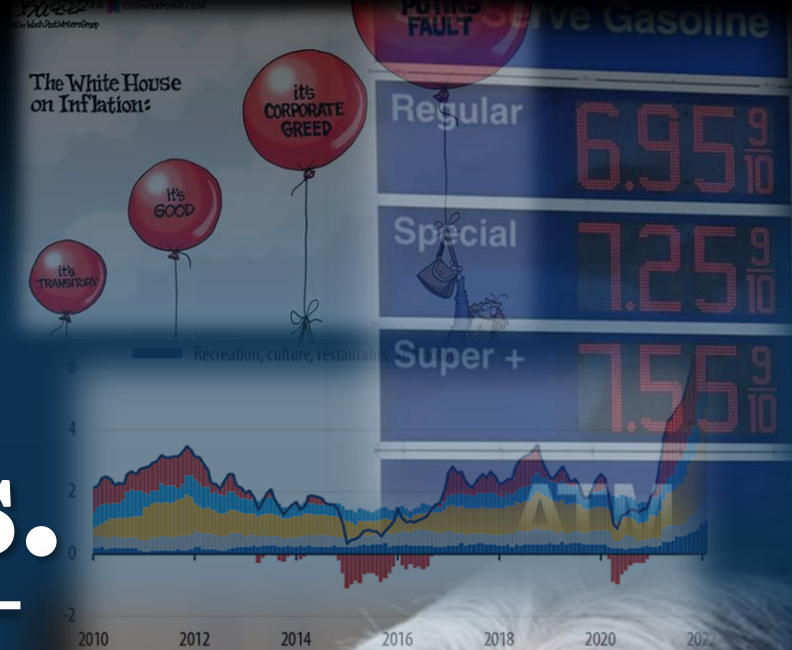


The Great Inflation Misdiagnosis.

History has shown that neither the **FED** nor a recession can stop a commodity-driven inflation cycle. **Capital investment** is the only cure.

Our failure to learn from history is likely to depress capex and extend the inflationary cycle...
...consistent with historical periods of outperformance for commodity-levered investments.



Source: Authors' calculations based on OECD data.

Note: The OECD dataset includes data for the US from 2012 and Canada from 2016.

RECURRENT
INVESTMENT ADVISORS

This material is for informational purposes only and is an overview of the relationship between inflation and several different economic variables. Included is a discussion on the potential impact on the energy and natural resources investment markets, and these discussions are intended for educational and illustrative purposes only.

This material is not designed to cover every aspect of the relevant markets, and is not intended to be used as a general guide to investing or as a source of any specific investment recommendation. It is not intended as an offer or solicitation for the purchase or sale of any financial instrument, investment product or service.

This material does not constitute investment advice, nor is it a substitute for such professional advice or services, nor should it be used as a basis for any decision or action that may affect your business. Before making any decision or taking any action that may affect your business, you should consult a qualified professional adviser. In preparing this material we have relied upon data supplied to us by third parties.

This white paper contains forward-looking statements. All forward-looking statements are Recurrent's expectations of future events as of the stated date and are subject to a number of factors and uncertainties that could cause actual results to differ materially from those described in the forward-looking statements. These statements are not guarantees of future performance and undue reliance should not be placed on them. Recurrent undertakes no obligation to update forward-looking statements if circumstances or Recurrent's estimates or opinions should change, except as required by applicable securities laws.

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The **misdiagnosis** of how to manage today's inflation is sowing the seeds for a **lengthy commodity cycle**

Excluding transitory money supply impacts, inflation is a product of the **commodity investment (capex) cycle**. Without capex, Fed hikes and recessions historically have not stopped inflation.

Misdiagnosed as “transitory” due increased money supply during COVID, inflation today is actually a result of multi-year **underinvestment in commodities**.

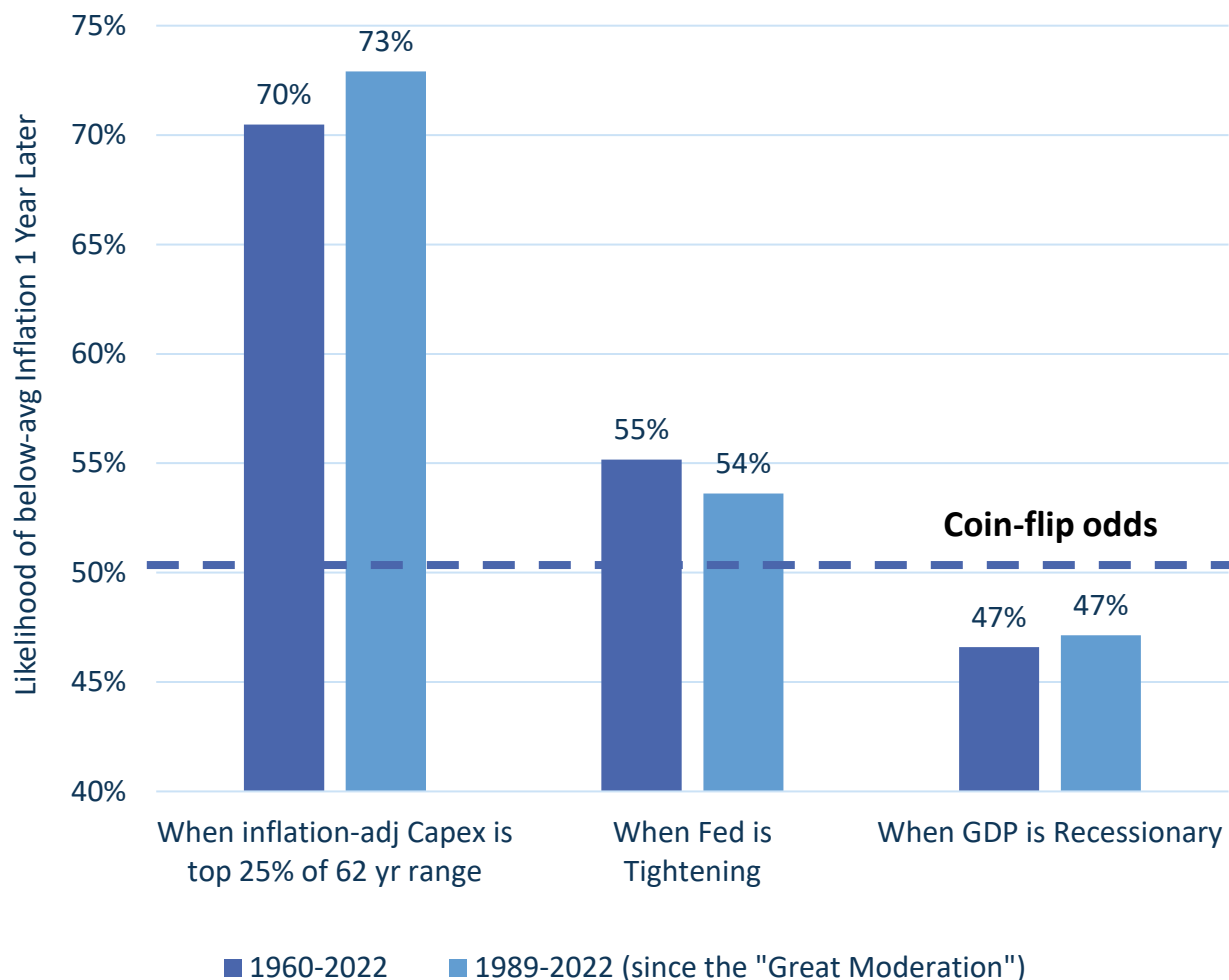
Using a proprietary 60-year economic, operating and financial dataset, we show the only cure for persistent (commodity-driven) inflation is a **surge in capital investment**.

The Fed's current approach – raising rates to slow GDP in an attempt to reduce commodity prices – has failed before in the early 1970s, and may reduce capex, **extending the cycle**.

Inflation has historically reduced broad market returns returns, but has also driven multi-year **outperformance for commodity-levered sectors**. With unprecedented societal, political and financial hostility to capex today, we see potential for a repeat of the huge outperformance of 1971-81.

Capex is **THE** key variable for understanding commodity and inflationary cycles

Fed hikes show limited impact, and recessions may deter capex, extending inflation – capex is the answer



One challenge in understanding **inflation** is that correlation does not imply causation...

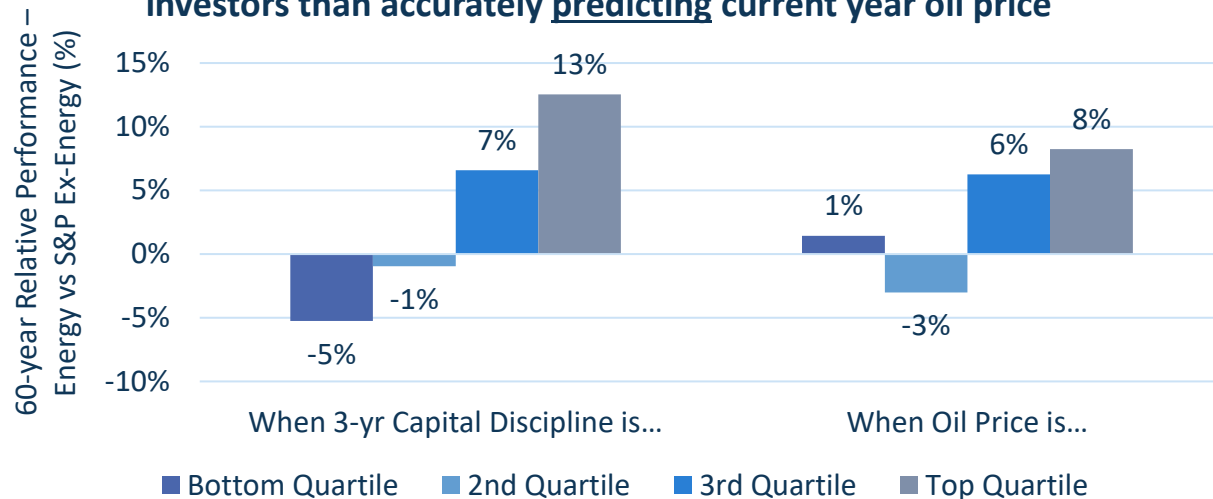
...But we see that higher **capex** levels coincide with lower inflation rates 1 year later.

Even if we cannot prove causation, we see that inflation has persisted in hawkish policy environments and during weak GDP growth, but **inflation almost NEVER exists in times of high drilling/mining capex.**

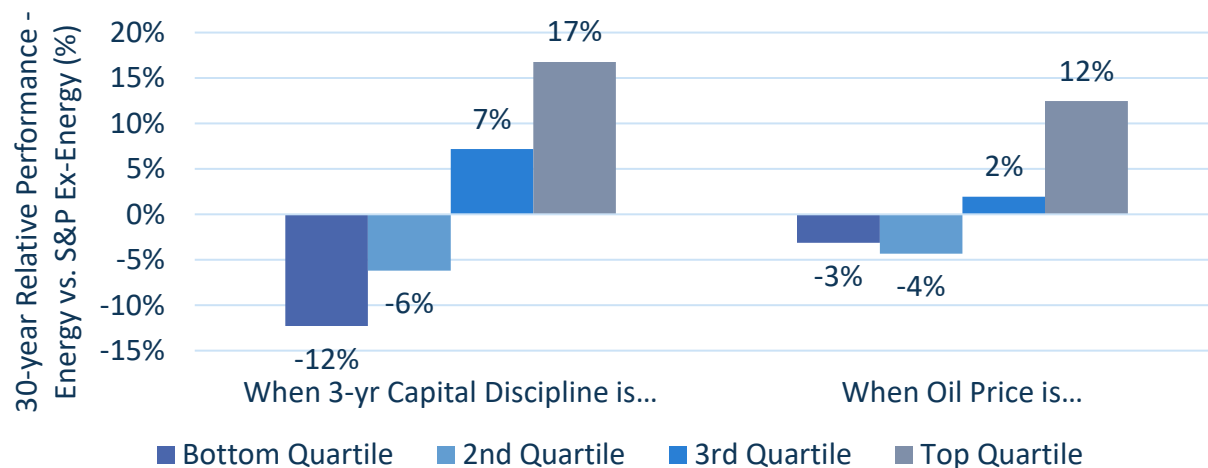
Let's walk through 60 years of inflation/capex history to examine our claim: **that capex is truly the only cure for inflation.**

Why is understanding the **capex** cycle so important for natural resource and energy investors?

Incredibly, knowing past capex been more useful for energy investors than accurately predicting current year oil price



Even excluding the "inflationary experience" of the 1970s and 1980s, capex remains the dominant variable



When **capex** is lower, relative energy performance has historically been stronger...

...with 3-year trailing **capex** showing a stronger relationship and higher correlation to relative performance than actual oil prices!

As shown at lower left, the primacy of capex remains intact post-1986, with even stronger correlation.

This leads us to a powerful and unexpected conclusion: forecasts of GDP, interest rates, and oil prices – even good forecasts – may be less useful for investors than understanding the long-term **capex cycle**.

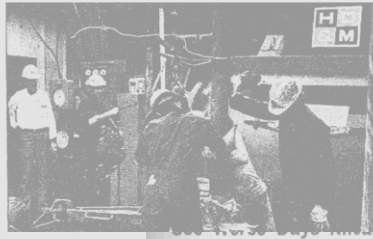
RECURRENT INVESTMENT ADVISORS

Houston Oil: A Skyrocketing Wildcatter Comes of Age Full Head of Steam

By JAMES P. STERBA

HOUSTON—Back before the turn of the decade, when he was a maverick geologist with a bunch of junk oil and a subsidiary company called Houston Oil and Minerals, a lot of people kept their distance from Joe Walter, especially when he was providing for cash to sink into one of those hole-in-the-ground wildcat wells on property that sensible oil companies had worked over and abandoned decades before.

Then one day a few years ago he got rich, famous and terribly respectable. He became Joseph C. Walter Jr., president and chairman of an exploration company so hot and successful that he almost had to disconnect his phone, because of all the security analysts calling up to pick his brain. Houston Oil and Minerals stock soared on the American Stock Exchange from \$2.10 a share in late 1972 to \$66 last year.



With one of two Research-Cottrell cooling towers looming in the background, men work on the control room at the John E. Cottrell generating station near Charleston, W. Va. Hot water is not emitted into the nearby river by the station which is being completed.

U.S. Energy Still Abundant, but Costly

By GENE SMITH

The energy business is changing. New ways are being sought to develop the energy resources of the United States. It is not just the old oil and gas, but also the new coal, nuclear, wind, and solar.

Leonard Silk

A Double Trouble Formed by Oil and Inflation

It is the energy business that is the most important in the world today. It is the energy business that is the most important in the world today. It is the energy business that is the most important in the world today.

Cartier Administration is in the running. The handicaps that every constant faces is that stagnation is more of a political than an economic problem. And, in the real world, economists may propose solutions, but it is politicians

Getting This Oil Takes Drilling and Diplomacy

By RAYMOND BONNER

BAKU, Azerbaijan, Feb. 10 — Several billion barrels of oil under the Caspian Sea is waiting to be tapped off the story of this former Soviet republic. No technical difficulties preclude a daily oil output that could eventually be equal to a tenth of what is produced each day in the United States.

But a Western-led consortium that is spending \$1 billion to develop the huge new oilfields has found itself frustrated by the political realities of a region of Central Asia where Russia, Iran, Turkey and the West have historically competed for influence.

Over vigorous objections from the United States, Iran is on the verge of

HOPEFUL OF A SOLUTION

The bill, improved with inflation, stress on government

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a well called Bolivar No. 1 in September 1972. At a depth of about 12,000 feet, they hit the trio sands. But the layers were only 15 feet thick. It was no bonanza, but it still was a pretty good well. They tried to sell it for \$5 cents per thousand cubic feet for a \$5 million prepayment (which they needed to drill another well). No takers.

"So we had to go back to our board of directors and talk them into letting us drill another well without a contract for the gas in the first one," Mr. Walter explained. "I thought the first well was the riskiest. But in the directors' minds, the second well was madness."

Ah, sweet madness. During the next four months, the Texas intrastate gas market turned upside down. Unlike interstate gas sales, regulated by the Federal Power Commission, gas sold within Texas enjoyed a free market. Shortages developed and prices rose.

Casting A Chill

WASHINGTON—The House of Representatives voted against oil shortages last week and Arab states voted for them. Inasmuch as the Arabs, not Congress, control most of Middle East oil production, there was no doubt

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Full Head of Steam

Continued from page 1

expansion during the from turning boom (which increase the oil slowdown 1974 or 1975) as to expected second round

industry's ignorance is at its highest. So for a smaller company like us, the best time to move."

Houston Oil eschewed the big tracts they knew the major companies wanted, most and sank \$5.2 million into one of the remaining prospects.

August 1976. Then the company moved quickly to tie up a drilling rig, planning on being the first to drill in the offshore Atlantic after the environmental and Federal roadblocks faded away. They didn't. Not counting leasing fees, the company says it has lost about \$1.5 million because of the delays.

"We just can't put money we're borrowing short term into things like that when our first chance of getting any money back is five to seven years," said Mr. Walter. The company, he said, would not bid for drilling rights in the Georges Bank off Newfoundland.

With a \$10.5 million foreign oil and gas exploratory budget this year, the

Consumer Prices—Another Big Leap

All items, 1967=100

Consumer Prices—Another Big Leap

quarter and about double the "normal" growth rate in prosperous times. The Government's aim is to slow this boom to about a 4 per cent growth rate by the end of the year, thus easing the inflationary strain.

Corporate profits for the first quarter were slowing, with company after company reporting earnings at a record for the period. As one example, Chrysler's earnings rose to a record for any quarter—\$1 billion, more than double the first quarter of 1974.

There was a 2.1 per cent increase in the price of oil, which was the main factor in the rise.

get its hands on, signing numerous contracts on terms that did not seem to favor them. But by the end of this year had cost hundreds of millions of dollars.

The company, he said, had been looking for a way to get its hands on the gas. It had been looking for a way to get its hands on the gas. It had been looking for a way to get its hands on the gas.

THE MAVERICK WHO TRANSFORMED AN INDUSTRY

HOUSTON

market growing by leaps and bounds," he noted with satisfaction. "There are virtually no barriers to where you can set today."

Now Mr. Lay is bringing his penchant for turning around bad situations to bear on one company in particular: the Houston Natural Gas Corporation. In just six months as that company's head, he already has taken what had been a poorly managed, over-target operating entity within Texas and turned it into an enterprise that is now a leader in the industry to stretch from coast to coast.

Mr. Lay has an intimate knowledge of the oil business, having worked for 14 years in the industry in terms of pipeline mileage.

Britain drills—and prays

The oil men in the North Sea are working against formidable odds—of weather, technology, finances, even politics—in the race to save Britain from economic and social upheaval.

By Daniel Yergin

The sea seemed empty at first, except for the odd fishing trawler. For centuries, the fishermen have had the North Sea to themselves, to chase the herring that was northern Europe's biggest business in the Middle Ages, more recently to pursue the haddock and the cod. As our helicopter met the

still further. On top of this, costs are rising so rapidly that some have begun to question the economic viability of the whole enterprise. For a combination of these reasons, most oil companies are now a year to 18 months behind on schedules, changing the odds on the race in Britain between national bankruptcy and North Sea oil.

Meanwhile, Scottish nationalism has at last found its voice. It is now, completing construction; eventually, it

the House decisively defeated a plan of the Democratic leadership for a price roll-back on the heels of March 16. Eventually, the House agreed on an extension of the oil price freeze.

oil sludge, low-grade radioactive material and ocean-floor metals.

Shell said it had received a number of offers to dispose of the rig, some of them bizarre. An Austrian financier, Norbert Brust, offered to take over the wandering platform and turn it into a maritime casino and discontinue anchored in international waters. He said customers could be flown there by helicopter for tax-free entertainment.

On Tuesday, the company said it could no longer withstand the calls by the European governments and a concerned public relations campaign by Greenpeace to abandon its plans to sink the rig 150 miles northwest of the Scottish coast. But the struggle involving one of the world's biggest corporations has continued to unfold.

The rig, the Brent Spar, is a 450-foot-long, 260,000-barrel platform previously used to store oil from the

per 1,000 cubic feet. It hopes, however, to persuade its producers to renegotiate contracts and accept today's prices, adjusted only for future fluctuations in the price of fuel oil.

"Prices in our market are," ventured Mr. O'Neill, "should be flat to slightly higher."

Mr. Baldwin, the First Boston analyst, agreed with most specialists that there is little risk of major increases on a national scale because the industry would not attempt it. He expects some producers to seek to enforce their escalation provisions — if necessary, by going to court — and that they "will probably hurt some pipelines."

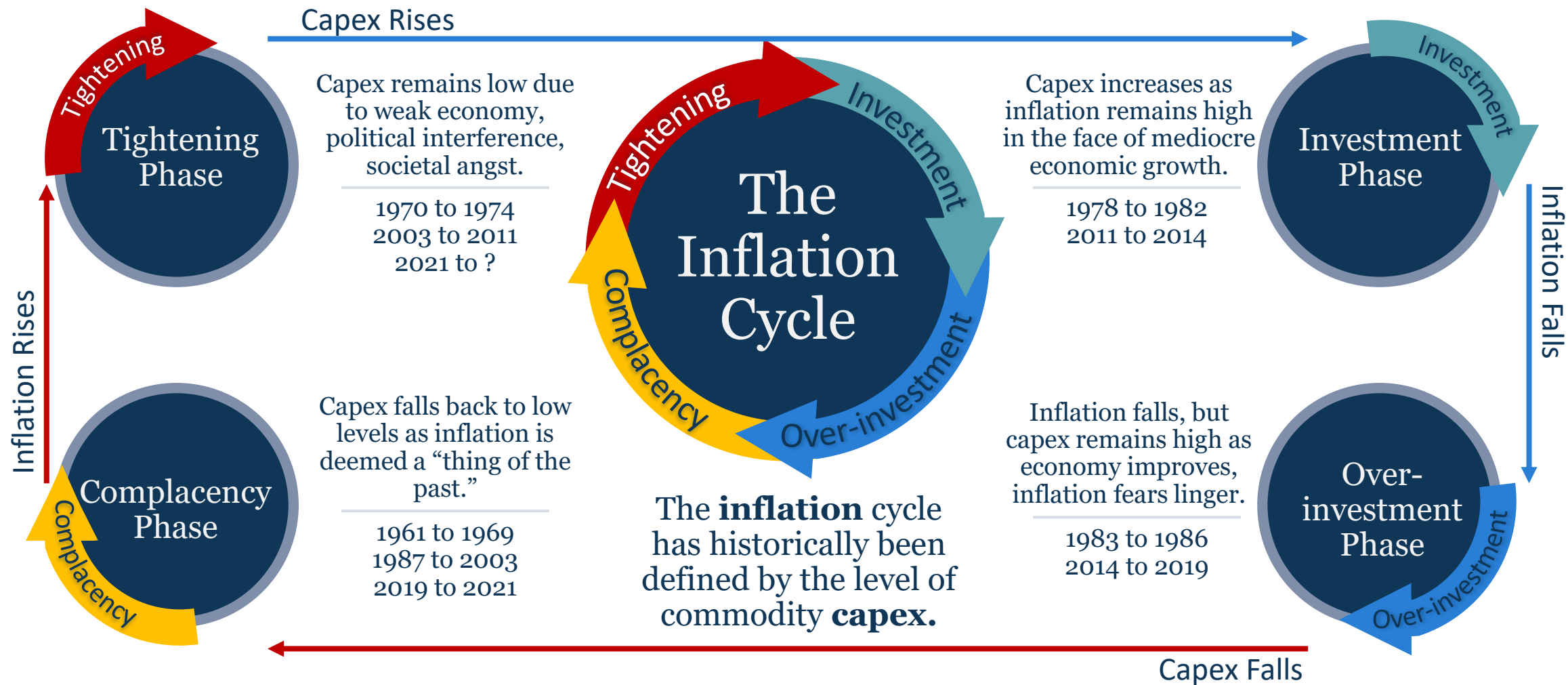
Now the race of the Shell Transport and Trading Co. to build a major thrust of this expansionary economy. If they respond to a peace settlement by breaking out of their present high savings mood, the economy is in for more of a boom than is now being projected."

But in an address to the

A view of the Amerada Hess refinery in Port Reading, N. J. The concern decided to close it because of increased operating costs and rising construction prices.

In fact, the **inflation** cycle and the **capex** cycle are inextricably linked

Inflation: a product of the commodity **capex** cycle

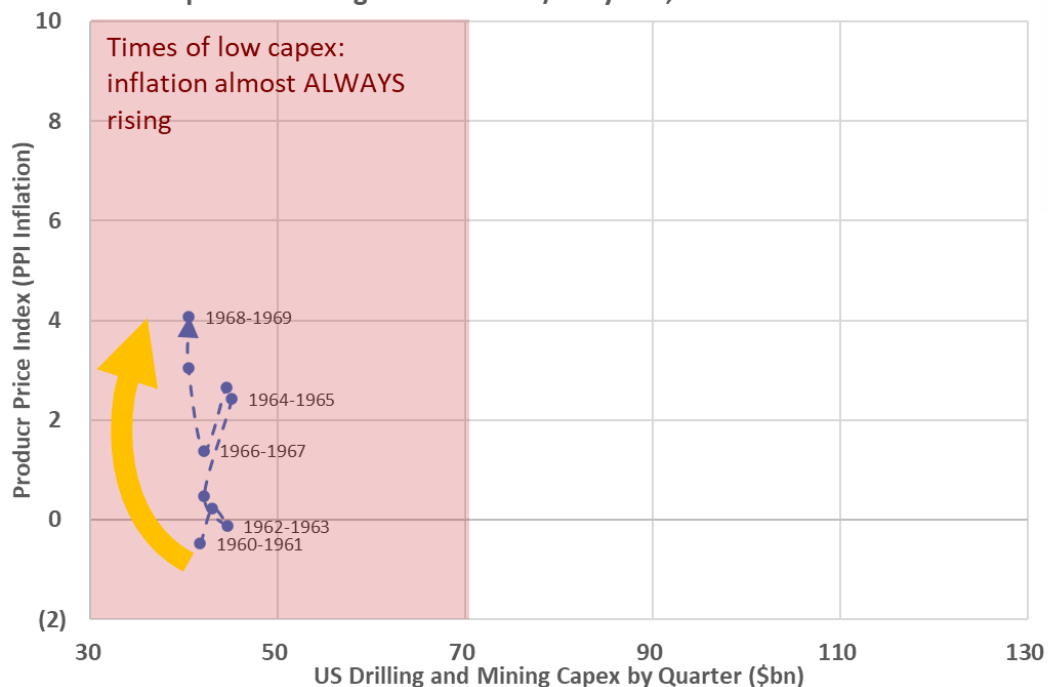


1960s: Low postwar inflation, oil production overcapacity bred low capex and complacency

Artificial prices, low capex, low inflation: WWII created excess US oil production capacity. To avoid a postwar bust, quotas were used to support prices. **Capex** was low given excess capacity. CEOs expressed discomfort with price floors and low capex, but supported quotas, fearing a flood of foreign imports and a collapse in domestic profits. Political support grew for subsidy cuts.

Capital Spending (Capex) vs. Inflation:

1961-69: post-WW2 capex was low, oil was abundant. Vietnam-era deficits pushed PPI higher in late 60s/early 70s, even as GDP slowed



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Headlines: cracks appear in postwar lull

1964 (below): warnings of under-investment, in part due to complacency from quota-protected US oil prices

Depressed Prices for Crude Oil Aggravate Situation in Market

U.S. Aide Cites Impairment of Industry's Financing for New Reserves

CHICAGO, Nov. 11 (AP) — A Federal official said today the oil industry could expect continued depressed crude oil prices despite the need for increased emphasis on the search for new oil reserves. "There can be little doubt the crude-oil price structure will continue to be depressed by the operations of the market forces now bearing on the industry,"



1968 (right): CEO of Esso (Exxon) says ending import quotas would destroy US energy independence, putting the US in "the position Western European countries are in... they sure would love to get out of it."

WIDER ROLE SEEN FOR OIL INDUSTRY

Petroleum Institute Told of Total-Energy Potential

By J. H. CARMICAL

The petroleum industry is in the total-energy business, not just the oil business, A. C. Rubel, retired chairman of the Union Oil Company of California, declared here yesterday. He spoke at the opening session of the annual meeting of the American Petroleum Institute. —Mr. Rubel said the successful oil company of the future would be engaged in the development

U.S. Oil Spokesman Defends Embattled Industry

Otto Miller has been chairman and chief executive officer of the Standard Oil Company of California for the last

decade. He is accused of making exorbitant profits. Nothing could be further from the truth. Our profits are below the average for

of oil-import quotas. The industry has generally been against any relaxation of the present system. Is this still the case?

MR. MILLER: This has been said over and over again and I am at a loss to understand why some people don't comprehend it. A strong oil-import program is essential to national security.

also encourage exploration in the United States.

Q. There has been considerable talk about a continental oil policy. What is your opinion on it? MR. MILLER: I don't see any future for a continental oil policy, although Canadian oil will always have some preference in the United States market.

Esso Chief Sees Need For Oil Import Curbs

By WILLIAM D. SMITH

Michael L. Haider is a man who speaks directly and with authority. The authority comes from the fact that he runs the world's largest oil enterprise, the Standard Oil Company (New Jersey). And being direct is just Mike Haider's way. An executive of a competing company has commented: "You will always get a straight answer out of Mike. If he can't give you the answer, he'll let you know why." In a recent interview Mr. Haider, Jersey Standard's chairman and chief executive officer, met many of the industry's most important issues head-on and seemed to enjoy every minute of it. He had no battery of lawyers to shield him. A public relations man was present, but his sole task seemed

to be to take care of the coffee.

Question: Mr. Haider, at present there is a furor over the nation's oil import laws. What is your position on imports?

Answer: The United States needs an import restriction program for reasons of national security, and that is the hard truth of the matter. I don't like import restrictions on principle because I am basically a free trader. For me, no barriers on any commodity anywhere is the ideal situation, but oil is vital to the nation's security and its future supply must be guaranteed.

Q. If import restrictions were lifted, how would this affect the nation's security? A. Well, there is a hell of a lot of oil in the world — tremendous producing capacity. If foreign oil were to

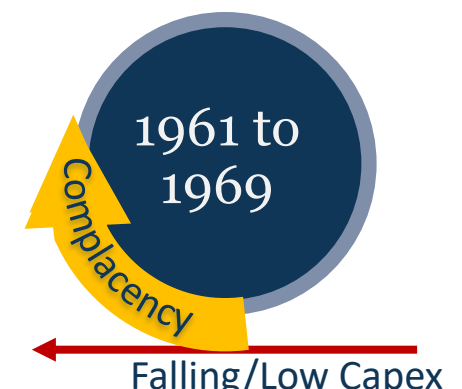
flood the United States, perhaps 50 per cent of the domestic producing capacity would shut down for economic reasons.

The United States would quickly become dependent on foreign oil for survival since 75 per cent of the nation's energy is supplied by oil and gas. Foreign countries could use oil as a political weapon.

If we put ourselves in this position we should have our heads examined. Maybe you shouldn't quote me on that. No, go ahead. It's the truth.

Look at Europe. This is the position the Western European countries are in, and they sure would love to get out of it.

Q. Opponents of oil import restrictions contend that prices on oil products would go down sharply if crude were allowed to come into



1966 (below): insiders express need to move beyond oil into nuke, shale, coal, solar, to diversify away from gov. control

1969 (above): in a refrain that will be heard from oil companies for decades to come, ex-CEO of Esso California (Chevron) expresses frustration that oil industry is "poorly understood," its "profits are below average," it is "accused of not paying its fair share of taxes," and admits "we haven't tried very hard to explain ourselves to the public."

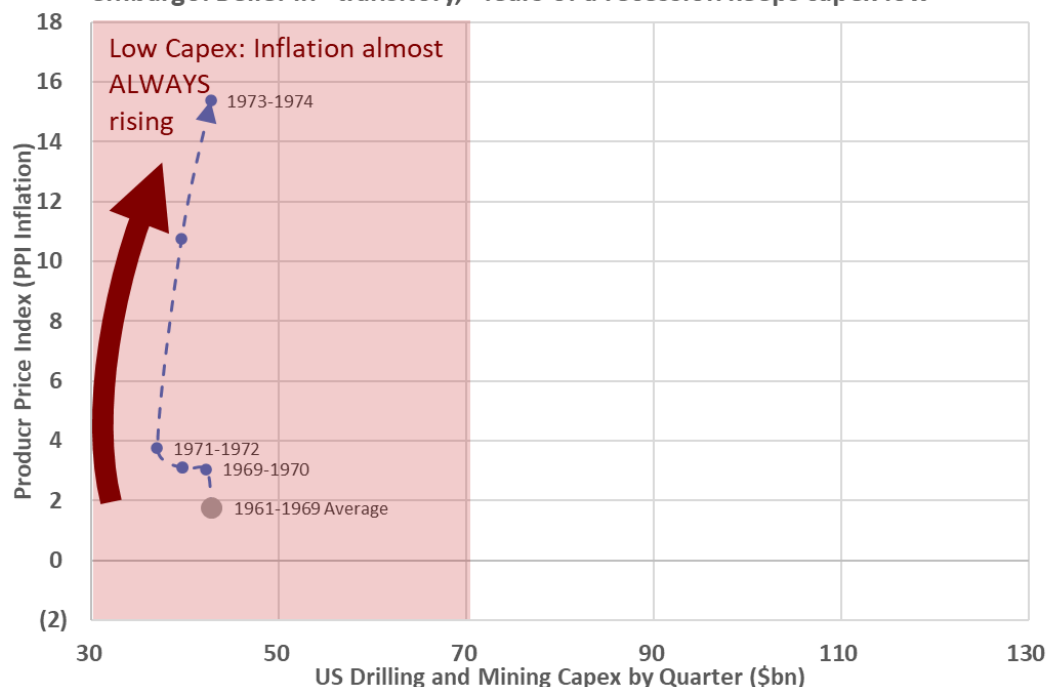
Early 1970s: Despite inflation and an oil shock, tightening economic conditions restrained capex

RECURRENT INVESTMENT ADVISORS

The economy accelerates into a oil shock: While GDP soared after the 1970 recession, TX Railroad Commission warned of the end of “excess capacity.” Majors’ demands triggered Libyan nationalization in 1972, a prelude to 1973’s Arab Oil Embargo. While 1973 is seen as a watershed, the “Energy Crisis” was front page by ‘71. The launch of the EPA, price controls, recession held **capex** low in 1973-74.

Capex vs. Inflation:

1970-74: Gold standard ends, enabling deficits. Oil spikes on Arab embargo. Belief in “transitory,” fears of a recession keeps capex low



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Headlines: GDP up, oil supply down

Jan 1971: OPEC (prior to its days as price-setter) expresses anger at receiving a fraction of oil prices received in western oilfields

10 Oil-Producing Nations Say Companies Balk on Price Rise

TEHERAN, Iran, Jan. 13 (AP) — Representatives of 10 major oil producing nations accused a delegation from Western oil companies today of refusing to

with payments for their oil. Noting that prices in Britain, France, Belgium and the Netherlands had gone up 50 cents a barrel, the Iranian min-

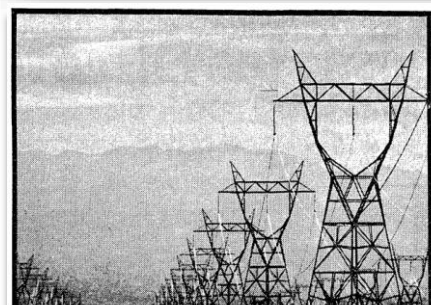
Feb 1972: TX RRC warns that state's wells are under-performing theoretical “excess capacity,” threatening price stability

TEXAS INCREASING CRUDE-OIL OUTPUT

Sets March Producing Rate at Highest in 16 Months

Special to The New York Times

AUSTIN, Tex., Feb. 17 — A mounting demand for Texas crude oil, triggered by higher costs of foreign oil, led the Texas Railroad Commission to set today a producing rate for March higher than any since November, 1970. But the agency's chairman,



Demand for electricity will double in the next decade

Is U.S. Energy Flagging?

By EDWARD COWAN

WASHINGTON — Whenever the shortage of fuels and electric power is discussed these days, someone invariably asserts that what this country needs is “a national

energy policy.” The cornerstones of that policy is devising ways to get more energy — clean energy — from the country's enormous deposits of coal

try's traditional self-sufficiency in energy. The cornerstones of that policy is devising ways to get more energy — clean energy — from the country's enormous deposits of coal

The fuel and electric-power industries like to blame environmentalism. Natural gas spokesmen argue that Federal regulation of gas wellhead prices has kept the price artificially low in re-

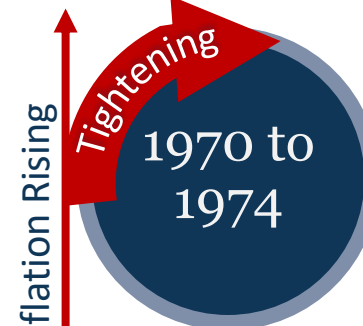
Jan 1973 (above): calls for new supply from offshore and Alaska as demand is doubling every ~15 years given energy-intensive US GDP

A Specter of Recession

By ROBERT H. PHELPS

WASHINGTON—It's going to be a rough year for the Government officials responsible for keeping the American economy in tune. For added to the problem of inflation, which persisted throughout 1973, is the specter of a recession in 1974. Not just a typical cyclical downturn in business that would respond to the traditional tools of economic stimulus, but a recession caused by a shortage of energy and of the materials produced by energy—and therefore not as responsive to the traditional methods as previous recessions. The danger of both widespread unemployment and soaring infla-

ing of a razor-thin growth in the nation's output of about 1 per cent. This is hardly a comfortable outlook, but it is better than the forecasts of some private economists who fear a downturn in the G.N.P. in two consecutive quarters. Such a decrease would meet the generally accepted definition of a recession. Unemployment, which was down to about 4.5 per cent during the last part of 1973, will rise to somewhat less than 6 per cent in 1974. This would mean an increase of nearly 1.5 million in the number of unemployed. Some private economists are predicting an 8 per cent jobless rate.



May 1972 (below): oil CEOs strike negative tone on geopolitics, tighter environmental policies

PESSIMISM SHOWN AT OIL MEETINGS

Officials Address Seminars and Holders' Sessions

By WILLIAM D. SMITH

Oil executives were busy

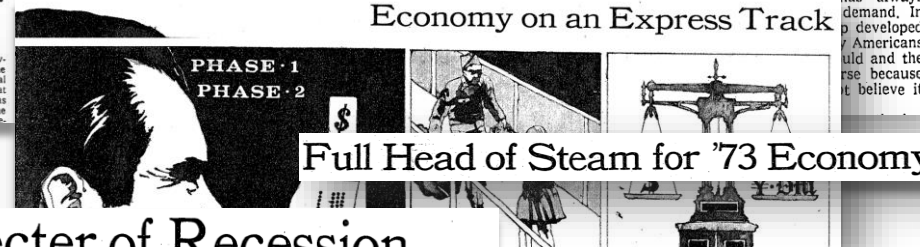
crisis,” lower prices for fuel oil and gasoline, environmental conflicts and the growing strength of the producing nations.

In New York, Rawleigh Warner Jr., chairman of the Mobil Oil Corporation, told stockholders that environmentalists were retarding oil and gas development in the face of what could become the worst peacetime energy shortage in the history of the United States.

“The situation is confusing to many Americans, for whom

has always demand. In developed Americans and the world because believe it

Economy on an Express Track



Full Head of Steam for '73 Economy

From 1972 to 1974: ebullient assessments in 1972-73 (above) give way to dour forecasts of a sharp recession driven by higher oil prices by early 1974 (left)

1974-1979: Regulations tighten and stocks are volatile despite strong profitability. Low capex extends inflation cycle

RECURRENT INVESTMENT ADVISORS

Inflation falls with GDP: in a lesson to today's policymakers, falling GDP and rising rates increased economic concerns and costs, prolonging underinvestment. After backing price floors for years, Big Oil is victimized by US gov't price-setting as floors became caps. Price caps were partially removed in 1973-75, but **capex** stayed low until the Carter WH committed to price "decontrol" in 1978.

Headlines: weak GDP, oil profits, angst

'Slumpflation'

The latest Government data on gross national product indicate that the United States economy is entering the second recession of the Nixon years.

In the final quarter of 1973, real G.N.P. — total output corrected for inflation — was still crawling upward at an annual rate of 1.3 per cent. However, even that virtually stagnant rate of output would not have occurred had business not miscalculated on production. For businesses produced more goods than the

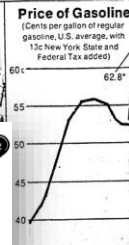
1974 (left): "Tight money policies were intended to bring inflation under control, but had the effect of wrecking the housing market. And despite the money squeeze, inflation worsened"

Despite 1975 Lag, Oil Profits Still Gush

Attacks on Oil Industry Grow Fiercer

Energy Crisis Is Cause of Criticism

By MICHAEL C. JENSEN
The oil industry, one of the largest and most conspicuous in the country, has always had its share of criticism. In the energy crisis, its prices, as well as its profits, have become a target of public anger. This has led to attacks on the industry and government testimony hearings, by both panels.



of Major Oil Companies

Per cent Change 1975 from 1974	1974	Per cent Change 1974 from 1973	1973
2-bil.	-24	\$1.48-bil.	+190.2
6-mil.	-52.2	\$67.1-mil.	+37.2
7-mil.	-46.7	\$67.4-mil.	+99.5
10-mil.	-49.2	\$15.0-mil.	+61.5
4-mil.	-35.7	\$28.3-mil.	+57.0

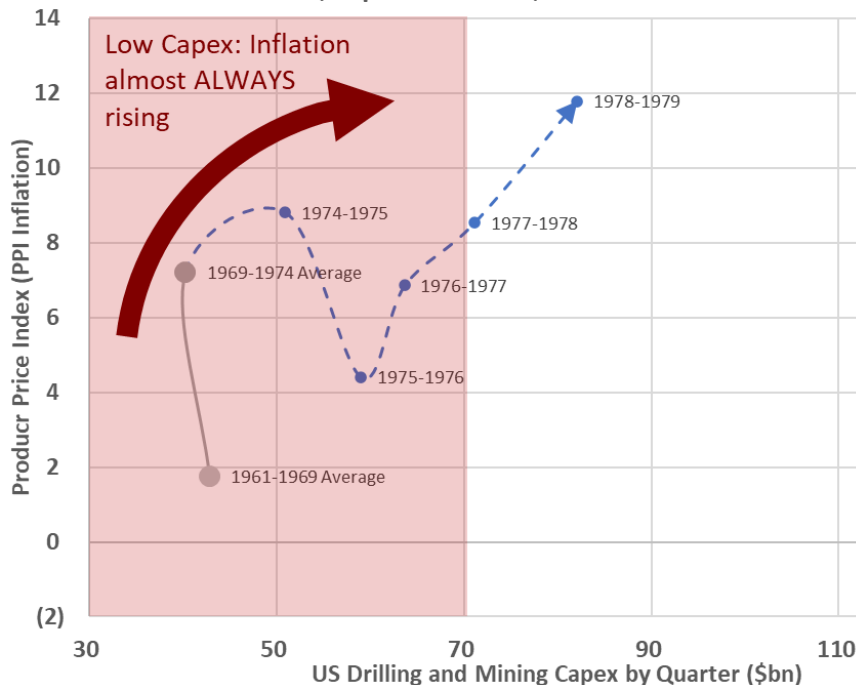
The New York Times/August 2, 1975

By ANN CRITTENDEN

One year Croesus, the next year Job—this is the richest-to-rags story told by the oil industry earnings figures released in the last few days. Almost all major oil companies have announced precipitous drops in second-quarter net income, making the last three months and the first half of 1975 the worst year-to-year declines in the industry's postwar history. While the tumble was almost inevitable after the dizzying heights reached by oil

Capex vs. Inflation:

1974-79: oil shock drives '74 inflation >15%. Recession in '75 sends inflation below 5%; capex is still low, so inflation returns in '76-78



Inflation Rising

Tightening

1974 to 1979

Aug 1975 (left): "For all its problems, the oil industry remains one of the most profitable in the US." Politicians attack the oil industry as it grapples with the recession, discouraging capex.

Oct 1976 (above): Constant threats to break up, sue, or tax "the petroleum industry, to which ordinary pressures of economics, law, and patriotism seem not to apply..."

F.E.A. to Study Whether Refiners Overcharged Oil Users by Billions

By STEVEN RATNER

Special to The New York Times

WASHINGTON, July 25—A special task force formulated and genuine confusion could force formed by the Federal Energy Ad- have been the culprit.

Jul 1977 (above): As in every inflationary cycle, economically unfounded claims of "gouging" are pushed by politicians to bully energy suppliers.

U.S. Ponders Arab Pricing Suit

Attorney General Edward H. Levi says he has hired "one of the best antitrust lawyers in the country—namely me"—to determine whether the Justice Department should bring suit in the Federal courts against the Arab oil-producing countries for conspiring to fix oil prices. "If we had foreign concerns making price-fixing agreements which affect the American market we would say agreements Sherman Antitrust Act," Levi said in a news conference.



compensation guaranteed by the Constitution." The Series B preferred stock and common stock that U.S.R.A. would have Conrail issue for the railway assets is "worthless," Mr. Berger declared. He said he would "resort to the courts" to assure Penn Central's stockholders of a "full measure of just compensation." Jack F. Bennett, who recently resigned as Under Secretary of the Treasury after almost four years in Washington, has been elected a senior vice president and director of the Exxon Corporation. Mr. Bennett, when he

Jul 1975 (left): Reflecting one of the stages of grief, politicians discuss "punishing" rather than fixing inflation, floating the idea of suing OPEC for uncompetitive price-fixing practices

Energy Is Still the Problem

Inflation Is Merely the Mirror

Almost half of last month's troubling increase in inflation is directly traceable to rising energy prices. The message, therefore, should be clear: the energy and inflation problems are inseparably bound. No one is going to solve the inflation problem without first solving the energy problem.

incomes and real standards of living would be going down. So while there are conceivable Government policies that might force down other prices to offset energy costs — policies to induce a very severe recession — they involve enormous social costs and are unlikely to

Jul 1979 (above): After a brief respite during the 1977 recession, inflation returned stronger.

RECURRENT
INVESTMENT ADVISORS

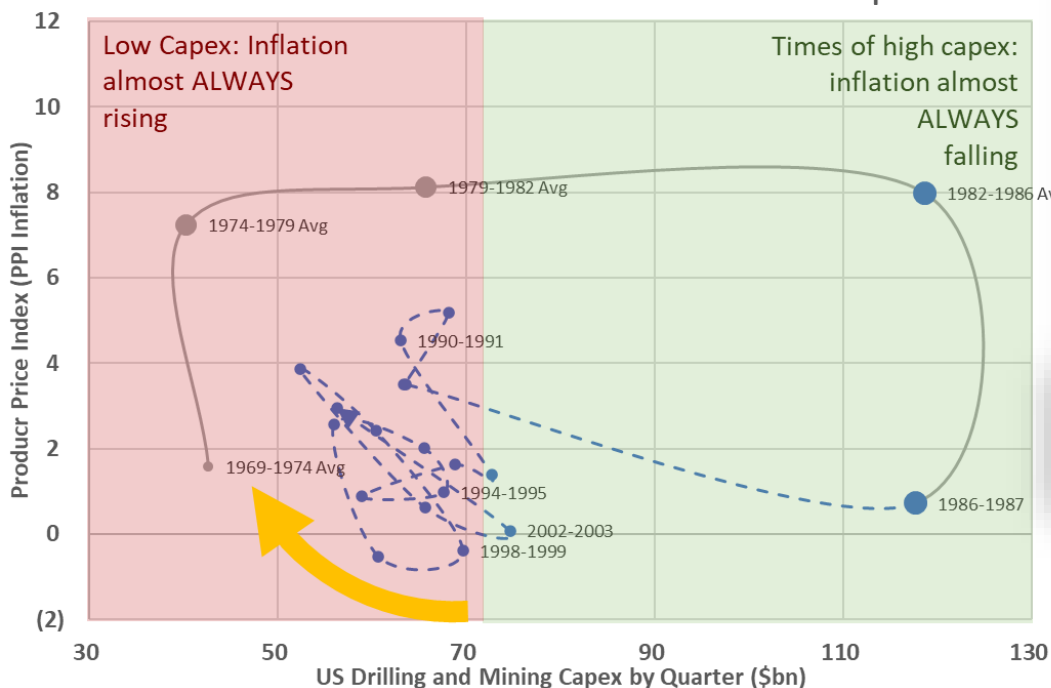
12

1986-2003: Lengthy period of price stability from the 1980s to 2000s led to a wave of mega-mergers, low organic capex

Almost 2 decades without inflation: the epic overinvestment of the 1980s led to nearly 2 decades of relatively smooth economic sailing with PPI inflation remaining between -1% and 4% from 1981 through 2003, despite sustained GDP growth. Structural inflation was gone, even with capex near 1960s lows, providing the world with ample room to accommodate emerging market growth.

Capex vs. Inflation:

1986-2003: "The Great Moderation" - was 15 years of low inflation the result of the Fed or Chinese labor? Or was it excessive oil capex?



Headlines: few mourn the fall in oil

Jan 1986 (below): collapse in oil prices gives rise to deflationary warnings as excessive capex drove oil prices down nearly 70% in 1986

The Dark Side of Oil-Price Reductions

By Walter J. Levy and Milton Lipton

The world is now confronted with an unprecedented decline in oil prices. Lower oil prices are generally expected to boost economic performance worldwide. A free market in oil is held to be established at long last, it is said, thus becoming a commodity like any other.

By strategy, however, that the fall consequences could well be more comfortable than conventional wisdom suggests.

Let us be clear at the outset: We are writing against the grain. The price at which each reduction in price quotations brings still lower quotes, pointing toward the danger of a price collapse that could have dire effects on the world economy and on the financial institutions.

First, the world is now debating the most secure resource in a rapid decline in oil prices. The United States and the North Sea—regions able to produce a relatively small resource base. And by comparison with Middle East oil, they are relatively high cost. Disposition of these reserves under conditions of sharply declining prices and the threat of a price collapse is a matter of great concern.

Second, the world has always depended on the secure supply of oil. Current trends toward lower oil prices will not only reduce the world's fuel but also reduce the supply of a key input for many industries.

A large portion of which comes from the United States and other oil-rich nations—in the near term, lower prices are not likely to boost energy supply.

operations, oil service firms and other allied industries are obviously in dire straits. Regional banks with extensive energy loan portfolios are at risk. Many of our major banks have made huge loans not only to oil-producing countries such as Mexico but also to domestic oil companies to help them finance mergers and fund acquisitions. In due course, the sale of various corporate assets could be undertaken. But with sharply declining oil prices, assets would be sold at a loss and the security that underpins such loans is weakened.

Meanwhile, the deficits being incurred by producing countries whose petroleum previously contributed to the primary reserves and liquidity of their financial institutions would lead to draw-downs of their foreign exchange reserves. Coupled with the sharp decline in oil prices, this would be a disaster for the financial institutions.

What are the alternatives? To use oil prices back up would clearly be both impractical and foolish. But a concerted effort to break a price collapse is at least a possibility.

One way to protect the domestic oil and gas industry, and our exposed banking structure, would be to impose a temporary import ban. In order to protect the domestic oil industry against the possibility of foreign price-cutting, the United States could impose a temporary import ban.

As for North Sea oil, the problem is not so much the cost of oil but the cost of raising interest rates to protect its country. Thus far, the British Government has effectively refused to restrict production, without a predictable floor.

Unrestricted production would mean that the United States would have to be restricted, not only in its own production but also in its ability to export oil. Foreign producers would still sell at the same price as in the United States, but the United States would be forced to restrict its own production. And revenue from an oil import fee might be a welcome contribution toward diminishing the federal budget deficit.

A concerted effort to brake a collapse is desirable

come contribution toward diminishing the federal budget deficit. The United States could also consider exempting Canadian and Mexican oil from the import ban. Oil can supply from the oil import ban and giving credit instead to the United States. Canada is unlikely to expand its exports to the United States at the expense of other foreign suppliers. As for Mexico, which unlike Canada could significantly expand its exports, there probably would have to be some ceiling on its export shipments into the United States. Mexico would benefit by receiving the full domestic price, but its export would agree not to divert oil to the United States.

For the most part, that could mean a price ceiling on oil imports. The United States could also consider exempting Canadian and Mexican oil from the import ban. Oil can supply from the oil import ban and giving credit instead to the United States. Canada is unlikely to expand its exports to the United States at the expense of other foreign suppliers. As for Mexico, which unlike Canada could significantly expand its exports, there probably would have to be some ceiling on its export shipments into the United States. Mexico would benefit by receiving the full domestic price, but its export would agree not to divert oil to the United States.

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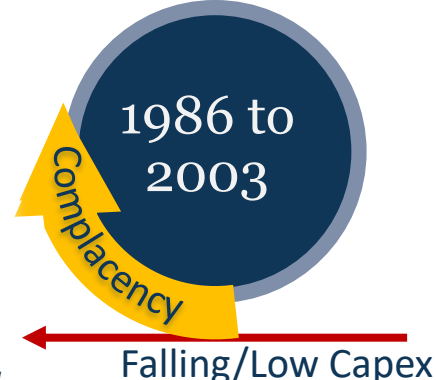
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1986-2003 (below): A series of mega-mergers across ~15 years were viewed as necessary to survive (and cut capex). BP bought Sohio (1987), Amoco (1998) and ARCO (2001); Chevron bought Texaco (2001); Exxon joined Mobil (1998); Conoco was spun by Dupont (1998), to merge with Phillips (2001).



B.P. in \$7.82 Billion Deal for Standard

By ROBERT J. COLE

The British Petroleum Company and the Standard Oil Company agreed yesterday on a \$7.82 billion price for B.P.'s purchase of the 45 percent of Standard Oil that it does not yet own.

The agreement, which won the unanimous endorsement of Standard Oil's 16-member board of directors, was announced late yesterday.

At \$7.82 billion, it would also be the nation's third-largest takeover, after Chevron's \$13.4 billion purchase of Gulf in 1984 and Texaco's \$10.1 billion deal for Getty in the same year.

Subject to court approval, the deal would give B.P. control of the company. Pennzoil got what it sought when its representative was named co-head of one controller must have been a Texaco bankruptcy, Page D.

Stephen Lowy, one of three lawyers who headed litigation brought by 20 lawyers in nine lawsuits, said the settlement came on the eve of a hearing to decide whether the court would delay B.P.'s tender offer until purportedly misleading information was corrected.

"The \$40 million extra that is the gift for stockholders," he said, "is the

British Petroleum Is Buying Amoco in \$48.2 Billion Deal

Wall Street Sees Possibility Of a New Suitor for Conoco

With No Price Premium, Talk of Counterbid

An Oil Merger That Assumes That Bigger Is Not Just Better, It's Necessary

By NEELA BANERJEE

With violence raging in the Middle East

More complex drilling

biggest players in the industry: Exxon Mobil, Royal Dutch/Shell and BP Amoco

more heavily on exploration and production rather than refining and selling gasoline

are expected to come from streamlining projects each company has in the Gulf of Mexico, Africa, Russia and Brazil

Long Term Appears Turbulent for Oil

By KENNETH N. GILPIN

Of all the pressures on the oil industry as the century turns, the one most likely to transform it over the next two decades, industry experts say, will be the fervent campaign to improve the environment.

combination of Exxon and Mobil. A consolidation wave in the oil services business has been less heralded, but in many respects has been even more sweeping. Among the combinations are Halliburton's takeover of Dresser Industries, Baker Hughes's purchase of Western Atlas, and E&I's purchase of Weatherford Enterprises.

"Whether it is powered by megaton or something else is up in the air. It will be a very different kind of oil service company. I will see hybrid cars."

For now, however, the industry engine will continue to run. It is possible that an oil shortage might emerge to win Conoco, the third-largest oil company in the United States.

Under the terms of the transaction with Phillips, which the companies rejected the notion that the merger might be as good as dead.

EXXON AND MOBIL ANNOUNCE \$80 BILLION DEAL TO CREATE WORLD'S LARGEST COMPANY



9,000 TO LOSE JOBS

Plan to Link Oil Giants Will Draw Close Look From U.S. Officials

In a Texaco Deal, Chevron Wants Control

Merger Talks Continue, With a Sticking Point

By AGES SALPURIAS

The Chevron Corporation and Texaco Inc. will continue merger talks next week, but they remain divided principally over Chevron's insistence that it control the combined company, executives close to the negotiations said.

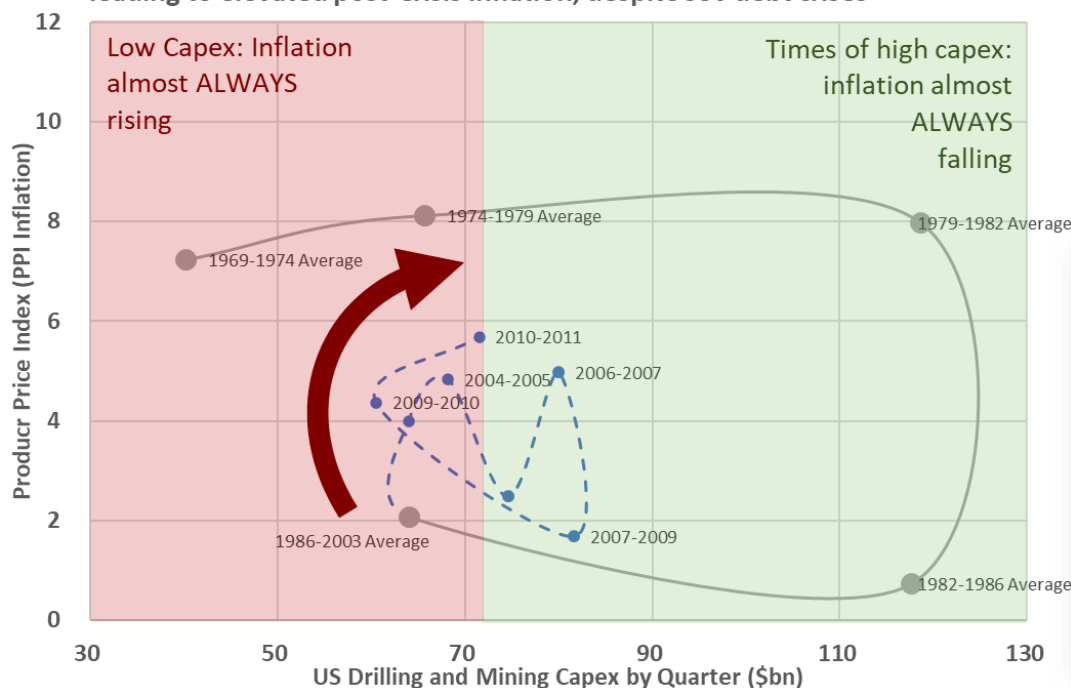
Chevron has been talking to potential partners, the executives said, since the \$4.8 billion takeover of the Amoco Corporation by British Petroleum last August, forming BP Amoco P.L.C. Kenneth T. Derr, chairman and chief executive of Chevron, had sought to buy the Atlantic Richfield company, earlier this

2003-2011: Decades of underinvestment and global demand growth started a brief inflationary cycle; capex quickly surged

China pushes oil to 1970s levels: With an extremely dovish Fed, tightening conditions in the 2000s came as a result of the Great Financial Crisis. Despite weak GDP growth and EU debt crises, PPI made post-1986 highs in 2011. In stark contrast to the 1970s and 1980s, politicians and Wall Street welcomed capex, accelerating Shale development and limiting inflationary fallout.

Capex vs. Inflation:

2003-2011: Great Financial Crisis pushes capex down to 1980s lows, leading to elevated post-Crisis inflation, despite sov debt crises



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Headlines: oil in a geopolitical lens

Jan 2003 (below): Disruptions in Venezuela, Iraq drag on supply

Venezuela Crisis Complicates Iraq Situation, Experts Say

By James Dao and Neela Banerjee
Jan. 11, 2003

Dec 2006 (right): Shale oil begins to attract attention

Dec 2008 (right): Recession was expected to depress oil prices...

A cautious boom in oil shale in the United States - Business - International Herald Tribune

By Clifford Krauss
Dec. 21, 2006

Oil expected to remain below \$60 a barrel in 2009

Give this article

SPECIAL REPORT: ENERGY

\$70 a Barrel: A New Floor for the Oil Industry?

By Jad Mouawad
Oct. 19, 2009

NEW YORK — After years of volatility, oil prices have found a level that seems to satisfy producing nations, oil companies and major consumers.

But in the wake of the economic crisis and the collapse in demand, a new reality has also set across the petroleum industry. Today's price of around \$70 a barrel is increasingly viewed as a new floor for the industry.

Opinion
OP-ED CONTRIBUTORS

How to Weaken the Power of Foreign Oil

Sep 2011 (above): national security experts focus imports of foreign oil

Awash in Oil, Canada Looks Toward China

By Ian Austen
Oct. 11, 2011

OTTAWA — Ever since Canada a significant business here has r

Oct 2009 (left): ...but oil's recovery post-GFC was surprisingly rapid, due to tight supply after a lengthy period of low capex

Jun 2011 (right): US releases SPR barrels in light of oil price strength through Euro-zone Crisis.



Oct 2011 (below): Oil markets begin to re-orient to a new bipolar world where Chinese and US demand are comparable

Opinion
EDITORIAL

Tapping the Oil Reserve

June 25, 2011

We have never been enthusiastic about quick fixes. But the Obama administration's decision to release 30 million barrels of oil from the Strategic Petroleum Reserve — the nation's emergency stockpiles — makes sense.

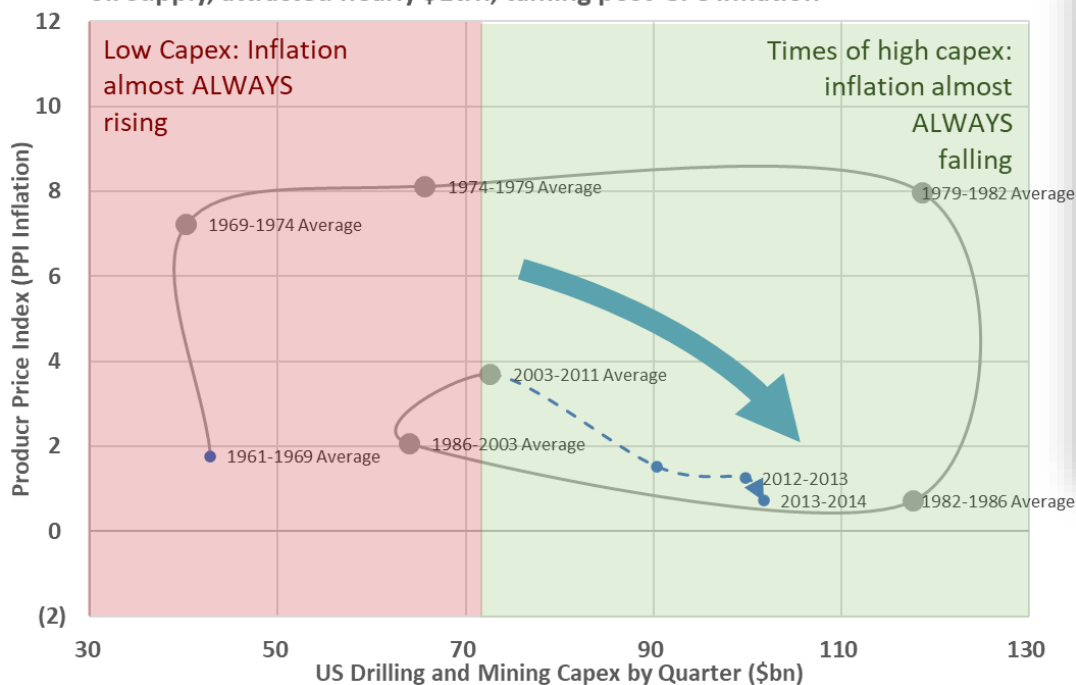
It should provide a modest boost to the American economy. It will help consumers at the pump as they head into the summer vacation season. And it sends an important message to the Organization of the Petroleum Exporting Countries that the United States is capable of protecting its domestic market, at least in the short term, even when those countries refuse to increase production.

2011-2014: With the support of Wall Street and a supportive regulatory environment, **capex** ramps back to near-peak levels

Shale “breakthrough” incites capex binge: Constantly vigilant of inflationary threats after the nightmare of the 1970s and 1980s, and in-line with America’s post-9/11 anti-OPEC stance, Wall Street and policymakers encourage an aggressive **capex** response to \$100/bbl oil. Mid-2000s success in gas Shale development grows into a nearly-\$1 trillion drilling boom by 2014.

Capex vs. Inflation:

2011-2014: North American Shale, a prolific but high-cost source of oil supply, attracted nearly \$1trn, taming post-GFC inflation



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Headlines: Shale surges, upending markets

Dec 2013 (right): Obama WH proposes an end to the 40-year old oil export ban, a recognition of increased US oil production capacity.

Energy Secretary Calls Oil Export Ban Dated

Give this article

By Clifford Krauss
Dec. 13, 2013

Houston — Signaling a possible break with 40 years of energy policy, Energy Secretary Ernest Moniz has suggested that it may be time for the Obama administration to reconsider the nation's ban on exporting domestically produced crude oil.

Nov 2013 (below): wrongheaded belief that Shale was 1) low-cost, 2) “too small to matter” helped contribute to excessive **capex** despite low inflation.



Capex rising

Opinion American Bull



By Roger Cohen
Dec. 13, 2012

Give this article

London

WITH the United States running a huge deficit, the incomes of the “99 percent” stalled, the fiscal cliff approaching fast, the nation's dependence on external financing from China acute, and Washington gridlock a recurrent political condition, this may seem like an odd moment to be bullish on America. But I am.

The main reason is the huge shift already underway in the politics of energy and oil. The change has been underappreciated. It may be summed up in a single sentence buried in the 166-page study [pdf] just published by the U.S. National Intelligence Council: “By 2020, the U.S. could emerge as a major energy exporter.”

Jun 2014 (right): Over 10 years after the commercialization of gas Shale, the potential for Shale to transform the US into a 1960s-style export-driven economy gained wider acceptance.

Dec 2012 (left): Shockingly, with inflation low and the War on Terror winding down, few non-specialized commentators noted the potential for a seismic geopolitical shift as North America went from oil importer to exporter.

Opinion

A New Map, Defined by Gas



By Vall R. Nasr
June 10, 2014

Give this article

WASHINGTON — Get ready for a new map of global power, this one redrawn by American shale gas. It lands in two ways: reviving hope for American manufacturing, and prompting an American-Russian export of energy to Europe and Asia.

Shale's Effect on Oil Supply Is Forecast to Be Brief

Give this article



Mar 2014 (below): before the oil price crash, there was brief bi-partisan hope that US oil could be a tool for the promotion of peace and democracy

America's Natural Gas Lever

By Michael Wara
March 7, 2014

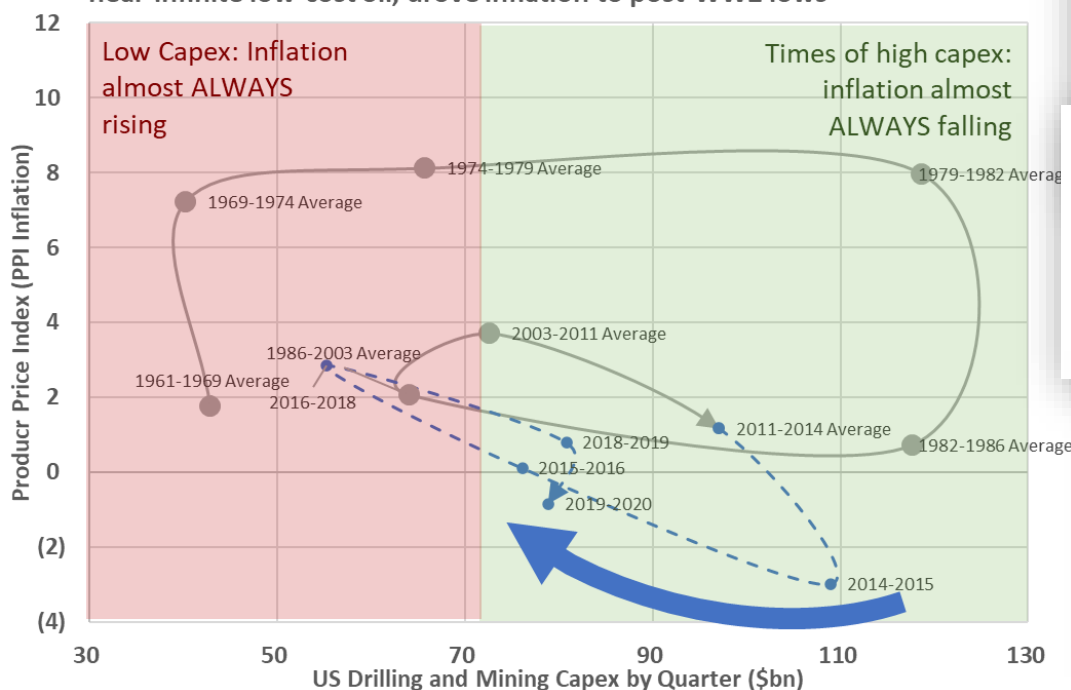
STANFORD, Calif. — The news that the Obama administration wants to use America's new natural gas abundance as a lever against Russia offers a chance to change a long-term dynamic in Europe, which allows an undemocratic petrostate to dictate terms to our closest allies.

2014-2020: “Great historic facts appear twice: first as tragedy, second as farce”: Shale drives capex to 1980s levels

Shale-driven overinvestment crushes oil: If 1970s regulations restrained **capex**, causing a 10-year inflation cycle, the 2010s saw a 1980s-style **capex** surge, despite low inflation and weak oil prices. Without demand to match shale’s production surge, from 2018-2020 the industry sold an illusory low-cost story to Wall Street, using low interest rates to fund high **capex** despite near-zero inflation.

Capex vs. Inflation:

2014-2020: Sustained excess capex, fueled by mistaken belief in near-infinite low-cost oil, drove inflation to post-WW2 lows



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Headlines: oil’s lost political importance

Opinion

The Next Financial Crisis Lurks Underground

Fueled by debt and years of easy credit, America’s energy boom is on shaky footing.

By Bethany McLean

Ms. McLean, whose book about Enron was turned into an Oscar-nominated documentary, is the author of a new book about the fracking industry.

Sept. 1, 2018

Natural Gas Boom Fizzles as a U.S. Glut Sinks Profits

About 20 years ago, it was long thought that it was possible to turn a horizon into a horizon — the common

Chevron’s multibillion-dollar write-down of gas assets is the most recent sign that the gas supply has far outstripped demand.

Chesapeake Energy, a Shale Pioneer, Files for Bankruptcy Protection

The company helped turn the United States into a gas exporter but became known for an illegal scheme to suppress the price of oil and gas leases.

By Clifford Krauss

June 28, 2020

HOUSTON — Chesapeake Energy, a pioneer in extracting natural gas from shale rock across the country, filed for bankruptcy protection on Sunday, unable to pay

American Oil Drillers Were Hanging On by a Thread. Then Came the Virus.

Energy companies were major issuers of junk bonds to finance expansion in trouble as capital has dried up and oil prices have cratered.

By Matt Phillips and Clifford Krauss

Published March 20, 2020 Updated March 23, 2020

Wall Street supercharged America’s energy boom of the past decade as oil companies to finance growth with cheap, borrowed money. Now tatters as the coronavirus pandemic has driven the fastest collapse in a generation.

2015-2020: with the War on Terror faded from public consciousness, oil’s strategic and economic importance, commonplace for 60+ years, is replaced with articles on environmental damage, greed, financial incompetence.

Inflation Falls

2014 to 2020

Over-investment

Despite Their Promises, Giant Energy Companies Burn Away Vast Amounts of Natural Gas

Driven by Trump Policy Changes, Fracking Booms on Public Lands

The administration is auctioning off millions of acres of drilling rights and rolling back regulations, raising environmental concerns in states like Wyoming.

Fracking Firms Fail, Rewarding Executives and Raising Climate Fears

Oil and gas companies are hurtling toward bankruptcy, raising fears that wells will be left leaking planet-warming pollutants, with cleanup costs left to taxpayers.

By Hiroko Tabuchi

Published July 12, 2020 Updated July 12, 2021

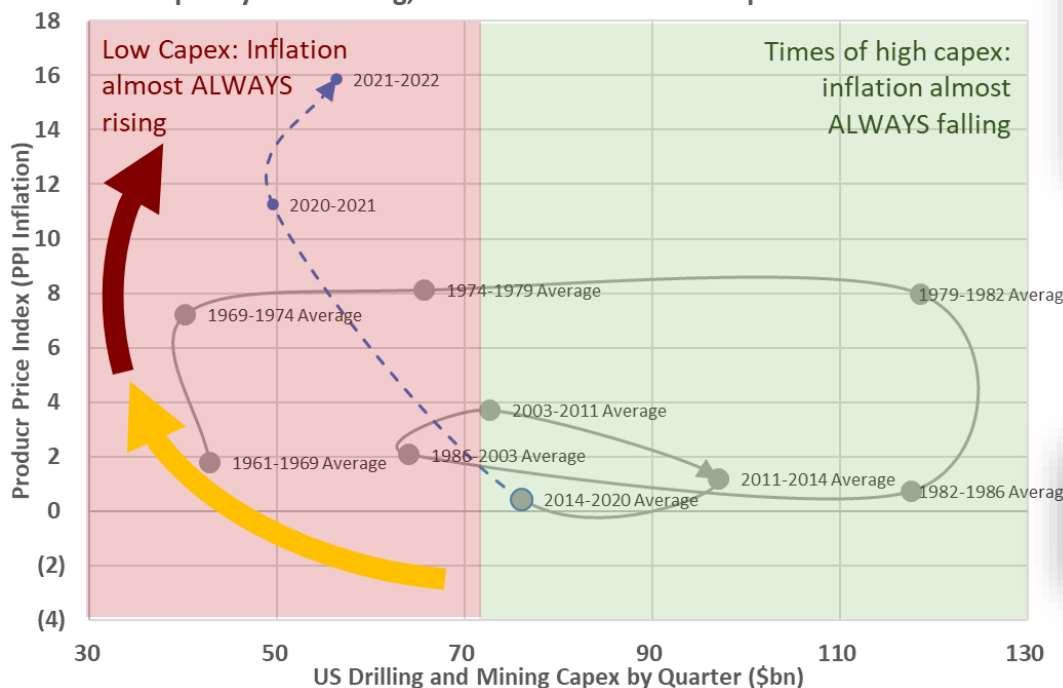
The day the debt-ridden Texas oil producer MDC Energy filed for bankruptcy eight months

2020-2022: Capex dollars dry up after the oil industry cried wolf (and extensively over-invested) prior to the pandemic

Oil forced to self-fund at the worst time: Judging by the graph below, 2020-2022 is as bad as the worst of the 1970s-80s. Unlike the 1970s, today's low **capex** is due to Wall Street, as capital vanished after the 2014-2020 **capex** splurge. Low valuations have made equity funding prohibitive, while bank lending has tightened given large COVID-era losses, plus increased ESG-driven banking rules.

Capex vs. Inflation:

2020-22: Oil's counter-cyclical capital (Wall Street) was burned by 2010's pro-cyclical drilling, now inflation soars and capital is scarce



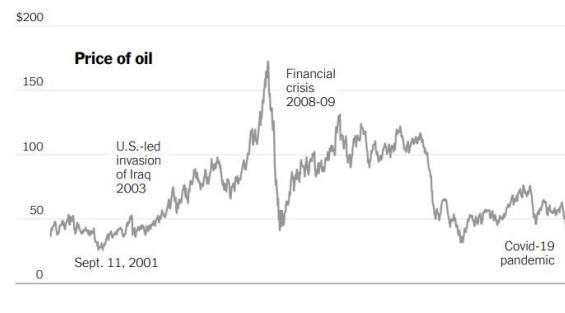
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Headlines: once an albatross, energy soars

Apr 2020 (below): rather than the technical glitch it was, the negative price of oil was widely interpreted as a judgment on the industry's profligacy and its product's near-worthlessness.

Too Much Oil: How a Barrel Came to Be Worth Less Than Nothing

One oil price went negative on Monday, signaling that there is no place to store all the crude the world is producing but not using.



Jul 2022 (right): instead of regulations of the 1970s, today's low **capex** is largely explained by a movement to divest from and restrict activities of the energy industry. Improbably, it is supported by many investors. The result will be a prolonged inflationary cycle, similar to 1970s-1980s, until **capex** is once again considered financially (and socially) acceptable.

Oil profits soar, but the industry's future remains uncertain

Here are four climate takeaways from a dramatic turnaround — a year after a surge of shareholder activism in the industry, as well as a remarkable court ruling against Shell.

May 2022 (above): with energy prices soaring, the economic case is clear for more **capex**. Energy companies and commentators remain focused on responding to the intense social (and financial) pressure to do less, not more.



Skyrocketing Global Fuel Prices Threaten Livelihoods and Social Stability

Around the world, from South Asia and Africa to Europe and Latin America, the cost of filling a car's tank, getting to work and cooking dinner has spiked.



By Patricia Cohen

Patricia Cohen, who covers global economics, reported from London with contributions from reporters in Latin America, Africa and Southeast Asia.

July 2, 2022

"NO ES SUFICIENTE" — It's not enough. That was the message protest leaders in Ecuador delivered to the country's president this past week after he said he would lower the price of both regular gas and diesel by 10 cents in response to riotous demonstrations over soaring fuel and food prices.

With Gas Prices High, Calls Grow to Tap Strategic Oil Reserve

President Biden is under pressure to release oil from the Strategic Petroleum Reserve. Here's how it works, and how it might lower prices (modestly, and maybe not for long).

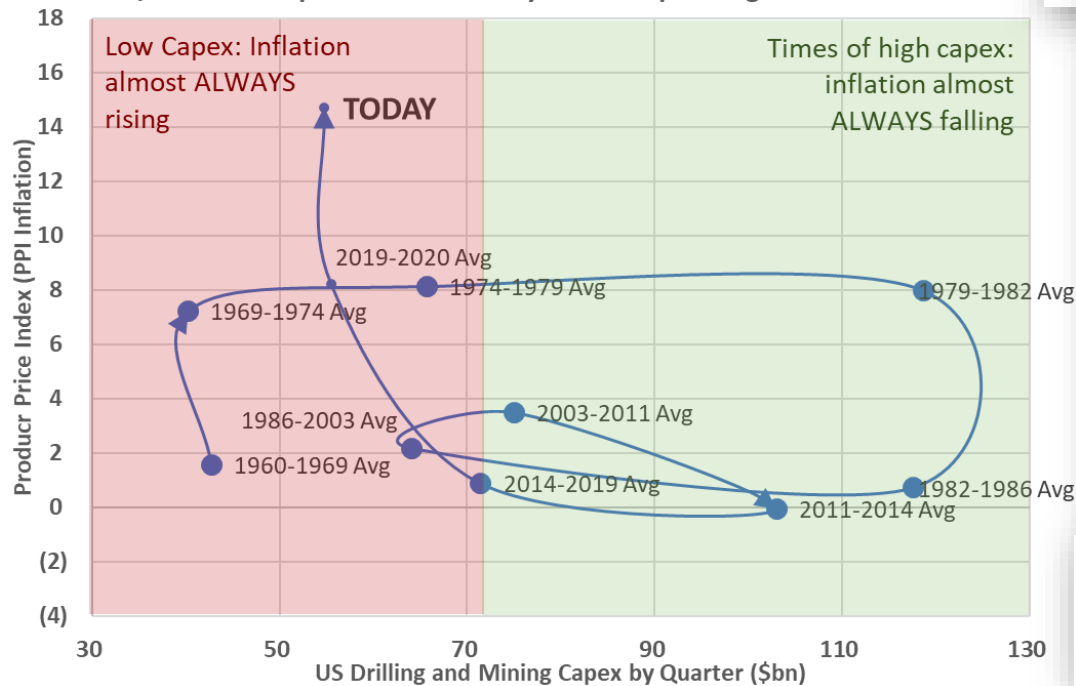
Nov 2021 (above): given the social unacceptability of advocating for more drilling, ineffectual short-term band-aids, such as the Strategic Petroleum Reserve, are advocated by politicians to address structural underinvestment.

Today: Capex is undershooting the inflation rate at a level not seen since the 1970s

1970s return as we repeat our mistakes: Despite clear signals that underinvestment is the main cause of our new inflationary experience, we are sleepwalking back to the 1970s. Both eras saw disruptive geopolitics (Arab Embargo/Russia), markets remain enthralled by the last bull market (Nifty Fifty then/FAAMG now), politicians threaten taxes and price caps instead of encouraging investment.

Capex vs. Inflation:

2022: with rising rates, 30-50% oilfield inflation, slowing GDP, ESG/divestment pressure... industry is underspending like 1978



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Wall St. and Washington deter capex

2022 (below): unable or unwilling to learn from history, policymakers and investors view the extractive industry as cause of, rather than solution to, inflation

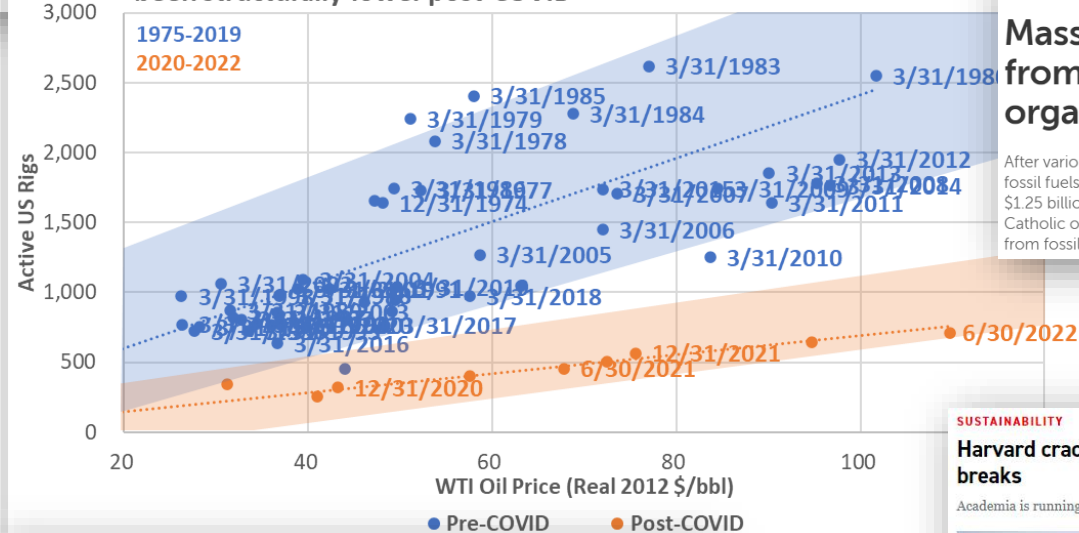
Biden slaps oil companies for profiteering at the pump.

In a letter to seven large energy firms, the president said excessive margins were "worsening that pain" for American consumers.

'Exxon Made More Money Than God': Biden Rips High Gas Prices

- A
- B

With tightening economic conditions, US energy investment has been structurally lower post-COVID



Pioneer CEO Sheffield Warns U.S. Shale Is Unable to Grow Much More

- Producers grappling with labor shortage, Sheffield says
- Says only OPEC countries able to meaningfully increase production

North American oil companies scramble to find workers despite boom



CHURCH

Massive divestment from fossil fuels by faith organizations

After various calls by the Vatican for divestment from fossil fuels, thirty-five faith institutions with more than \$1.25 billion in combined assets, including some Catholic organizations, announce they are divesting from fossil fuel companies.

SUSTAINABILITY

Harvard cracks on fossil fuels and a dam breaks

Academia is running from fossil fuels.



Houston Oil: A Skyrocketing Wildcatter Comes of Age Full Head of Steam

By JAMES P. STERBA

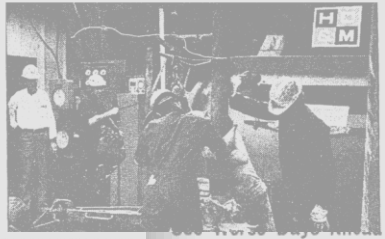
HOUSTON—Back before the turn of the decade, when he was a maverick geologist with a bunch of junk oil company and a bubble gum company called Houston Oil and Minerals, a lot of people kept their distance from Joe Walter, especially when he was prowling for cash to sink into one of those hold-your-breath wildcat wells on property that sensible oil companies had worked over and abandoned decades before.

Then one day a few years ago he got rich, famous and terribly respectable. He became Joseph C. Walter Jr., president and chairman of an exploration company so hot and successful that he almost had to disconnect his phone, because of all the security analysts calling up to pick his brain. Houston Oil and Minerals stock soared on the American Stock Exchange from \$2.10 a share in late 1972 to \$66 last year.

With one of two Research-Cottrell cooling towers looming in the background, men work on the oilfield at the John R. Johnson generating station near Charleston, W. Va. Hot water is not emitted into the nearby river by the system which is being completed.

He has to supervise a staff of 630 people and hire 30 or 40 new employees every month. He has to plan a 1978 budget of between \$350 million and \$400 million. He has to fret over the price of his stock, which has sunk from a high of 42½ in July to below 30 recently. He has to worry over when the web of Federal red tape and lawsuits will clear so he can start some exploratory oil wells in the Baltimore Canyon region off the Atlantic Coast, where his company paid the Federal Government \$8.2 million for leases to drill last August.

Mr. Walter discounts Houston Oil's stock slippage partly as an inevitable consequence of his company's maturation.



a well called Bolivar No. 1 in September 1972. At a depth of about 12,000 feet, they hit the frijo sands. But the layers were only 15 feet thick. It was no bonanza, but it still was a pretty good gas well. They tried to sell it for 35 cents per thousand cubic feet and a \$5 million prepayment (which they needed to drill another well). No takers.

"So we had to go back to our board of directors and talk them into letting us drill another well without a contract for the gas in the first one," Mr. Walter explained. "I thought the first well was the riskiest. But in the directors' minds, the second well was madness."

Ah, sweet madness. During the great four months, the Texas intrastate gas market turned upside down. Unlike interstate gas sales, regulated by the Federal Power Commission, gas sold within Texas enjoyed a free market. Shortages developed and prices rose sharply.

Industry's ignorance is at its highest. So for a smaller company like us, it's the best time to move."

Houston Oil eschewed the big tracts they knew the major companies wanted, most sank \$2.2 million into one of the promising prospects.

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Continued from page 1

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By Daniel Yergin

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though, regulations insist that rescue boats be stationed permanently off the platform.

We landed on the helicopter pad at the top of the structure. Manfred Block, the husky, German-born chief engineer, led us on a tour.

It had taken eight tugs to tow and position Beryl-A last July, at a point 130 miles from Norway and 185 miles from Scotland. Almost 400 men live on it now, completing construction; eventually, it

U.S. Energy Still Abundant, but Costly

By GENE SMITH

The energy business is changing. Now ways are being sought to make the most of the abundant oil and gas reserves that the United States has.

William E. Miller, vice chairman of the General Electric Corp., said in a recent speech that the United States has a "great energy advantage" over other nations. He said that the United States has a "great energy advantage" over other nations.

HOPEFUL OF A SOLUTION

The bill, improved with inflation, stress on government

Consumer Prices—Another Big Leap

All items, 1967-1970

Leonard Silk

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Wait....can we really be more impactful than the Fed?

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Getting This Oil Takes Drilling and Diplomacy

By Raymond Bonner

Even if Washington blocks Iran's direct participation, Azerbaijan will bring Iran in through the back door, oil company executives and Western diplomats here said. Iranian involvement could make the participating American oil companies ineligible for U.S. credit and loans guaranteed from the Federal Government.

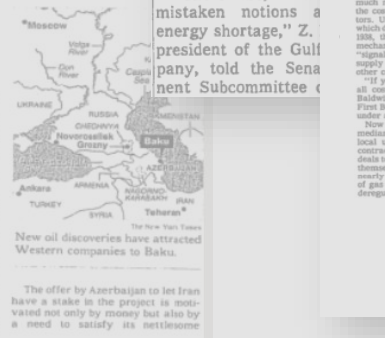
The consortium, in which four American companies hold 49 percent of the shares, faces another politically charged problem: how to get the oil to Western markets. Washington recently announced that it preferred a pipeline that runs through Turkey that does not sit well with Moscow, which wants a pipeline that goes through Russia. But that does not suit Turkey or Azerbaijan. The other options are through Georgia, which is politically

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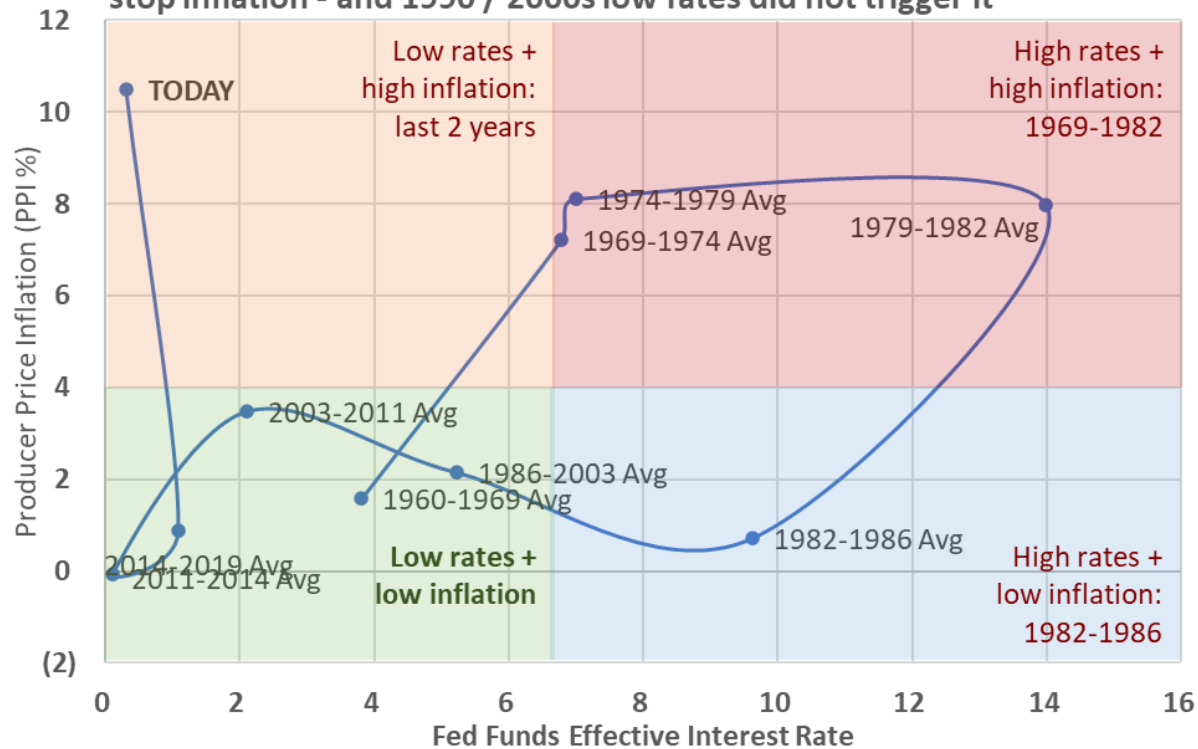
A view of the Amerada Hess refinery in Port Reading, N. J. The concern decided to close it because of increased operating costs and rising construction prices.

Is it possible that the Fed's much-vaunted status as “guardian against inflation” is a myth?

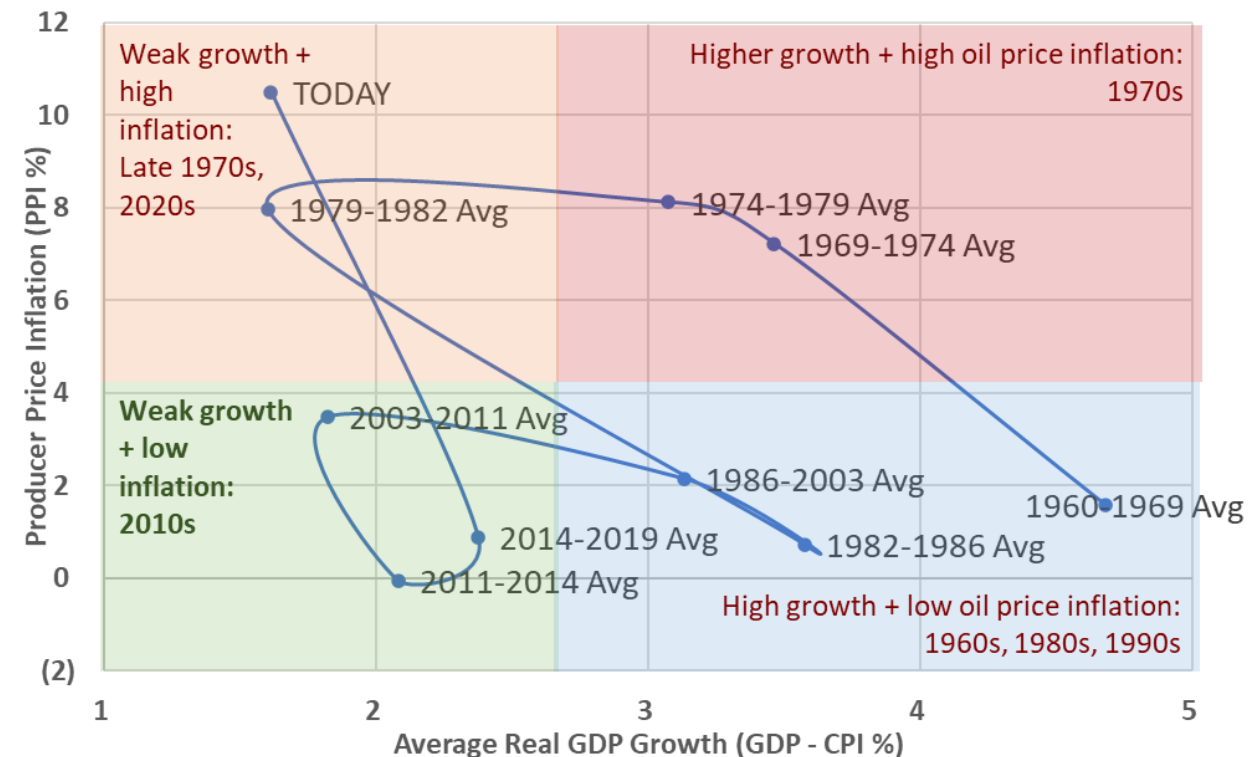
If GDP doesn't influence long-term inflation, why would the Fed be able to? The argument that the Fed has little control over long-term inflation isn't as controversial as it seems and there's little evidence to support the Fed's supposed control over inflation.

The Roaring 70s. Carter's economic miracle. The 2011 Sovereign Debt Boom. Doesn't ring a bell? That's because GDP and inflation show little long-term relationship. High commodity prices and elevated inflation generally weakens GDP growth. Meanwhile, strong GDP growth – 1960s, 1990s, 2010s – often coincide with weak periods for commodity prices.

The Fed has weak explanatory power - 1970s' high rates did not stop inflation - and 1990 / 2000s low rates did not trigger it

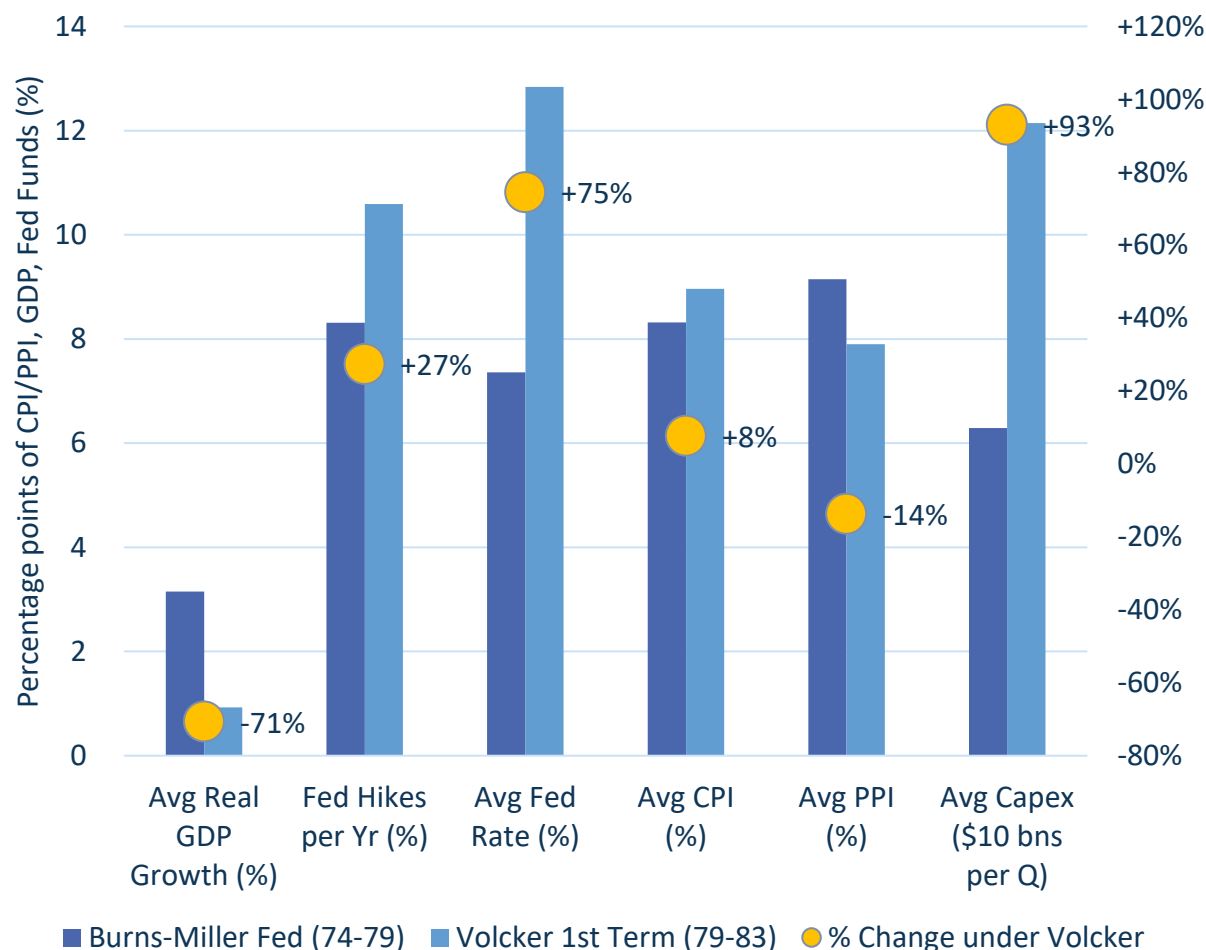


GDP growth has a weak relationship with long-term inflation



The Volcker Fed's victory over inflation, enshrined in 40 years of Federal Reserve lore, might have been just a myth

The “Do Nothing” 1970s Fed and Volcker’s Fed both hiked aggressively, slowing GDP, but inflation was slow to fall. This changed when Volcker benefitted from a +93% jump in capex



Relying on economic contraction to halt steady increases in inflation, the 1970s Fed was remembered as a failure.

Volcker’s Fed followed nearly the same policy, moving from a then-record 2% annual hike pace to 2.5%... GDP growth collapsed, but inflation was still slow to fall in 1979-81.

The key difference was that Volcker presided over the largest increase in drilling/mining capex in American history.

Surging capex gave Volcker a chance Burns and Miller never got – to cut rates rapidly without suffering an inflationary resurgence.

RECURRENT INVESTMENT ADVISORS

Houston Oil: A Skyrocketing Wildcatter Comes of Age Full Head of Steam

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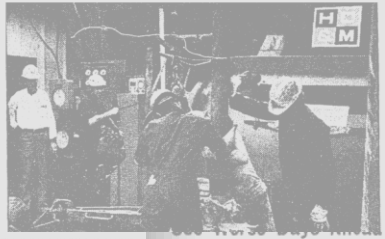
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U.S. Energy Still Abundant, but Costly

By GENE SMITH

The energy business is changing. New ways are being sought to develop the abundant energy resources that have been the mainstay of the U.S. economy.

Leonard Silk

Mr. Silk, a prominent Wall Street analyst, discusses the challenges facing the energy industry and the potential for future growth.

A Double Trouble Formed

The combination of economic stagnation and inflation has created a double trouble for the energy sector.

How can the energy cycle help guide resource and energy investments?

This article explores the relationship between the energy cycle and investment decisions in the resource and energy sectors.

Getting This Oil Takes Drilling and Diplomacy

By RAYMOND BONNER

Even if Washington blocks Iran's direct participation, Azerbaijan will bring Iran in through the back door, oil company executives and Western diplomats here say.

THE MAVERICK WHO TRANSFORMED AN INDUSTRY

Houston, Texas, is a city of oil. It is a city where the energy industry has thrived for decades.

Consumer Prices—Another Big Leap

All items, 1967-1970

Consumer prices have risen significantly over the past few years, leading to concerns about inflation.

Closing the Gap

Billions \$900

The gap between production and demand is widening, and efforts are being made to close it.

HOPEFUL OF A SOLUTION

The bill, improved with inflation, stress relief, and other measures, offers a path forward.

A Chilling A Chill

WASHINGTON—The House of Representatives voted against oil shortages last week and Arab states voted for them.

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"We just can't put money we're borrowing short term into things like that when our first chance of getting any money back is five to seven years," said Mr. Walter. The company, he said, would not bid for drilling rights in the Georges Bank off Newfoundland.

With a \$10.5 million foreign oil and gas exploratory budget this year, the company is looking for more opportunities.

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quarter and about double the "normal" growth rate in prosperous times. The Government's aim is to slow this boom to about a 4 per cent growth rate by the end of the year, thus easing the inflationary strain.

Corporate profits for the first quarter were growing, with company earnings up 11 per cent over the same quarter last year, double last year's.

The Gross National Product rose 1.1 per cent in the first quarter, double last year's.

The Consumer Prices rose 1.1 per cent in the first quarter, double last year's.

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By Daniel Yergin

The sea seemed empty at first, except for the odd fishing trawler. For centuries, the fishermen have had the North Sea to themselves, to chase the herring that was northern Europe's biggest business in the Middle Ages, more recently to pursue the haddock and the cod. As our helicopter met the

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Meanwhile, Scottish nationalism has at last found its voice. It is now, completing construction; eventually, it

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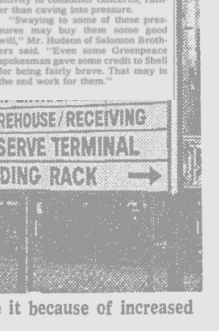
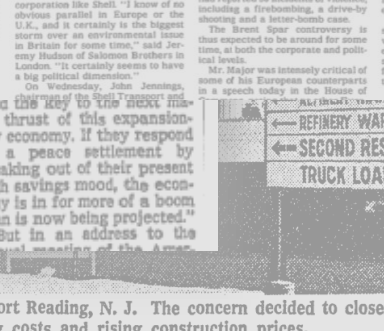
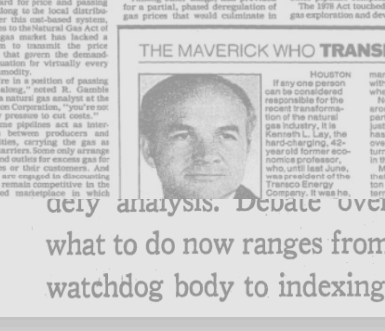
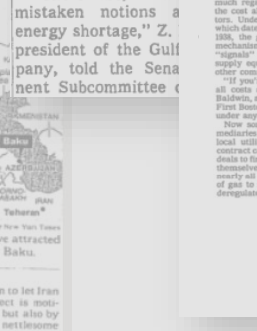
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GDP and the Fed appear less impactful to the commodity cycle than commonly believed... but what matters for investors?

Our case study suggests a powerful conclusion: **capex** is the key variable for understanding commodity cycles. Typical indicators – GDP growth, Fed policy – appear much less useful.

The overreliance on demand-oriented metrics has influenced investment processes as well, leading to an excessive focus on commodity price and GDP forecasting. These forecasts are not particularly useful for investors, even when done well.

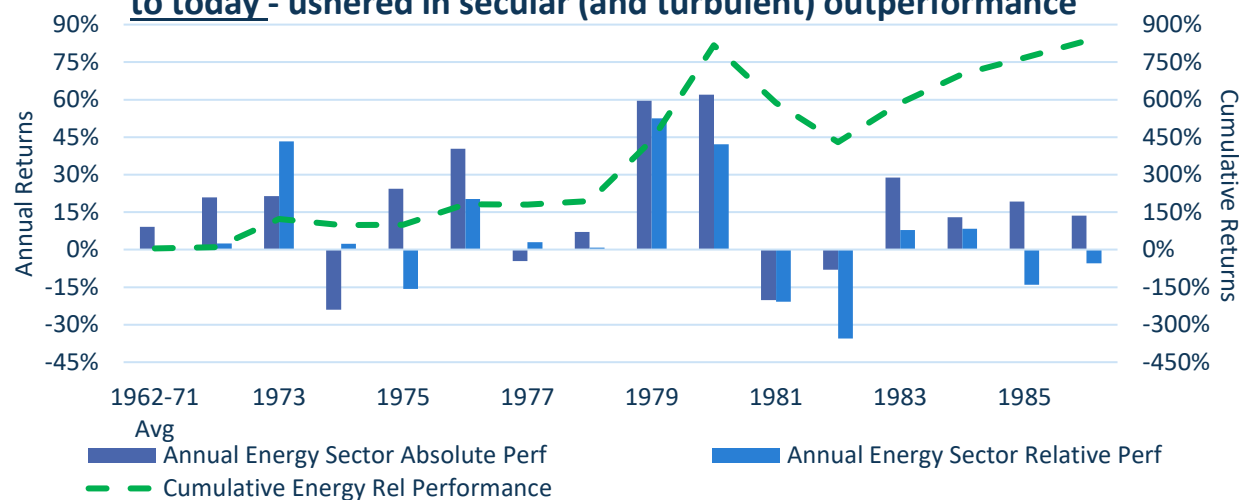
We find that the patterns of **inflation** (which is driven by levels of recent-year **capex**) are similar to multi-year patterns of relative energy performance vs. broad equity markets.

One key takeaway for investors is that **when trailing capex is low, relative performance for commodity-levered investments tends to be positive.**

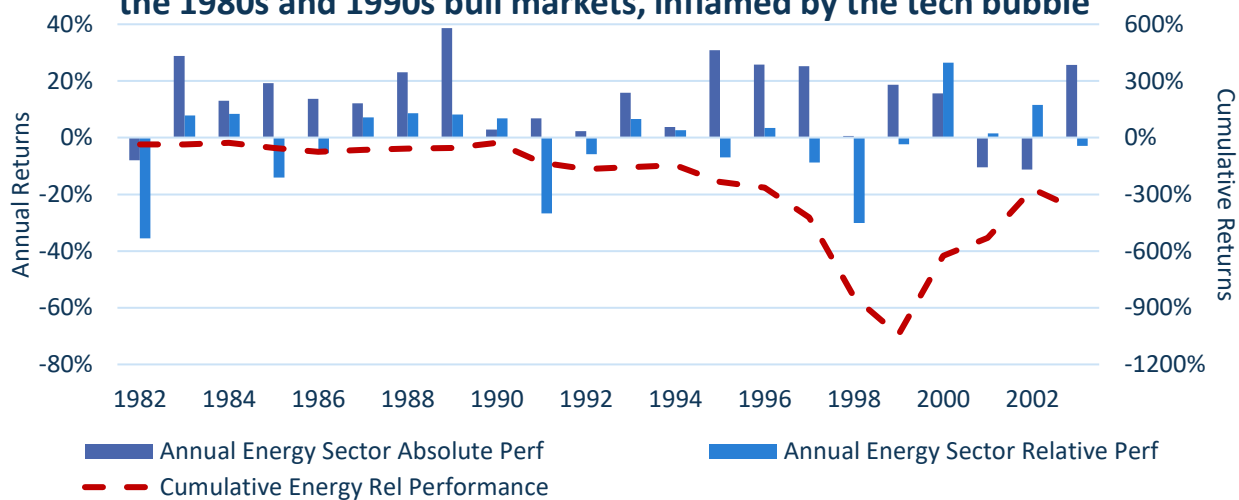
We believe that **longer-term investors can focus on long-term capex trends to guide investments**, with less attention on volatile demand forecasts.

For inflation vs. capex, today's environment is comparable to early 1970s – huge energy outperformance and high volatility

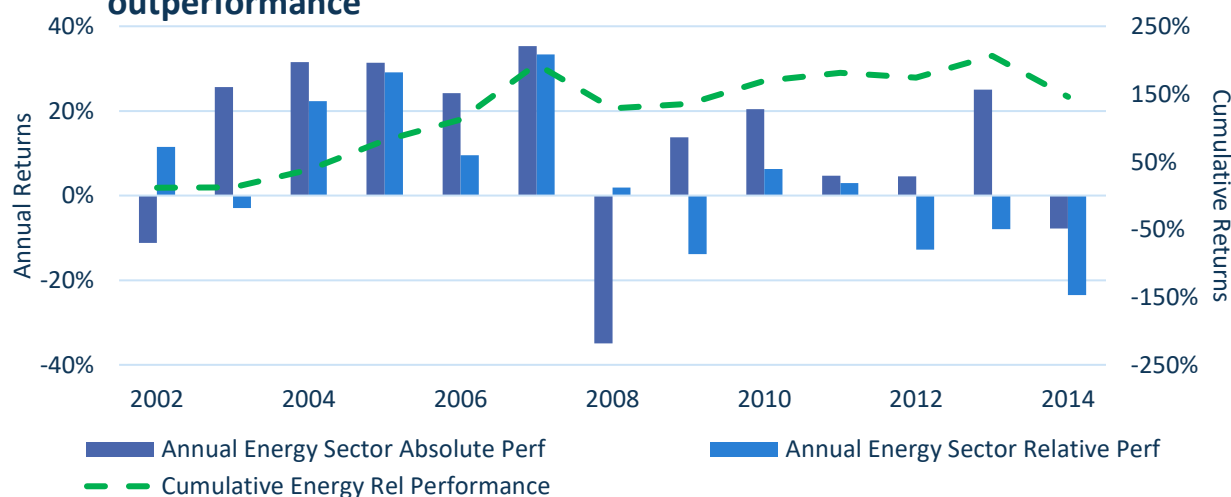
1960s-70s underinvestment era – economic conditions similar to today – ushered in secular (and turbulent) outperformance



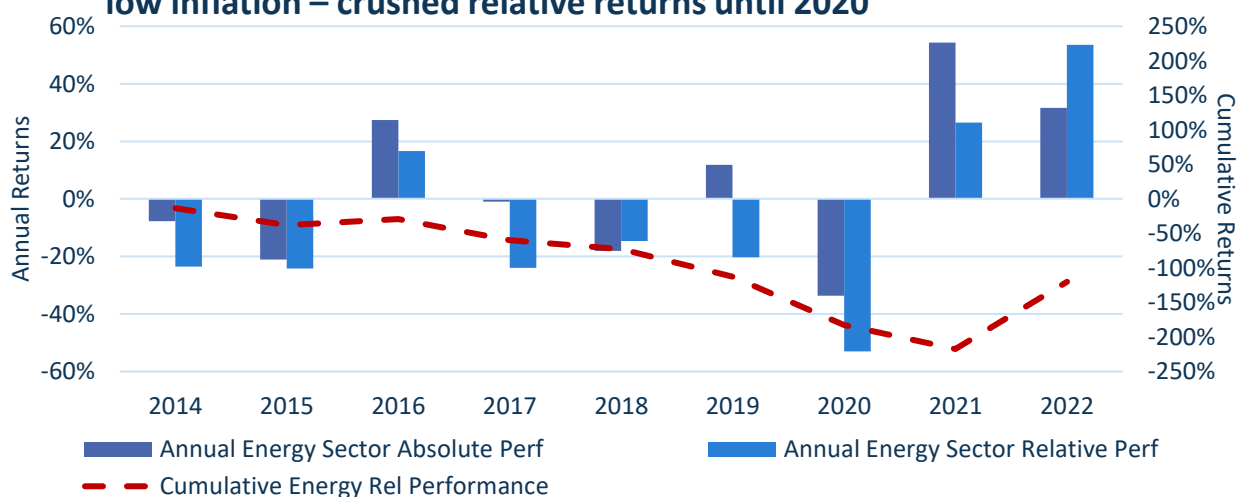
Investing at peak capex in the 80s, energy investors would lag the 1980s and 1990s bull markets, inflamed by the tech bubble



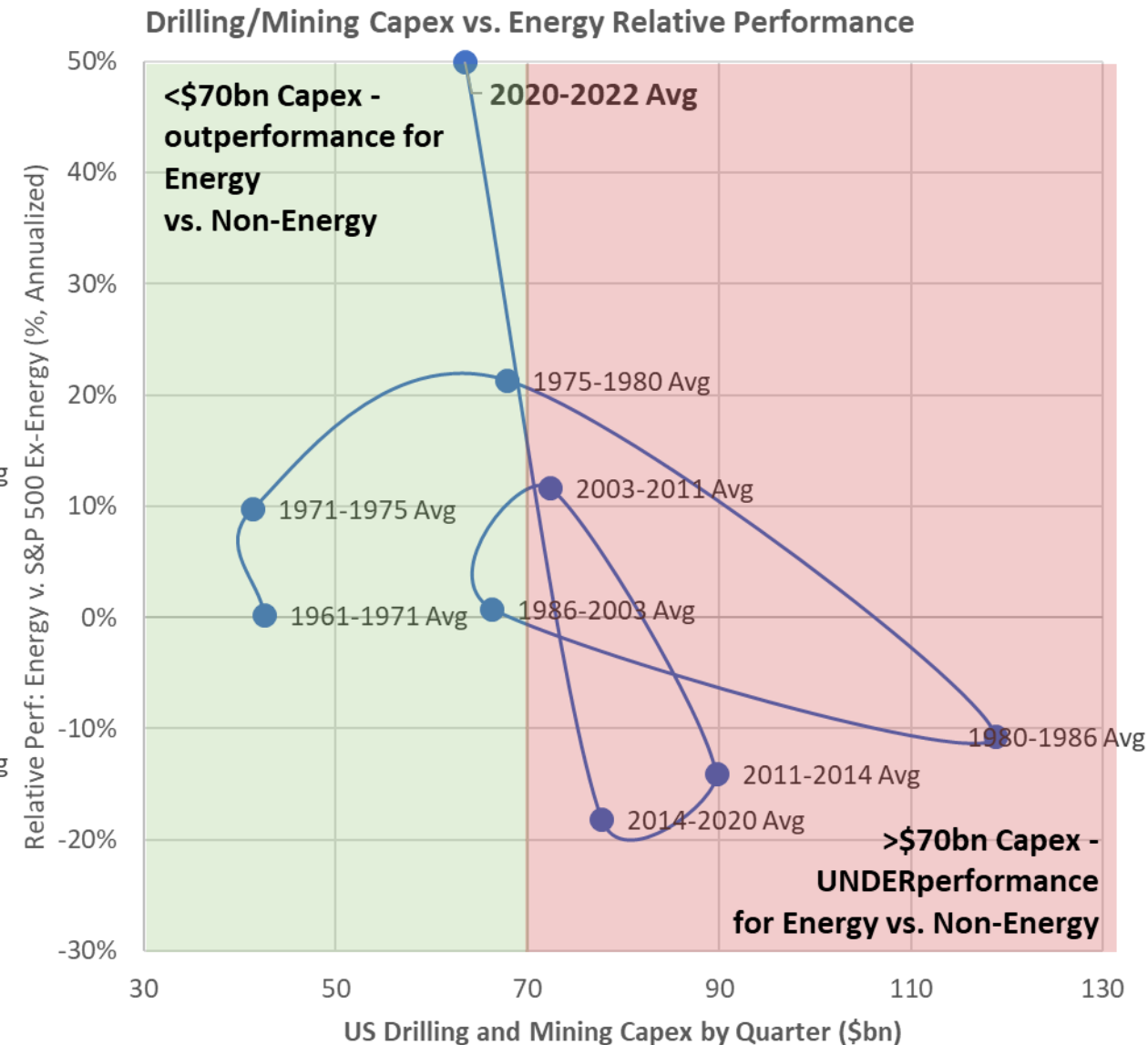
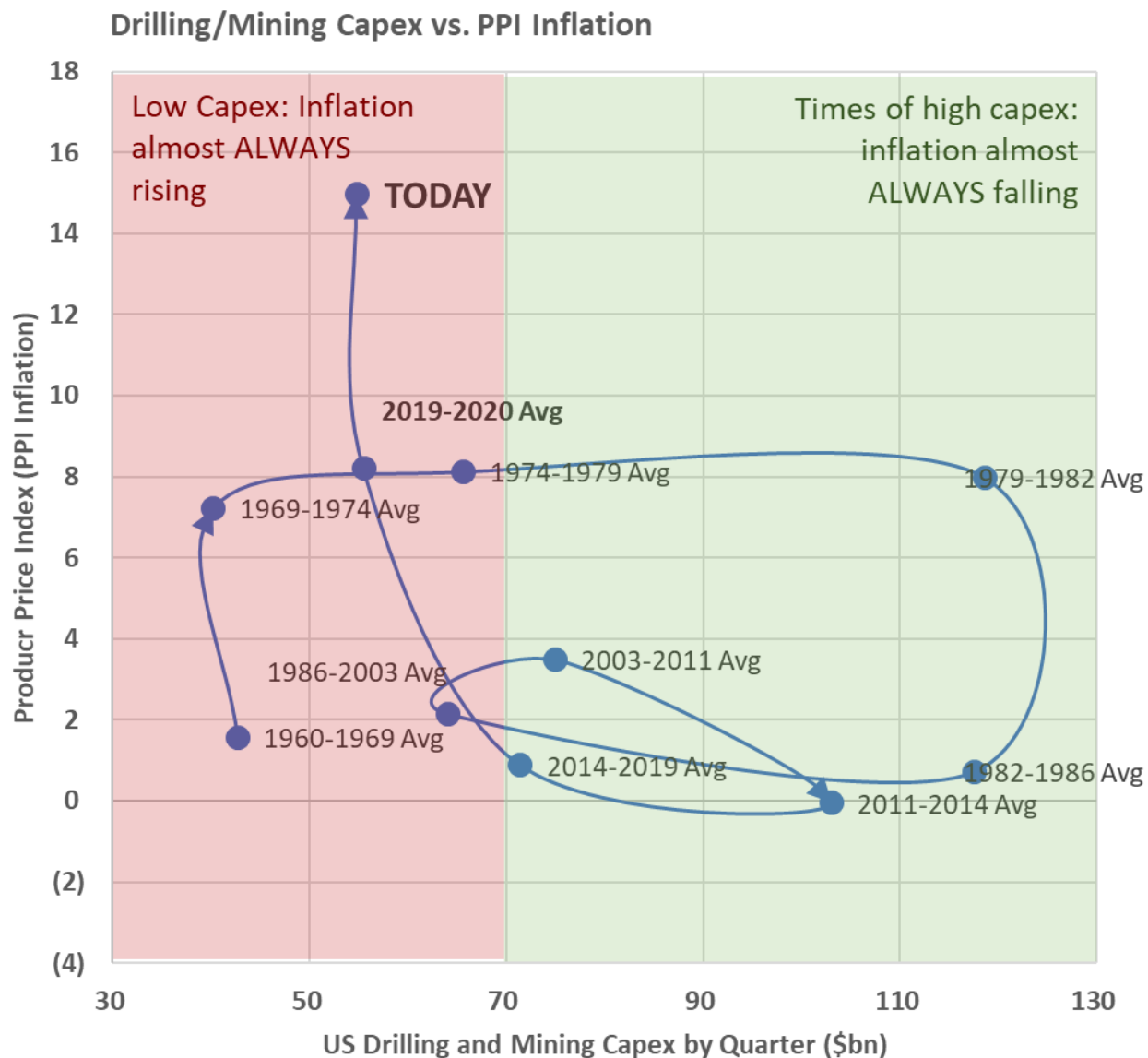
Investing in the low capex era of the early 2000s generated outperformance



The excessive capex of the shale era – in a period of already-low inflation – crushed relative returns until 2020

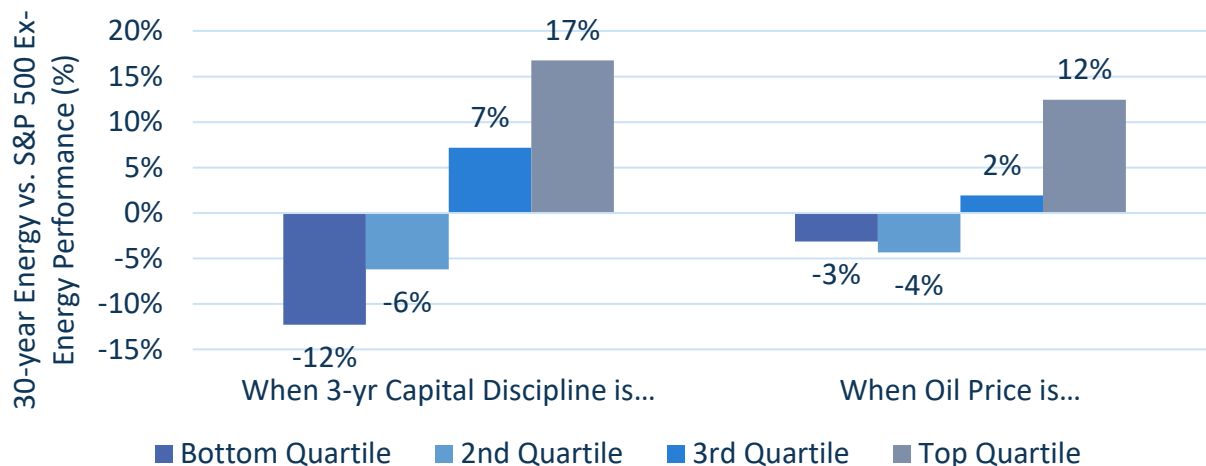


60 years of data suggests capex drives inflation and relative energy equity performance – and today looks like the early 70s

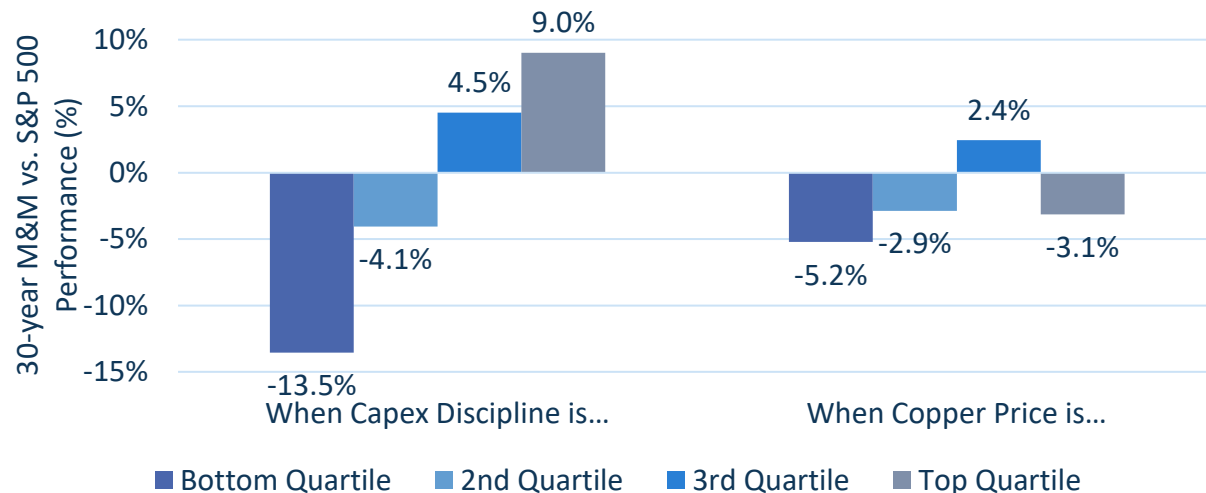


Can the investing lessons from a 60-year energy dataset be extrapolated to other natural resource industries?

NAM - Rel. Equity Performance by Capex/Oil Price (as originally shown on page 4)



Metals & Mining - Rel Equity Performance by Capex / Cu Price



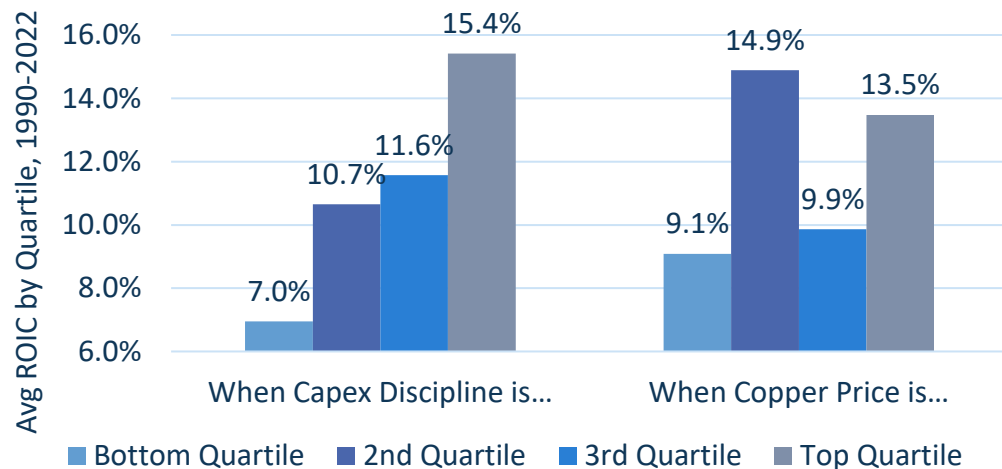
While our 60-year North American Energy dataset offers the most extensive history, we can also examine other natural resources sectors starting in 1990.

Strikingly, we find that metals and mining stocks – despite different economic exposures, commodity price cycles, and greater exposure to China – are also more sensitive to the capex level than they are to absolute commodity price.

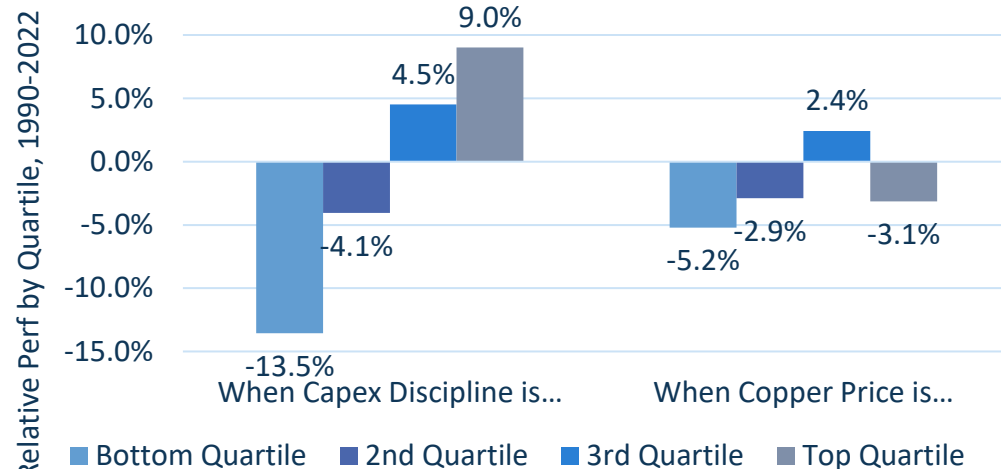
Again, our conclusion appears to apply: the **capex cycle** appears a more useful input vs. demand-oriented commodity price forecasts.

For global natural resource sectors outside of our 60+ year North American dataset, our powerful findings hold

Metals & Mining - ROIC by Capex and Commod Price

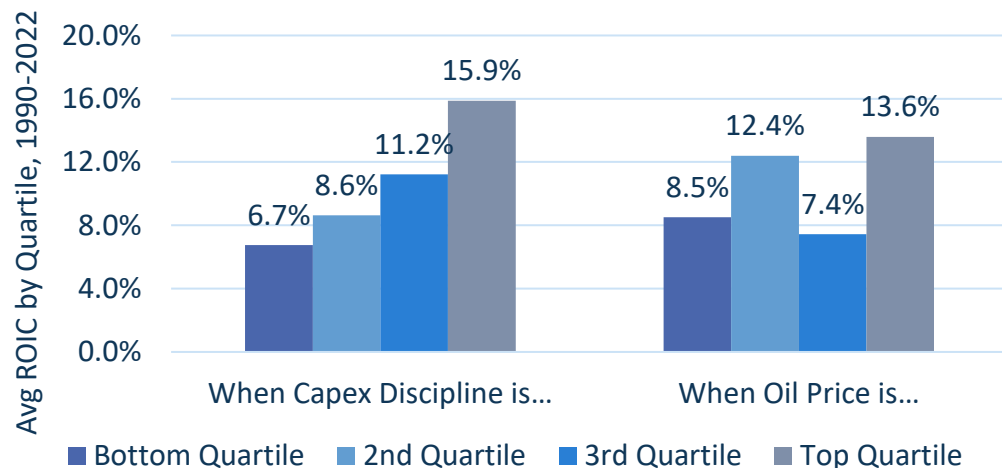


M&M - Rel Equity Performance by Capex / Commod Price

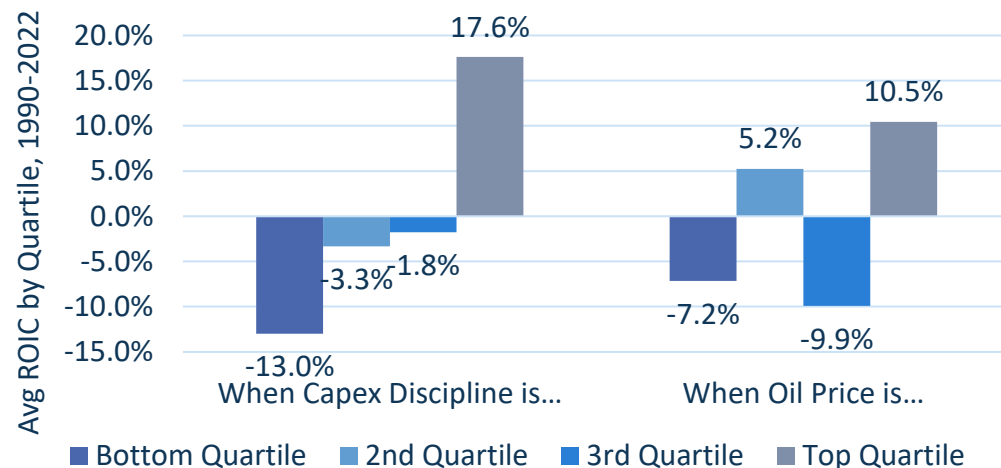


Capex (measured here as capex/CFFO) has been a stronger indicator of ROIC (actual corporate returns) and equity returns (stock market performance) than an accurate commodity forecast.

Global Oil - ROIC by Capex/Commodity Price Quartile



Global Oil - Relative Performance by Capex/Commodity Price



This suggests that there is a better way to invest than “buying commodity dips” (did not work in 1960s, 1985-95, 2015-19) or “selling commodity rallies” (did not work in 1974-78, 2005-2012).

In conclusion – today's 1970s-style capex deficit has powerful implications for investors and politicians alike

In this report, we have shown that capital investment – not the Fed, and not GDP growth – has driven the inflationary cycle of the last 60+ years, and is driving our current bout of inflation.

The habit of attributing inflation to demand-side forces in the economy is not only inaccurate, but counterproductive, as a demand-centric understanding of inflation encourages monetary policymakers or politicians to enact policies which can discourage capital investment.

If capital investment in commodity-oriented sectors offers the only exit from a bout of inflation, then today's 1970s-style environment – where society, government and financial markets are hostile to commodity producers – is likely to persist for the foreseeable future.

While no two cycles look exactly alike, the low-capex 1960s and 1970s ushered in a decade (and hundreds of percentage points) of commodity-levered outperformance.

Thank you, as always, for reading!

- the Recurrent Team

- All research presented above is a product of Recurrent Research.
- **Capex:** Long-term data US drilling/mining capex are sourced from the “Private Fixed Investment: Nonresidential structures – mining exploration shafts and wells dataset. Bureau of Economic Analysis (BEA). These data are adjusted for inflation by Bloomberg, accessed under RFPIMINI Index.
- **Inflation:** All references to inflation reflect the Producer Price Index (PPI), as compiled by the Bureau of Labor Statistics (BLS). PPI reflects costs incurred by US producers to deliver goods and services, and excludes imported goods and services purchased by Americans but includes items produced in the US for export, making PPI a suitable comparable for US drilling/mining capex.
- **Energy Equity Performance:** represented by the S&P 500 Energy Index beginning in 1989. From 1961 to 1989, the presentation uses an equal-weight index of equity returns of the largest Fortune 500 energy companies, including Exxon, Mobil, Texaco, Gulf, Amoco, Shell Oil, Atlantic Richfield, Chevron, Phillips Petroleum, Marathon Oil, Occidental Petroleum, Conoco, BP America (fmr Standard Ohio), and the Sun Oil Company.
- Slide 4 shows the coincidence of below-average Producer Price Index (PPI) inflation readings 12 months following periods of US drilling/mining capex being in the top 25% of the historical (1960-2022) range, as well as during periods when the Fed is raising rates, measured by an increase on the previous 12 months, and when GDP growth is in the bottom quartile of the 62 year range. All data accessed via Bloomberg.
- Slide 5 graphs show the coincidence of relative energy stock market returns with capex and oil price. Performance outcomes are shown for the 1961-2022 and 1990-2022 periods. “Bottom quartile” reflects when capex discipline was lowest (i.e. real capex was highest) and when real oil prices were lowest.
- Slide 8 through Slide 17: all capex and PPI metrics are as described above. All articles are pulled from the TimesMachine, New York Times digital archives.
- Slide 18 includes Bloomberg and New York Times articles, as well as a Rig Count vs. WTI Oil Price graph which includes Baker Hughes Rig Count data and was accessed from Bloomberg.
- Slide 20 includes GDP data from the BEA accessed via Bloomberg, and Fed Funds data accessed from St. Louis Fed FRED Economic Data website.
- Slide 21 includes GDP data, Fed Funds data, Consumer Price Index (CPI) and PPI inflation data, and capex data as mentioned above or from the BEA. All data accessed from Bloomberg.
- Slide 24 performance data reflects Energy Equity performance (as discussed above) vs. to the S&P 500 excluding energy. This was primarily to control for periods in the late 1970s and early 1980s, when energy approached 30% of the entire S&P 500 and heavily skewed S&P 500 Index returns. All S&P data retrieved from Bloomberg.
- Slide 25 reflects inflation, capex, and performance data as discussed above.
- Slide 26 reflects 30+ years (1990-2022) of performance compared to the real price of copper and oil, as well as compared to real industry capex over this time period. Company level capex for Metals and Mining is normalized over currencies and inflation using a measure of Capex/Depreciation. Metals and Mining includes Freeport McMoran, BHP, Rio Tinto, Glencore, Phelps Dodge (pre Freeport merger), Vale, Teck Resources, Anglo American, Fortescue Mining Group, Xtrata, First Quantum, Antofagasta, Alcoa, Southern Copper, Albemarle, and Arcelor.
- Slide 27 reflects actual financial performance (measured by ROIC = operating profit / assets net of working capital) of the oil and metals sectors, using the metals universe mentioned above, as well as an oil universe of Amoco, Mobil, Occidental, Chevron, Conoco, BP, Royal Dutch Shell, Hess, Anadarko, Equinor, Atlantic Richfield, Texaco, Unocal, Burlington Resources, Pioneer Natural Resources, Devon Energy, EOG Resources, and Chesapeake Energy.
- Company level data is sourced from Bloomberg, as well as the Department of Energy (DOE) Energy Industry Performance Profiles 1974-2009.