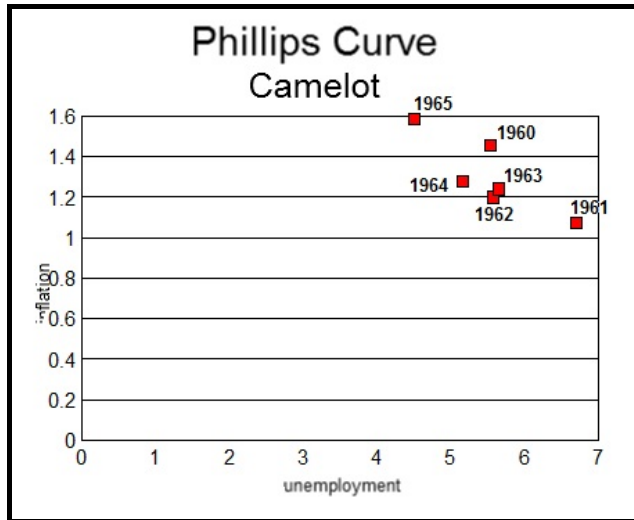
Excess money growth works 4/7.

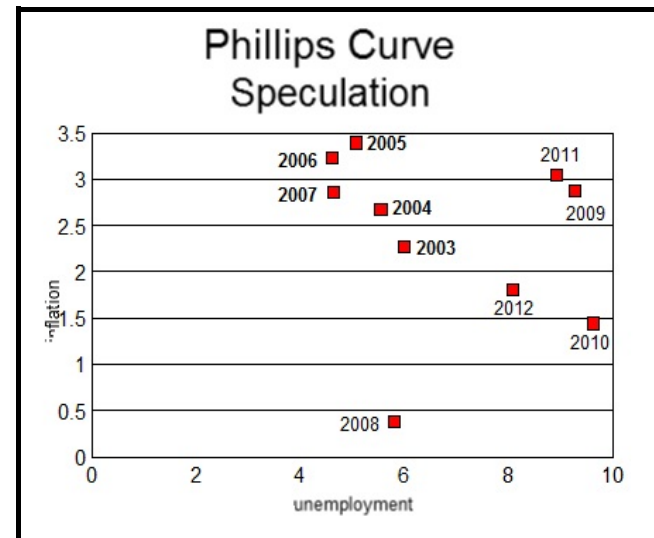
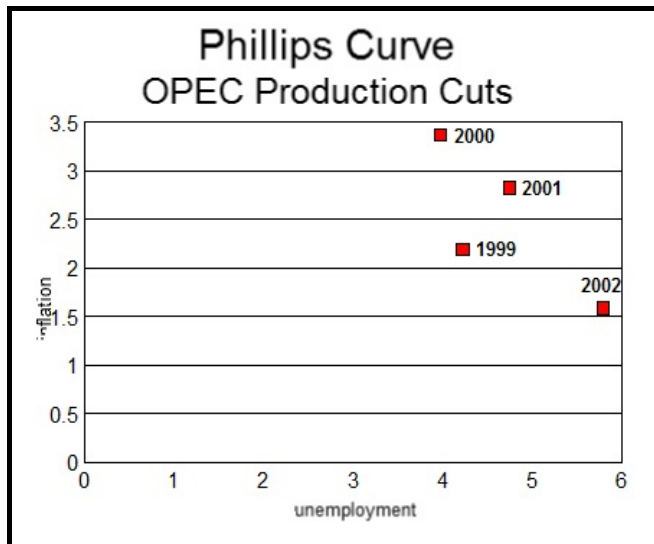
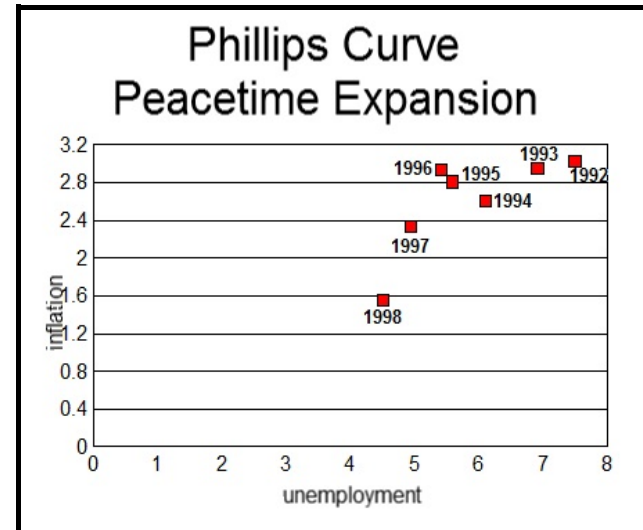
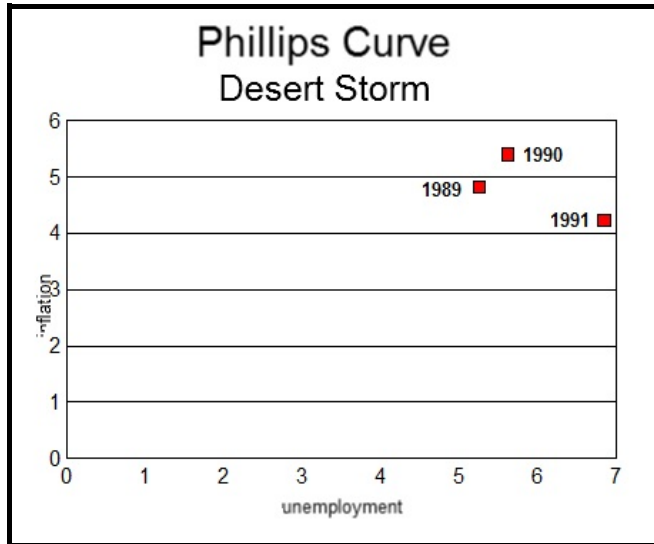
Neoclassical Keynesian View of Inflation: Demand Pull and the Phillip's Curve. Look for inflation to accelerate when GDP accelerates, unemp falls, and cap util rises.

Period	Average Annual Percent Change CPI	Average Annual Percent Real GDP	Average Annual Unemp	Average Annual Percent Capacity Utilization
Camelot: 60-65	1.31	4.94	5.51	82.7
Wage-Price Spiral: 66-72	4.13	3.68	4.46 ☺	84.7 ☺
Oil Crises: 73-81	9.04	2.89	6.71	81.2
Oil Glut: 82-88	3.83	3.55	7.52 ☺	77.9 ☺
Desert Storm: 89-91	4.82	1.75	5.91 ☺	81.0 ☺
Peacetime Expansion: 92-98	2.60	3.56	5.85	81.8
OPEC Production Cuts: 99-02	2.49	2.62 ☺	4.68	76.9 ☺
Speculation: 03-08	2.88	2.78 ☺	5.17	77.5 ☺

GDP works 2/7; unemp works 3/7; cap util works 5/7.

Phillip's Curves (be sure to take note of the fact that the axes are not all the same scale!)





What you need to know for the exam:

Business Cycle Dates

The Stop-Go Recession: 1970
The Oil Shock Recession: 1974-1975
Oil Shock II Recession: 1980
The Volcker Recession: 1981-1982
Desert Storm Recession: 1990-1991
September 11 Recession: 2001
The Great Recession: 2008

Inflationary Episodes

Camelot: 1960-5
Wage-Price Spiral: 1966-72
Oil Crises: 1973-81
Oil Glut: 1982-8
Desert Storm: 1989-91
Peacetime Expansion: 1992-8
OPEC Production Cuts: 1999-2002
Speculation: 2003-13

Business Cycle Evidence:

Post Keynesian: Look for investment and profits to decelerate at the end of expansions and for the change in profits to be unexpected.

Monetarist: Look for unemployment to rise when money growth, inflation, or unexpected inflation decelerates.

Neoclassical Keynesian: Look for increasing budget deficit and falling interest rates to cause expansion/accelerating GDP growth.

Inflation Evidence:

Post Keynesian: Cost Push. Look for CPI to accelerate when oil prices rise and productivity falls.

Monetarist: Look for CPI to accelerate when money grows faster than real GDP (in fact, excess growth should equal inflation).

Neoclassical Keynesian: Look for inflation to accelerate when GDP accelerates, unemp falls, and cap util rises.

Excerpt from above cited article regarding on Post Keynesian expectations calculation:

But, this is a relative scale when an absolute one is needed. In other words, saying that you expect things to get better the day after your dog got hit by a car is not to say that you think things will go well, just not as bad as yesterday. Hence, it was necessary to "deflate" the PMI by comparing it to the period preceding that forecast. As early and late expansion were each defined as four quarters and the average recession over the period studied was 4.7 quarters, the benchmark was one year. In other words, each PMI was considered in light of the state of the economy over the previous year. Real GDP growth rates were used for the latter.

To accomplish this, the averages and standard deviations for quarterly observations of PMI and real GDP growth from 1950:1 through 2009:2 were calculated and each data point was converted to the number of standard deviations above or below the mean. This had the advantage of creating a common scale. The numbers on Table 2 are the sum of each standardized PMI plus the average of the previous four standardized growth rates. In this way, if growth over the previous year had been one standard deviation below its mean while PMI was one standard deviation above, the resulting number was a very neutral zero. Yes, agents expected improvement, but then the economy had been underperforming anyway. However, if both the standardized growth and PMI had been one standard deviation above their means, the investor expectations number was an enthusiastic +2.