

Historical Comparison of PD vs PUD: Largest Publicly Traded Oil Companies

ML Van Der Loop
Ammonite Resources, Inc.

New York Times (Jan. 10, 2004)

“Royal Dutch Shell said yesterday that it was reducing its proven oil and gas reserves by 20 percent. . . .

. . . According to Shell, more than 90 percent of the reduction came from projects that are classified as undeveloped. . . .”

“I am becoming sick and tired about lying about the extent of our reserves issues. . .”

Walter van de Vijver, Shell executive, email

Fear on Wall Street ;

Anyone else out there sick and tired of lying. . . .??

“Reserves growth is highly correlated with market returns; . . . regression analysis of reserves growth vs common stock returns has an 83% correlation to share price appreciation

Source Bala G Dharan, Rice University
Professor of Accounting,
Energy Forum, Houston TX,
October 2004

RESERVES

**Proved Developed
Proved Undeveloped**

**Reported to SEC on Form 10K
In Annual Report**

- **Houston Public Library**
- **Annual Reports on CD**
- **10K report**
- **Supplemental Information on Oil and Gas Producing Activities**

10K report to SEC

26 907500 EXECUTED WITH EXHIBITS
SECURITIES AND EXCHANGE COMMISSION 532.612
Washington, D. C. 20549

FORM 10-K

Annual Report Pursuant to Section 13 or 15(d) of
the Securities Exchange Act of 1934

For the fiscal year ended December 31, 1988 Commission file number 1-8483

UNOCAL CORPORATION
(Exact name of registrant as specified in its charter)

DELAWARE
(State or other jurisdiction of
incorporation or organization)

95-3825062
(I.R.S. Employer
Identification Number)

1201 West Fifth Street, Los Angeles, California
(Address of principal executive offices)

90017
(Zip Code)

Registrant's Telephone Number, Including Area Code: (213) 977-7600

Securities Registered Pursuant to Section 12(b) of the Act:

<u>Title of each class</u>	<u>Name of each exchange on which registered</u>
Common Stock, par value \$1.00 per share	New York Stock Exchange Midwest Stock Exchange Pacific Stock Exchange

Obligations of Union Oil Company of California, a wholly owned subsidiary of the Registrant*

6-5/8% Debentures due June 1, 1998	New York Stock Exchange
8-5/8% Debentures due March 1, 2006	New York Stock Exchange

Securities Registered Pursuant to Section 12(g) of the Act: None

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes No

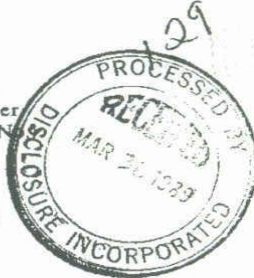
The aggregate market value of Common Stock held by non-affiliates of the registrant as of March 15, 1989 (based upon the average of the high and low prices of these shares on the New York Composite Transactions listing) was \$4,930 million.

Shares of Common Stock outstanding as of March 15, 1989: 116,858,598

DOCUMENTS INCORPORATED BY REFERENCE

1988 Annual Report to Shareholders	Parts I, II and IV
1989 Proxy Statement	Part III

*Union Oil Company of California Commission file number is 1-554.



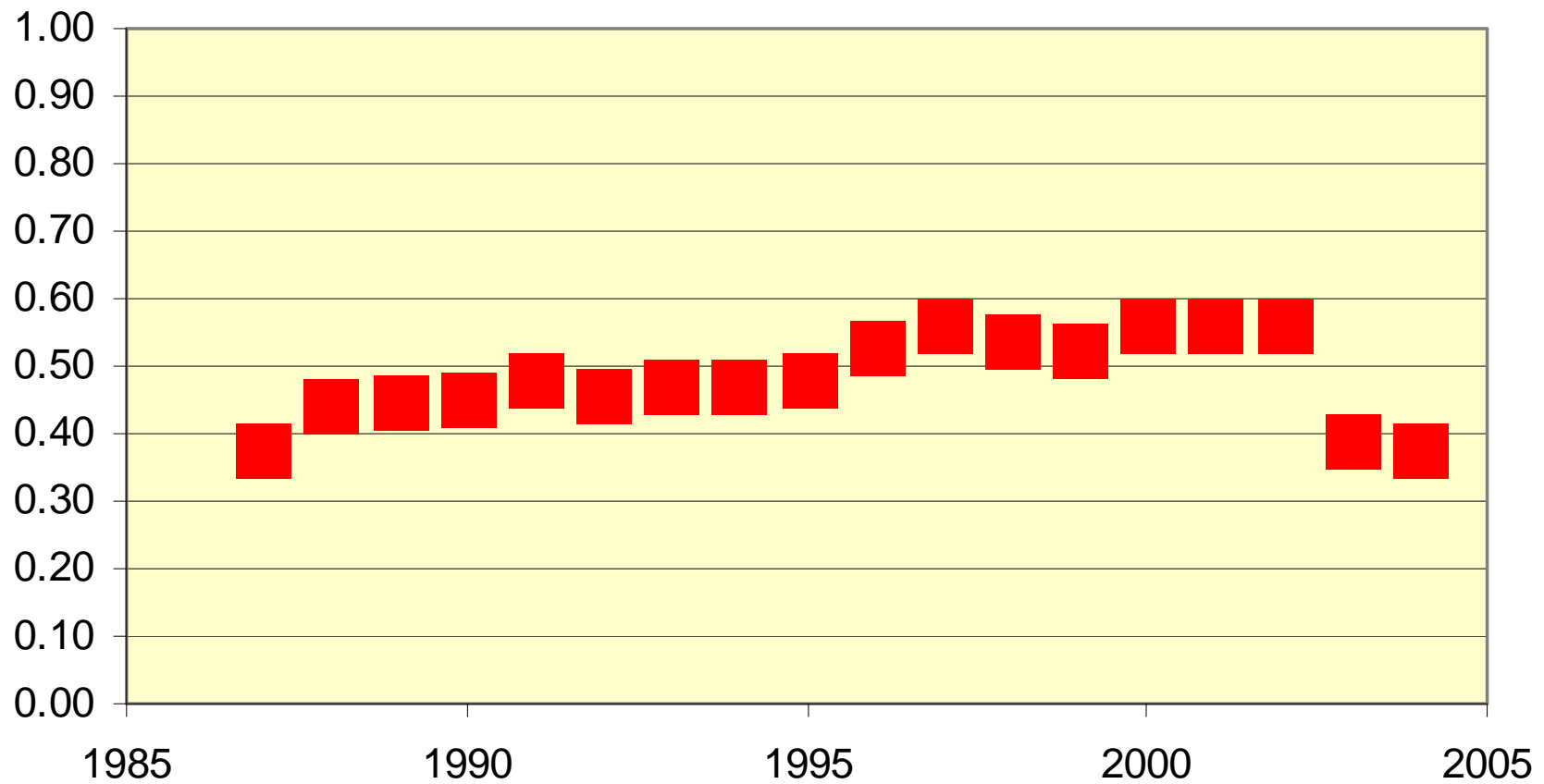
OIL AND GAS RESERVE DATA (UNAUDITED)

ESTIMATED PROVED RESERVES OF CRUDE OIL AND CONDENSATE (MILLIONS OF BARRELS) ^(a)	United States	Europe	Far East	Other Foreign	Total
<i>Developed and Undeveloped</i>					
<i>As of January 1, 1986</i>	540	33	114	64	751
Revisions of estimates	9	1	13	—	23
Improved recovery	6	—	—	—	6
Discoveries and extensions	42	—	17	3	62
Production	(56)	(7)	(20)	(7)	(90)
<i>As of December 31, 1986</i>	541	27	124	60	752
Revisions of estimates	6	7	18	3	34
Improved recovery	10	—	—	6	16
Discoveries and extensions	36	10	—	5	51
Purchases	7	—	—	—	7
Production	(56)	(7)	(19)	(7)	(89)
<i>As of December 31, 1987</i>	544	37	123	67	771
Revisions of estimates	3	1	23	—	27
Improved recovery	4	—	—	2	6
Discoveries and extensions	25	10	2	2	39
Purchases	18	—	—	—	18
Sales	(8)	—	—	—	(8)
Production	(57)	(6)	(19)	(7)	(89)
<i>As of December 31, 1988</i>	529	42	129	64	764
<i>Proved Developed Reserves</i>					
December 31, 1985	430	30	95	56	611
December 31, 1986	434	26	92	51	603
December 31, 1987	459	23	92	54	628
December 31, 1988	449	18	96	53	616

Ratio of PUD to Total Reserves

- **Proved Developed and Undeveloped**
- **Subtract Developed**
- **= Undeveloped Reserves**
- **Undeveloped is what % of the total?**

Royal Dutch Shell Percent Proved Undeveloped Crude Oil Reserves, Worldwide

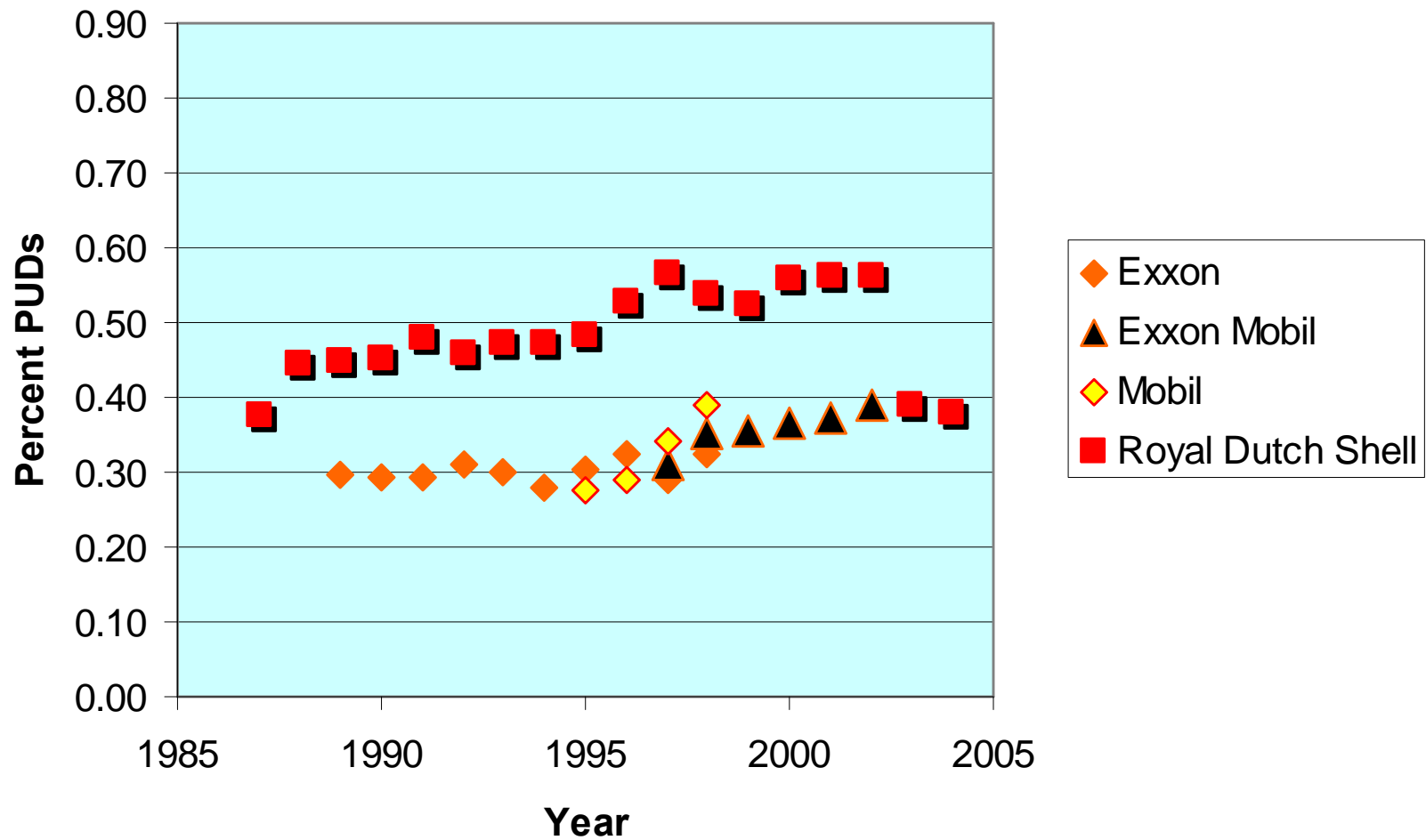


- *Look at the ratio of PUD to PD.
What is a normal ratio?*
- *Companies out of that norm
might be suspect – or could have
high PUD Reserves*
- *What drives that ratio?*

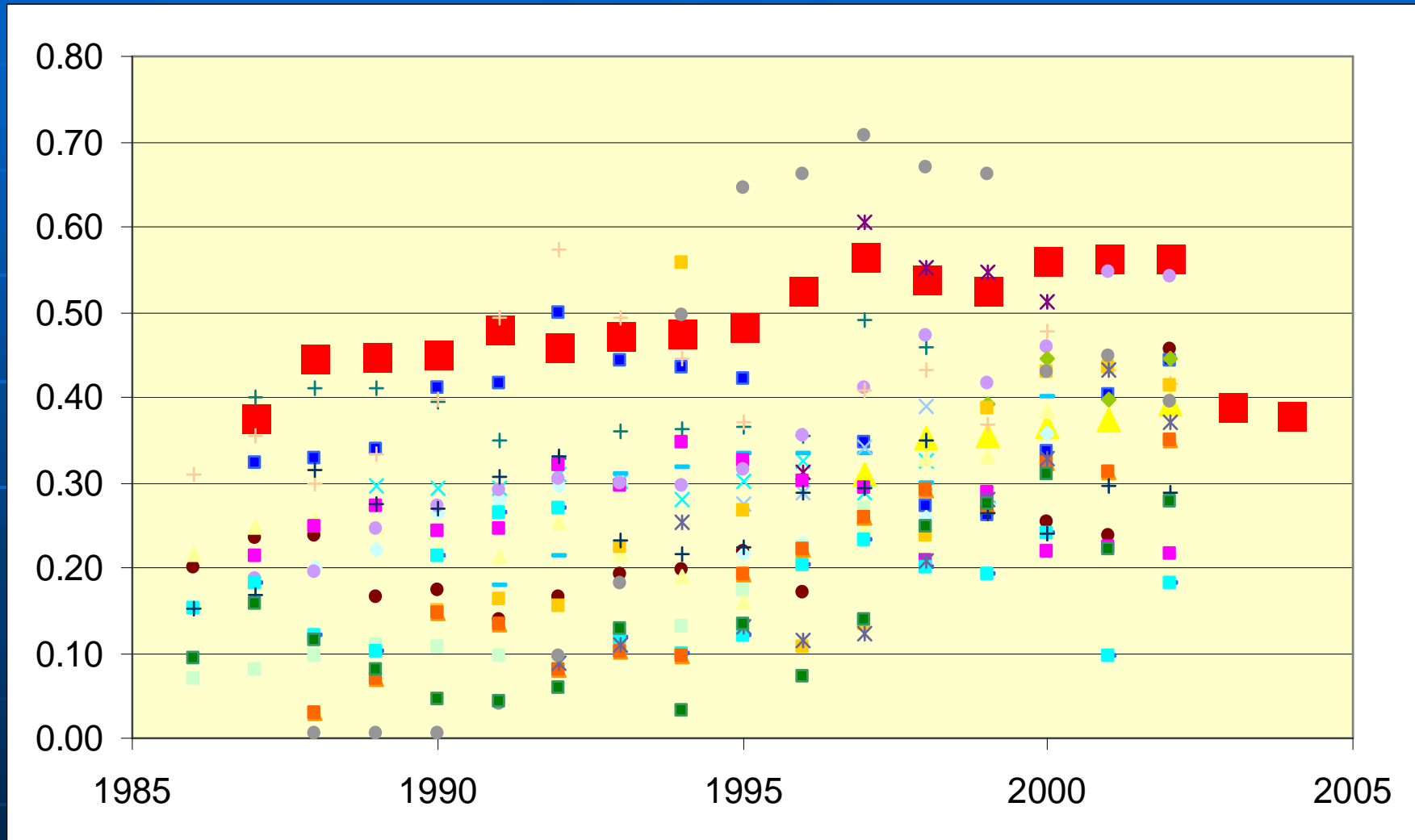
Companies in this Study

- **Shell, Exxon/Mobil, BP(Amoco/Arco), Chevron/Texaco, Conoco/Phillips, Amerada Hess, Apache, Burlington, Devon, El Paso, Enron EOG, Kerr McGee, USX Marathon, Occidental, Unocal, Anadarko**

Exxon Mobil vs Shell Pd vs PUD Ratio



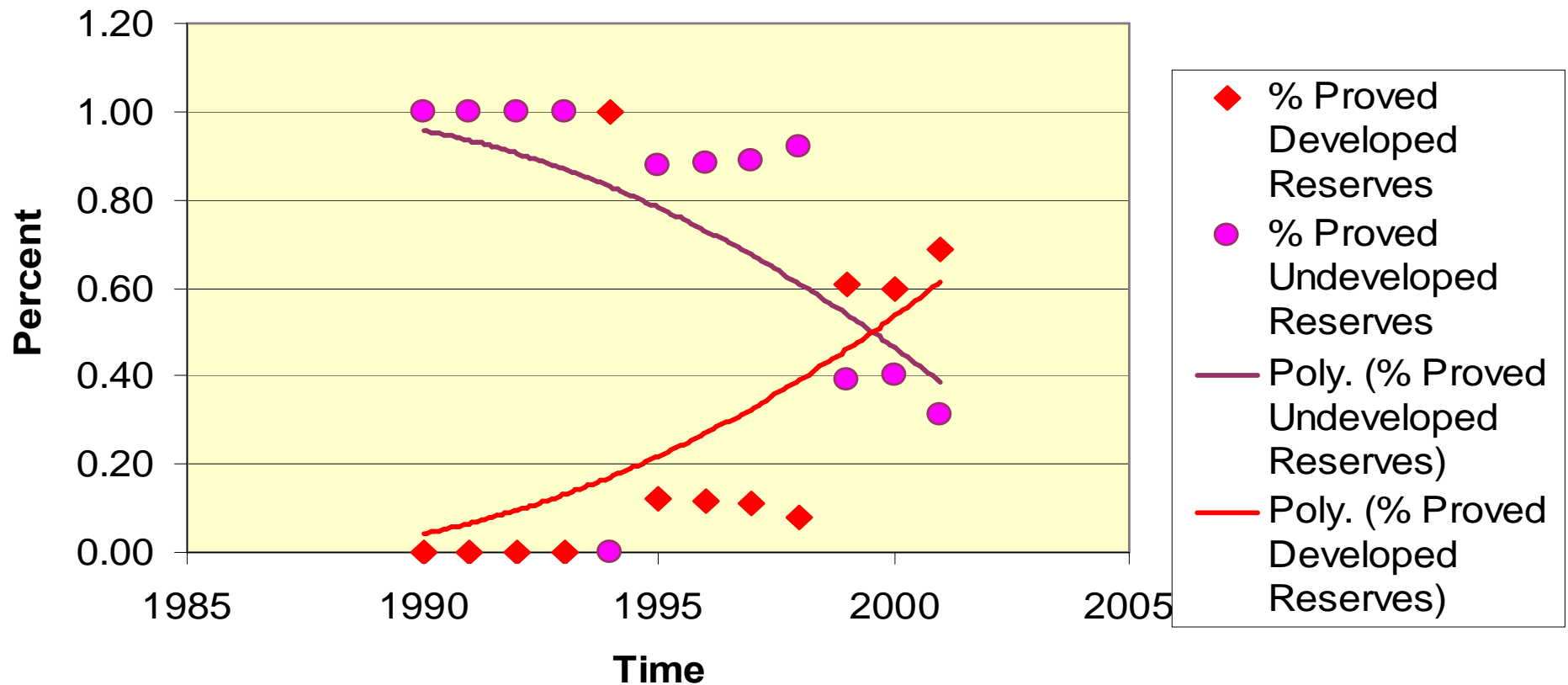
Percent Proved Undeveloped Reserves, 25 Largest Publicly Traded Oil Companies



What should we expect in PUD Reserve reporting?

- Mature producing areas
 - Low % PUD
- Immature producing areas
 - High % PUD
 - Some International areas Immature production
- Big Discovery - PUD % should increase

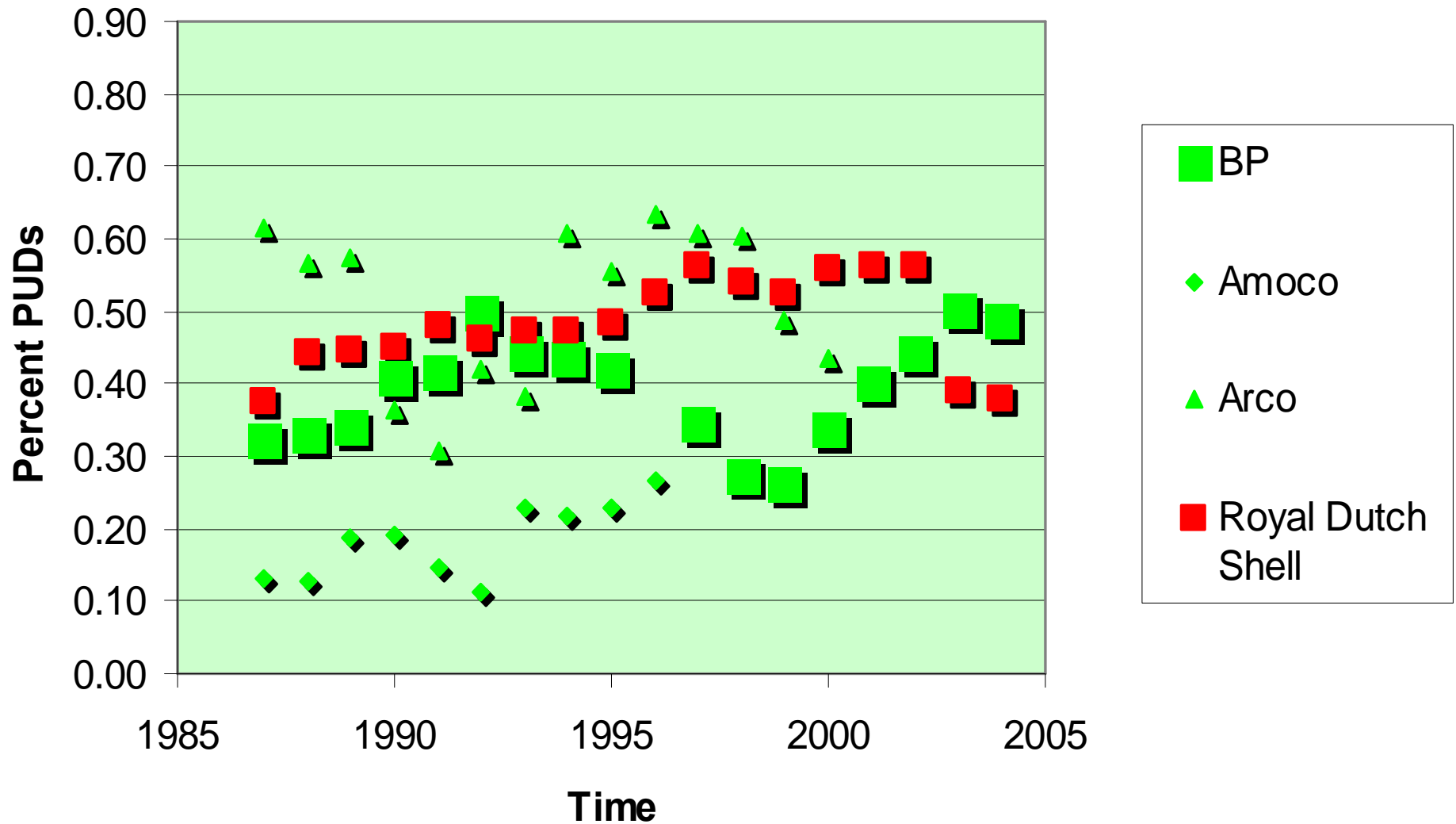
Phillips Africa, Example History of a Discovery and Development Project As Project Matures, % Developed Increases, and % Proved Undeveloped Decreases



What creates Proved Undeveloped Reserves and increases the Ratio?

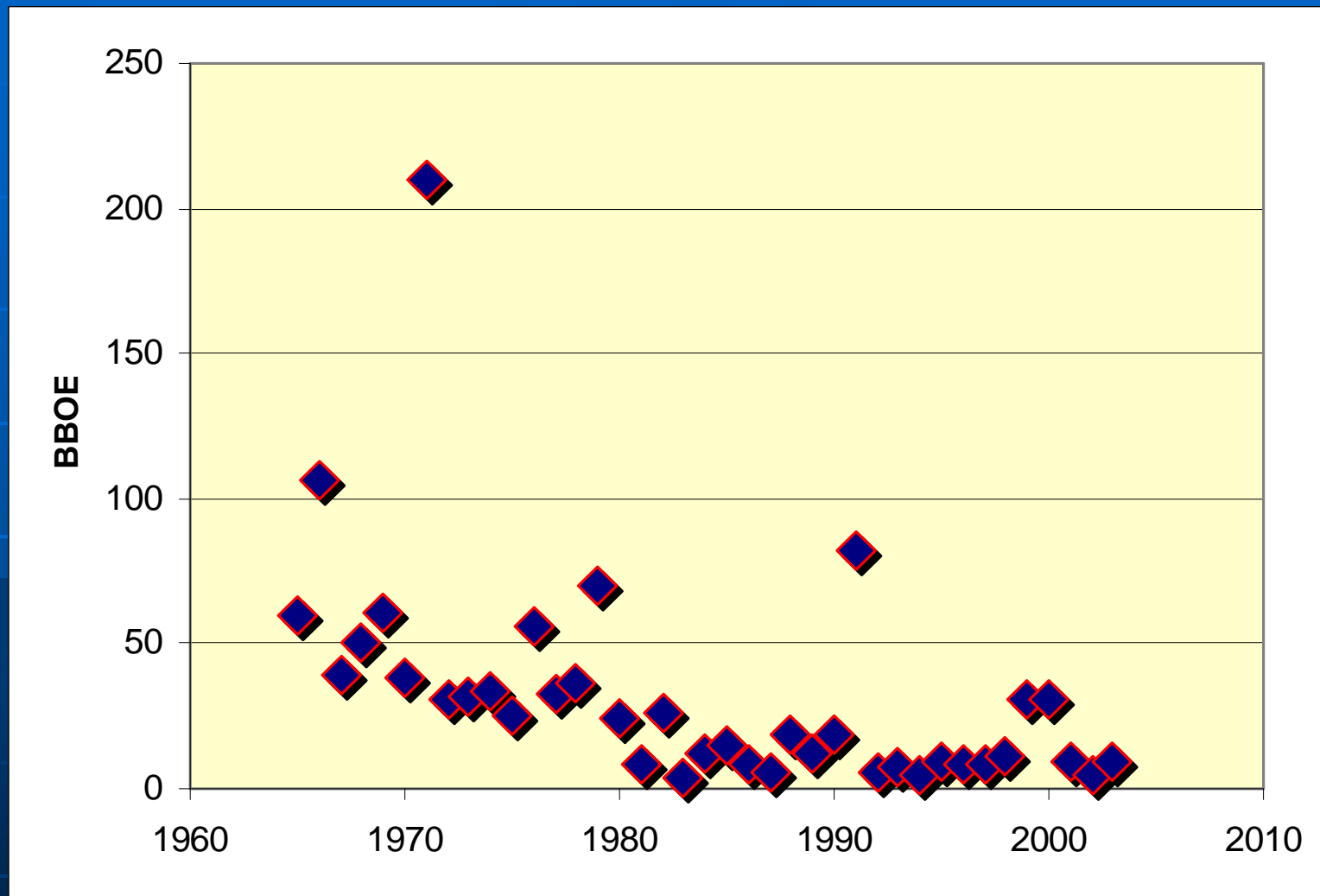
- **Discoveries**
- **Property Purchases with upside**
- **3d, other methods, enhance existing fields**
- **Price increase**

BP Discoveries increase PUD Ratio



Giant Oil Discoveries Worldwide

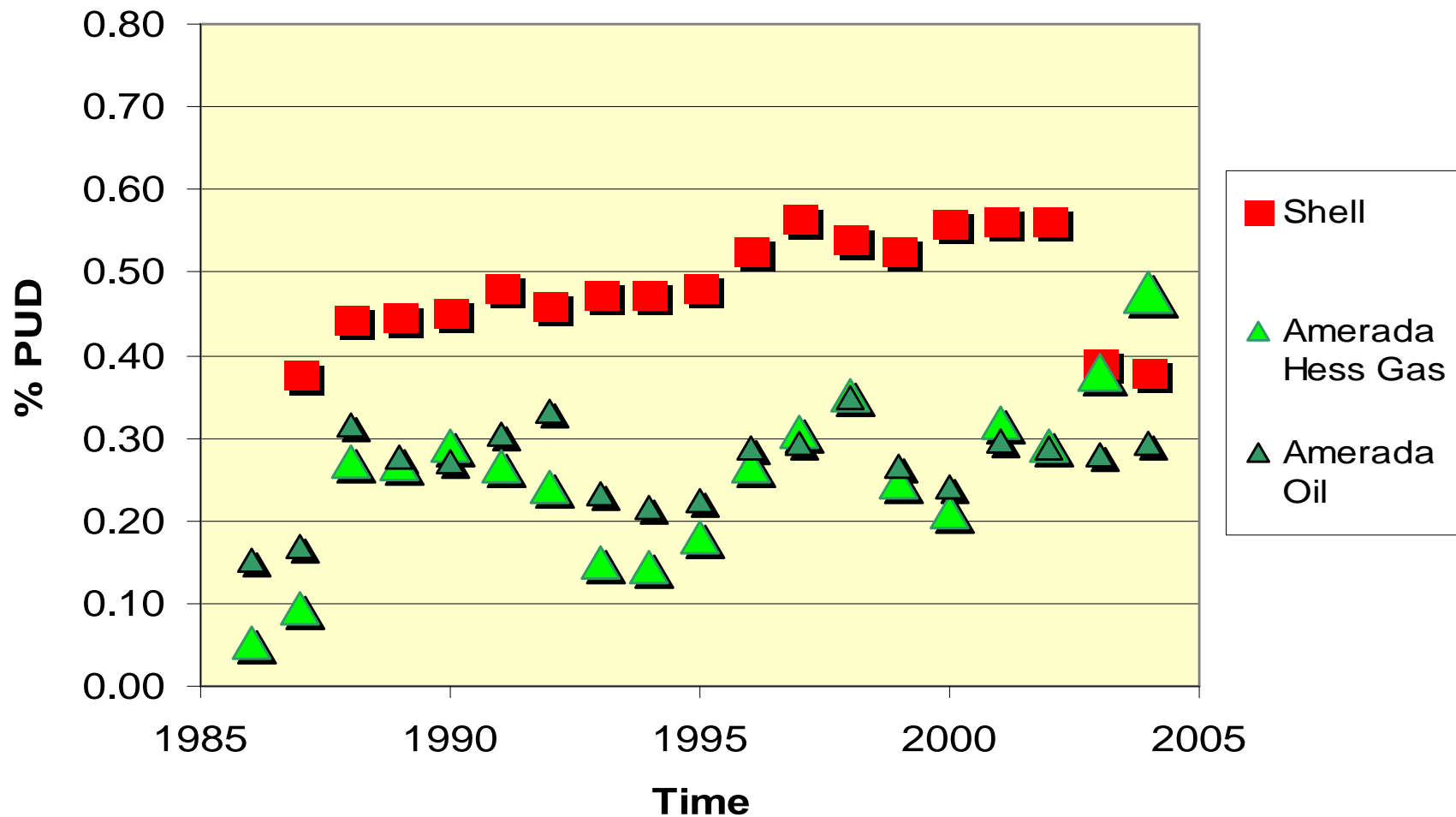
Source: Horn, AAPG, 2004



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Amerada Hess Purchase Affects PUD Ratio



“ A study by Credit Suisse First Boston reports that major companies have replaced more than half their depleted oil reserves by buying reserves from other companies or re-estimating existing reserves. In 1990, companies replaced two thirds of reserves with new discoveries. . . ”

Source: Robert J. Samuelson, Newsweek, April 2005.

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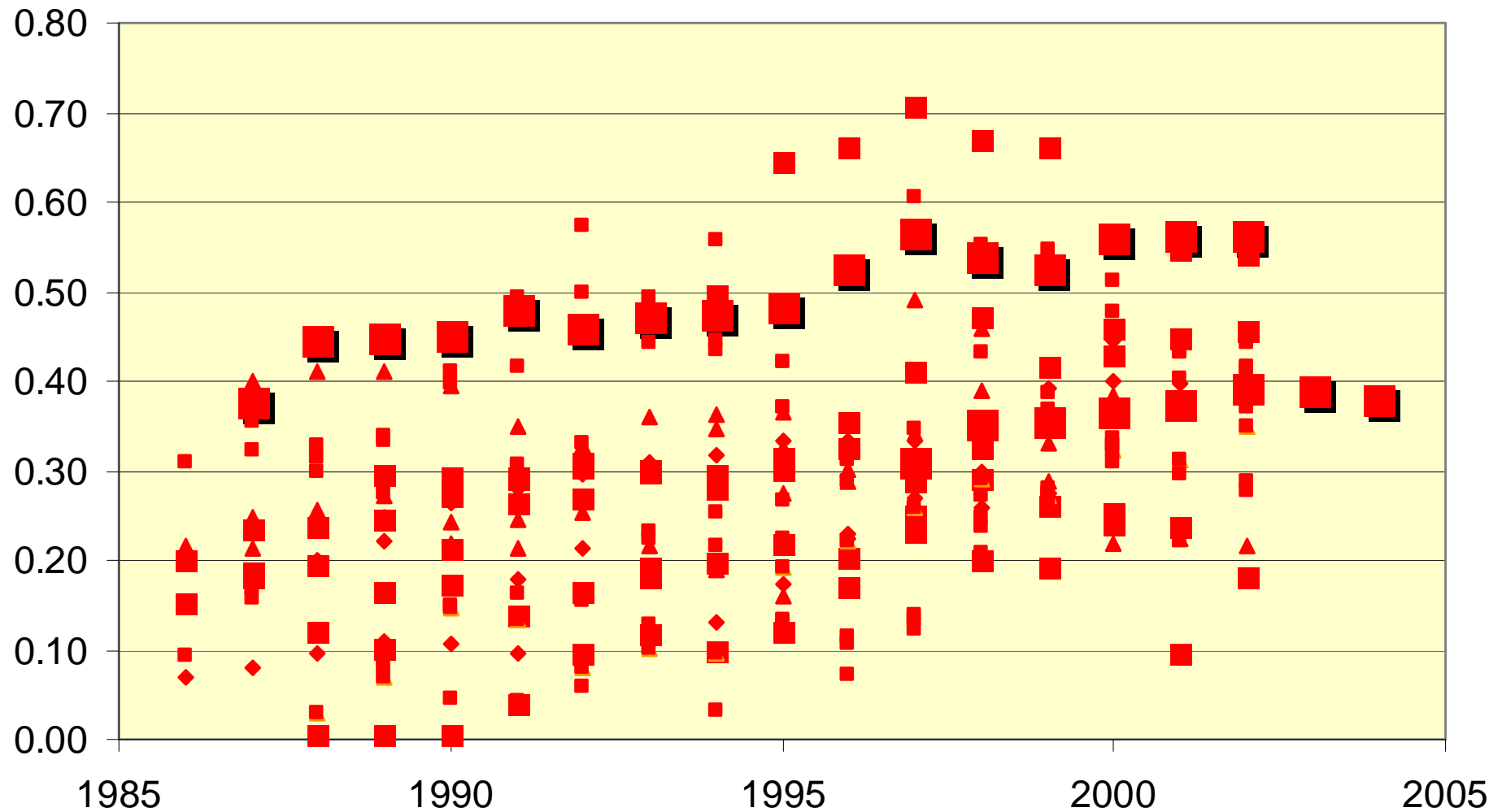
Are we really discovering more?

- **GOM 1983-1990 70% of reserve adds were in older fields**
- **GOM 1990-1998 84% of reserve adds were in older fields**
- Source NRG Associates, The significant Oil & Gas Fields of the Gulf of Mexico Database

- **Did technology actually increase the ultimate recovery of the original oil in place? Production changes are simply due to technological and price improvements. Large gains are just paper barrel changes.**

- Source: Matthew Simmons, Simmons International, April 14, 2004 Energy Forum, Reserves Reporting

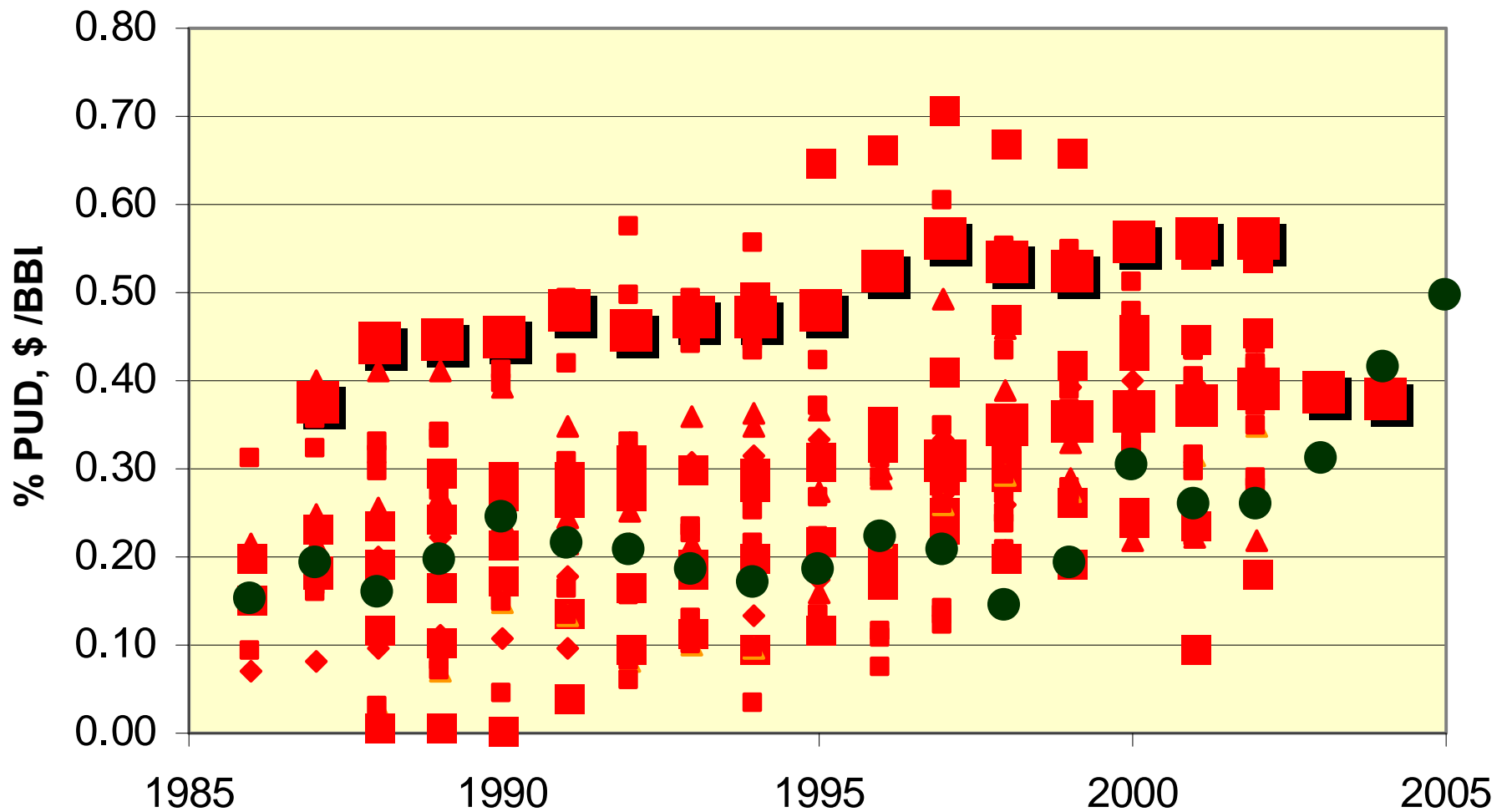
Why is this entire trend going up?



What creates Proved Undeveloped Reserves and increases the Ratio?

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Price Increase causing upward trend?



Blame Wall Street

“The Wall Street crowd demands quarterly results, but oil and gas is not a quarterly business. This essentially discourages drilling . . . prospects when the need to explore for new production and reserves is more pressing than ever.”

Source: Louise Durham, AAPG explorer. October 2004

- **“The exploration world is not a quarterly world”** Peirs Gormly, GXT vice president of marketing, APPEX 2004
- **“It seems the industry has forgotten about making discoveries and is focusing its efforts on anything but exploration”** John Seitz, Endeavour International Corp, APPEX

Source: Julian Darley, High Noon for Natural Gas, 2004, p. 35

- **“Thanks to the [SEC] reporting rules,A comforting and convenient illusion of ever –increasing reserves. . . .”**

- **“What is the relevance and importance of oil and gas reserve disclosures to investors? To national energy policy decisions?”**
- Congressman John Dingell, May 2004, letter to House Committee on Energy and Commerce

Importance to Investors

**Increase in % Proved
Undeveloped Reserves due to:**

Discoveries

Purchases

Technological Enhancements

Price Increase

Pressure from Wall Street

Importance to National Security

- **Saudi Arabia, OPEC ???**
- **Reserves evaluation ?**
- **Anyone in OPEC pacing the halls saying "I am sick and tired of lying. . ." ???**