

What In the World Is Going On?

An Economist's Eye View of Emerging International Economic Issues

**Community Academy Lecture
Albuquerque Academy
February 13, 2008
Albuquerque, New Mexico**

**Presented by:
Dr. Arnold B. Baker
Chief Economist, Sandia National Laboratories
Phone: 505-284-4462 Fax: 505-844-3296
Email: abbaker@sandia.gov**





The Issues Menu

- **Global Economy**
- **International Monetary System**
- **Federal Reserve System**
- **Subprime Mortgage Mess**
- **Global Energy Security Problem**
- **Global Climate Change Problem**
- **Carbon Emissions Trading**
- **Protectionist Seeds**



Global GDP 2007

(Current Exchange Rates)

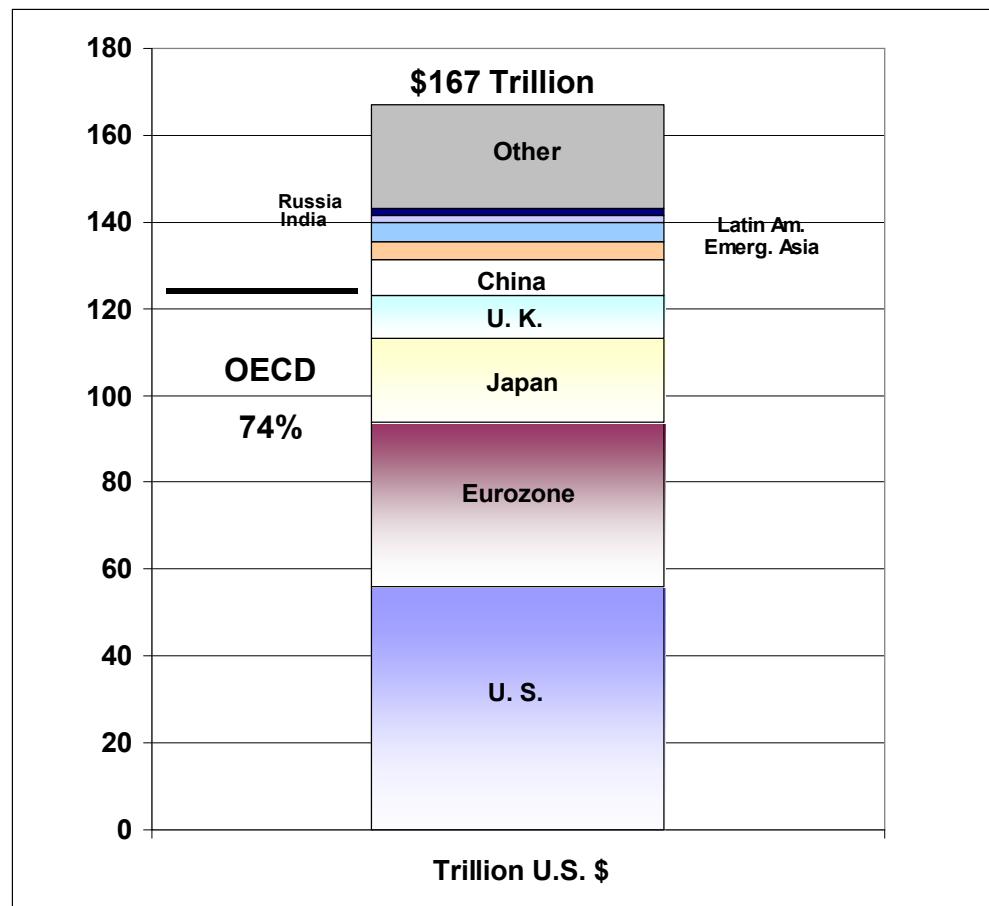
<u>Country</u>	<u>\$Trillion</u>
US	13.8
Japan	4.3
Germany	3.3
China	3.2
France	2.5
Italy	2.1
Spain	1.4
Canada	1.4
India	1.3
Russia	1.2
S. Korea	1.0
Mexico	0.9
Saudi Arabia	0.4

<u>World</u>	<u>53.8</u>
<u>OECD</u>	<u>40.1</u>

Source: Global Insight, November 30, 2007

320 ABB 02/13/2008

Global Financial Assets 2007

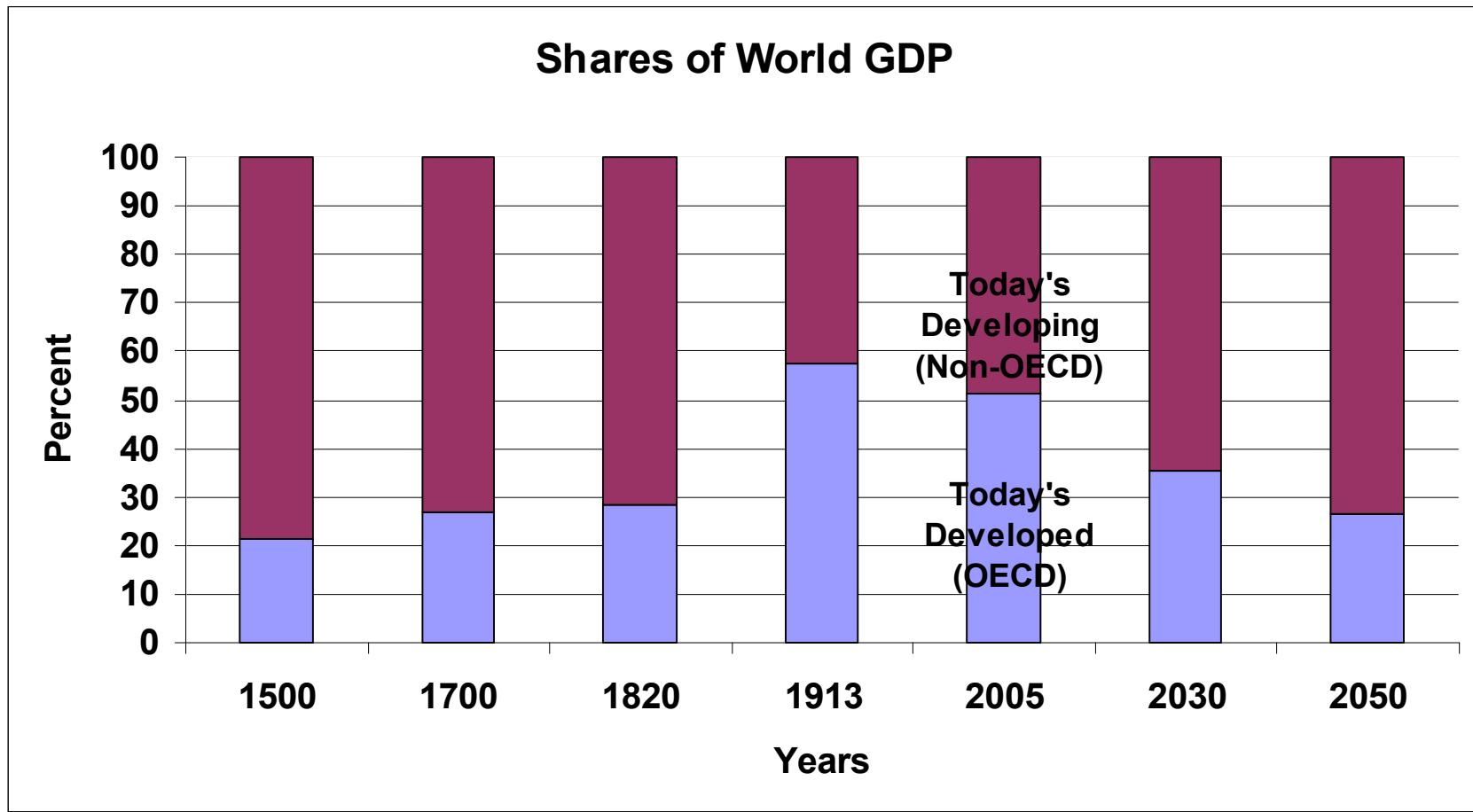


Source: Mapping Global Capital Markets, Fourth Annual Report, McKinsey Global Institute January 2008.
Includes equities, private debt, government debt and bank deposits

4



Globalization A Transitional Power Shift



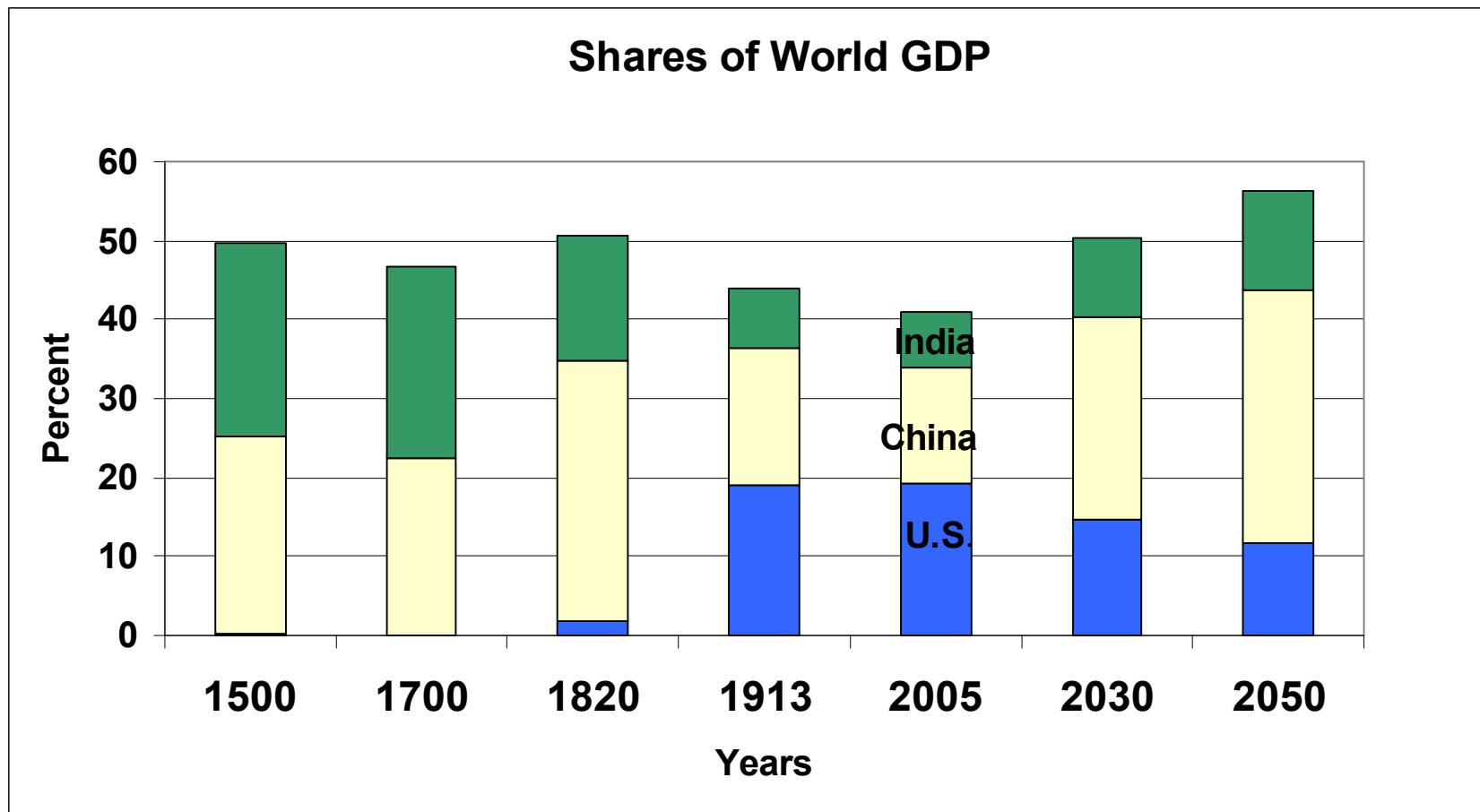
Source: *The World Economy*, OECD 2001, Angus Maddison; DOE/EIA International Energy Outlook, 2007, extrapolated to 2050



Globalization

A Transitional Power Shift

(Continued)

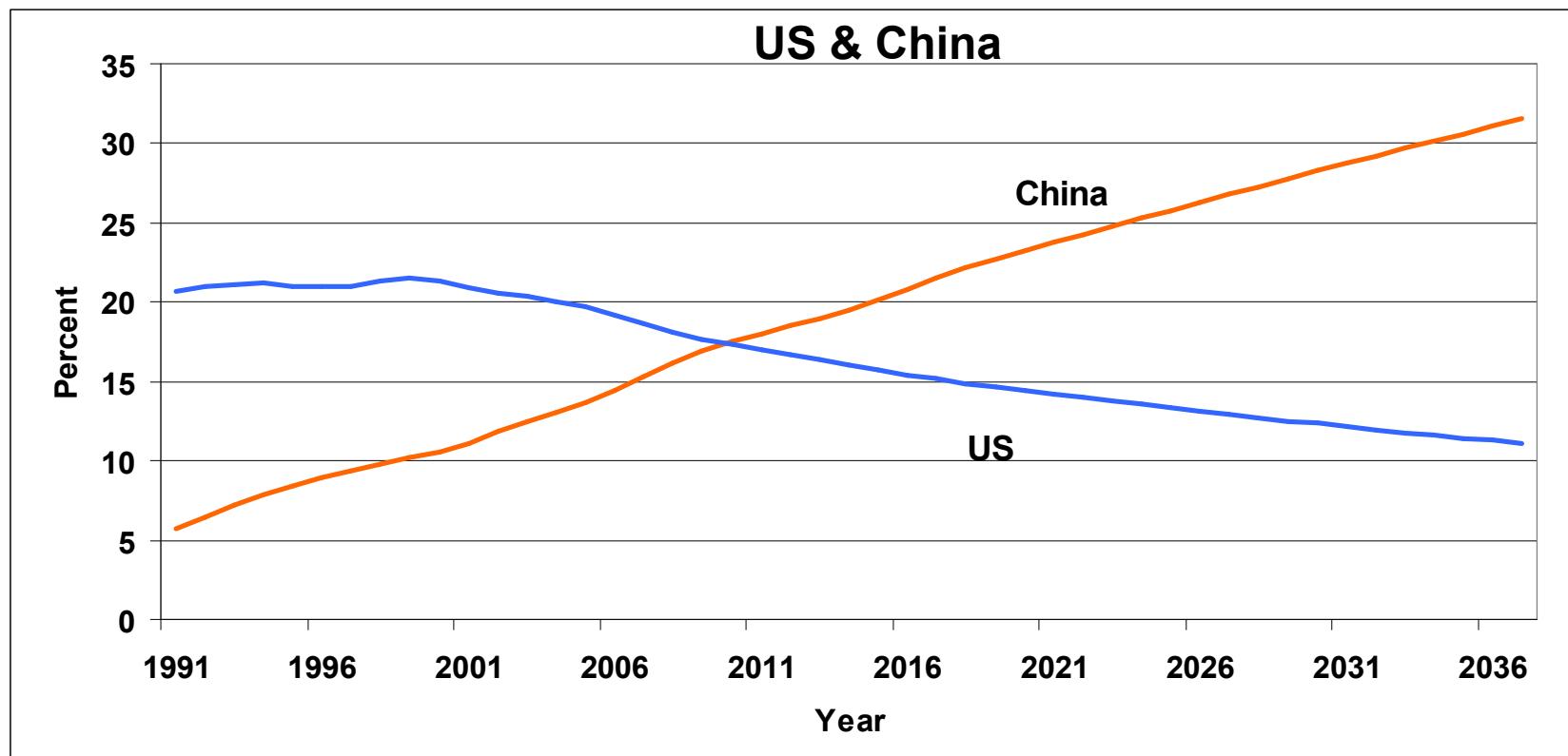


Source: *The World Economy*, OECD 2001, Angus Maddison; DOE/EIA International Energy Outlook, 2007, extrapolated to 2050



Globalization A Transitional Power Shift (Continued)

Shares of World GDP



Source: Global Insight, \$2000, PPP Basis

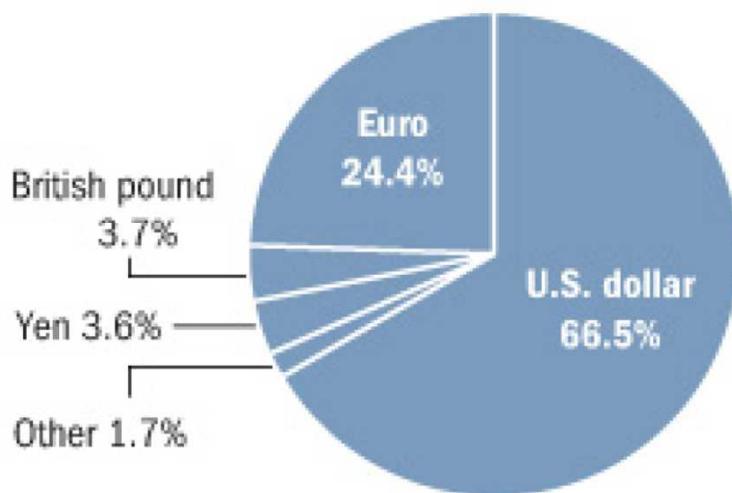


Globalization

A Transitional Power Shift

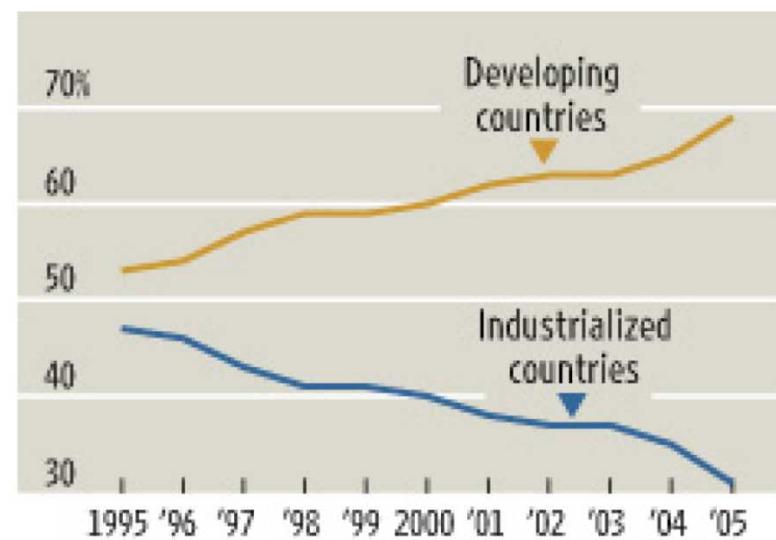
(Continued)

Share of global foreign exchange reserves for 2005, by currency



Source: IMF; Investment Strategies Group at Bank of America

Official reserve holdings as a share of the global total



Our national economies are becoming increasingly intertwined

Source: *Wall Street Journal*, 5/09/2006, P. 8

320 ABB 02/13/2008



Major Economic Policy Levers

- **Fiscal Policy**
 - Taxes, spending, subsidies, etc.
- **Monetary Policy**
 - Change money supply relative to demand
 - Change interest rates (price of money)



International Monetary System

- National based, run by Central Banks with varying degrees of independence
 - Sweden (1668), Bank of England (1694), Banque de France (1800), Federal Reserve System (1913), ECB (1998)
 - Control inflation; preventing recession; financial stability
- Money was historically tied to gold/silver, and most major countries adopted some form of the gold standard during the 1700s and 1800s
- Money today is “fiat” money—that is, backed by confidence in the issuing government

$$M \text{ (money)} \times V \text{ (velocity)} = P \text{ (price)} \times T \text{ (transactions)}$$



Federal Reserve System

- **Responsibilities**
 - Issues money and conducts monetary policy
 - Maintains the stability financial system
 - Supervises/regulates banks and protects consumers' credit rights
 - Provides financial services to the USG, the public, and financial institutions



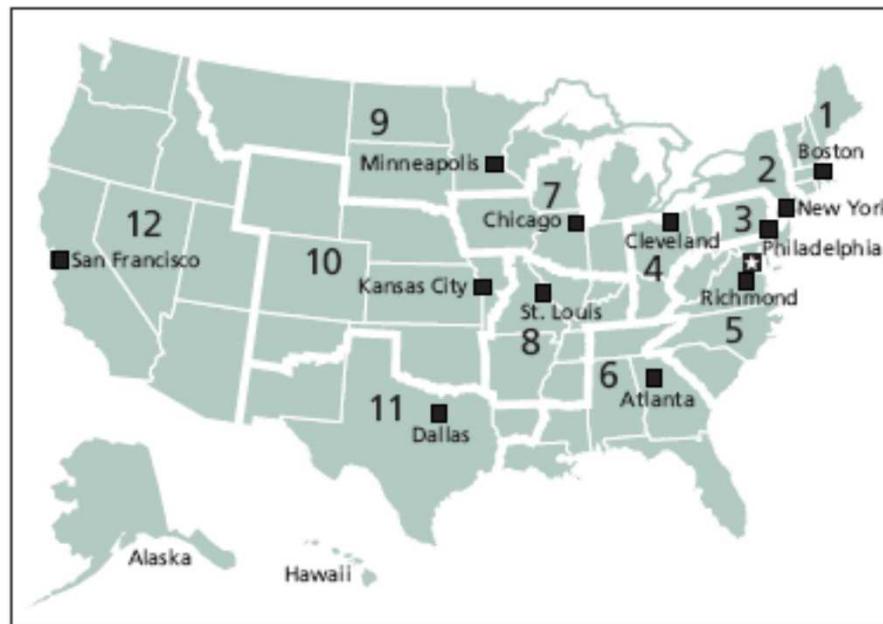
Federal Reserve System (Continued)

- **Board of Governors (Federal Agency)**
 - Seven members appointed by Pres. confirmed by Senate; Chairman (Ben Bernanke) and Vice Chairman (Donald Kohn) also appointed/confirmed
 - Controls operation of 12 Federal Reserve Banks (+25 branches), several monetary and consumer advisory committees and U.S. member banks
 - » 2000 national bank members, 900 state banks, out of 7,700 commercial banks (3/2004)
 - **Sets reserve requirements (percent of deposits to be held in reserve)**
 - **Discount window lending (credit extensions to depository institutions); Discount Rate**
 - Some bank supervision resp. (also Comptroller Currency; FDIC)
 - Other
- **Federal Open Markets Committee (FOMC)**
 - Bd. Of Governors + President NY Fed and Presidents of 4 of other Fed Reserve Banks on rotating basis
 - **Oversees open market operations (buying and selling money and bonds)—primary monetary policy tool**
 - **Federal Funds Rate**

$$M \text{ (money)} \times V \text{ (velocity)} = P \text{ (price)} \times T \text{ (transactions)}$$

Federal Reserve System Regional Banks

The Federal Reserve System



Source: The Federal Reserve System: Purposes & Functions, The Board of Governors Of the Federal Reserve System, Washington, DC, June 2005, p. 8



Foreign Exchange Rates

- Determined by many factors, but essentially the relative supply/demand and expectations for each currency
 - International trade flows
 - International financial flows
 - Relative interest rates and inflation rates
 - Confidence in Central Banks' monetary policies and host government fiscal policies and legal frameworks
- Central banks cooperate (under Fed leadership)
 - To stabilize foreign exchange and the international financial system,
 - To help coordinate international banking and central bank rules/regulations/policies
- But the system is changing
 - New central banks (e.g. China) have growing financial assets/reserves
 - Some countries (e.g., Russia, some OPEC) want to move away from dependence on U.S. dollar

Relative falling \$ = cheaper exports (increased sales)
and more expensive imports (inflation)



The “Subprime Mortgage” Mess

- **Financial institutions are creative and outgrew well intended regulations in pursuit of profit**
 - **Mortgage lending**
 - » **With low interest rates, rising housing prices became a “sure thing” and lending standards were ignored**
 - Teaser rate variable rate mortgage popularity with low/no down payment passed risk from lenders to borrowers
 - Brokers took a cut and passed the mortgage on
 - Lenders packaged mortgages as “securities” and sold them to get them off their books and get around reserve requirements
 - Used by hedge funds and others—considered “secure” and offered higher rates of return than traditional bonds
 - Sold around the world to banks and financial institutions
 - » **Worked fine until housing prices started to fall**
 - Marginal (recent) mortgages had negative equity
 - Rising variable rates when “teasers” expired created defaults

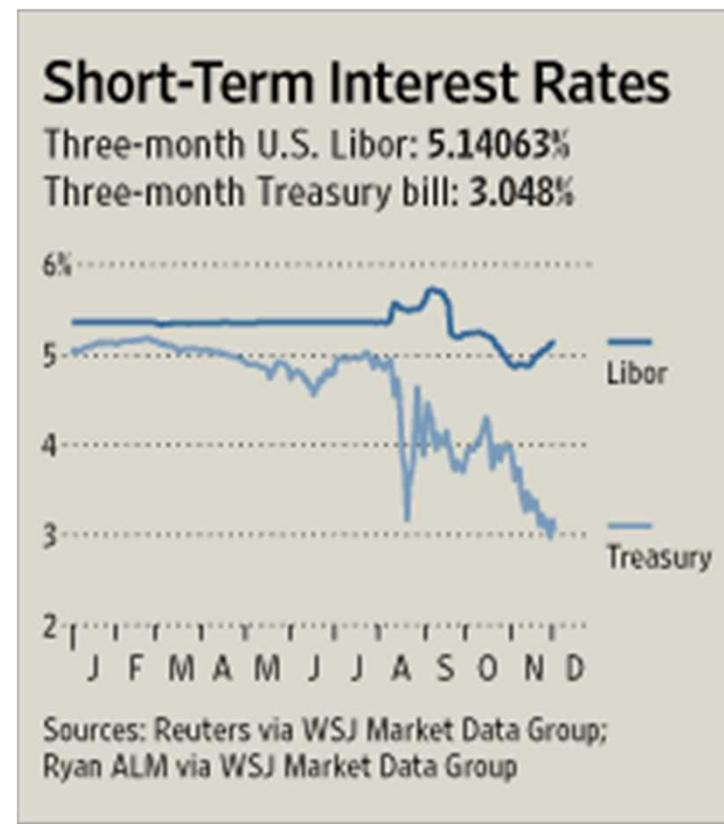


The “Subprime Mortgage” Mess (Continued)

- **Financial institutions are creative and outgrew well intended regulations in pursuit of profit (continued)**
 - **“Securitization” and “bets” extended to other debt/financial instruments**
 - » Collateralized debt obligations, structured investment vehicles, conduits, etc., packaged debt as securities with little or no transparency
 - » Credit Default Swap “bets” (institutions selling each other insurance against bond defaults) were “easy money sure things,” unless the company/organization actually defaulted on the bond
 - **Led to “flight to quality”**



Flight To Quality



Source: Wall Street Journal, 12/04/2007, p. C1

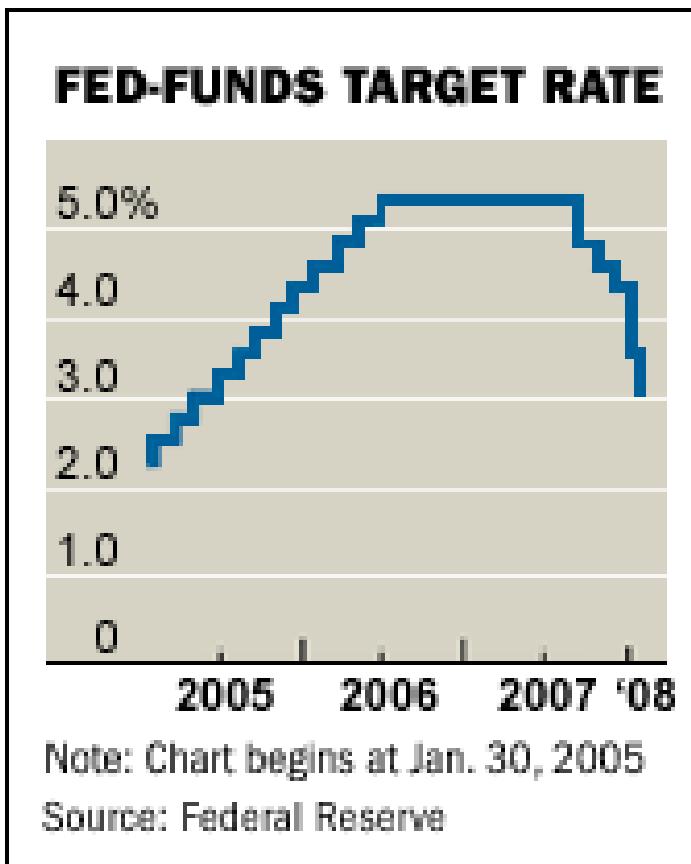


The “Subprime Mortgage” Mess (Continued)

- Financial institutions had to begin writing down their losses/bad debts, but difficult to know how much to write down
 - Lack of transparency (how many loans were “bad”)
 - Inaccurate risk pricing/ market value (some “securities” didn’t trade in open markets, so the companies valued them themselves)
 - Rating agencies may have violated standards
- Suddenly companies and financial institutions became afraid to lend to each other, which in the extreme, could shut down the financial system
- Fed now had two worries
 - Subprime failure would lead to recession (with falling housing prices and mortgage defaults, consumers would quit spending)
 - The US and global financial system would freeze (the major fear)
- Fed-USG solutions—add high quality liquidity to the markets (reduce discount rates), reduce short term interest rates (Federal Funds rates), and attempt to reduce mortgage defaults (USG)



Federal Funds Rates





Current Situation

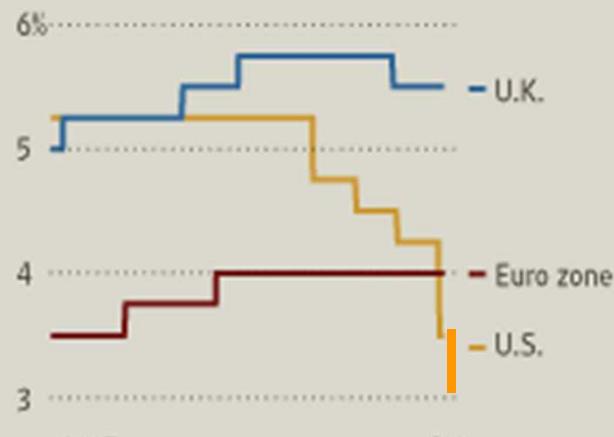
- Financial community knows that it must improve regulations and transparency, and it will
 - Federal Reserve support; European leaders pushing for tougher global bank/financial market regulations, utilizing Swiss Financial Stability Forum and IMF
 - U.S. Probes by FBI, SEC, Justice and some state's Attorneys General
 - S&P/rating agency bond/security downgrades
 - Losses will have to be recognized and written off
- Seeds of inflationary cycle potentially sown
 - All else equal, increasing money supply (reducing short term interest rates) stimulates inflation; monetary policy works with 6-9 month lag
 - USG working on stimulus package to put money into economy by summer
- The US dollar can fall further
 - Reducing short term US interest rates can reduce relative \$ value
 - Fear of longer term inflation can reduce dollar (shift from dollars to more stable currency)
- The Fed may be the center of the world monetary system, but other established central banks are important (ECB, Bank of England, etc.)
- Will make monetary policy management very complex over the next couple of years
 - Especially given the new US President and Congress in 2009 that will want to change the fiscal policies of the last eight years



Some Central Bank and FOREX Divergence

Turbulent Times

Central bankers have chosen different ways of responding to rough markets. Benchmark interest-rate targets.



Source: Thomson Datastream

Forex Race

The euro and the yen against the dollar, and the dollar versus the currencies of the major trading partners of the U.S. (J.P. Morgan trade-weighted index)



	\$ per	52-wk chng	Per \$
Euro	\$1.4882	Up 14.18%	€0.6720
Yen	\$0.009396	Up 13.38%	¥106.4283
Dollar index	81.2	Down 9.17%	

Source: Reuters via WSJ Market Data Group

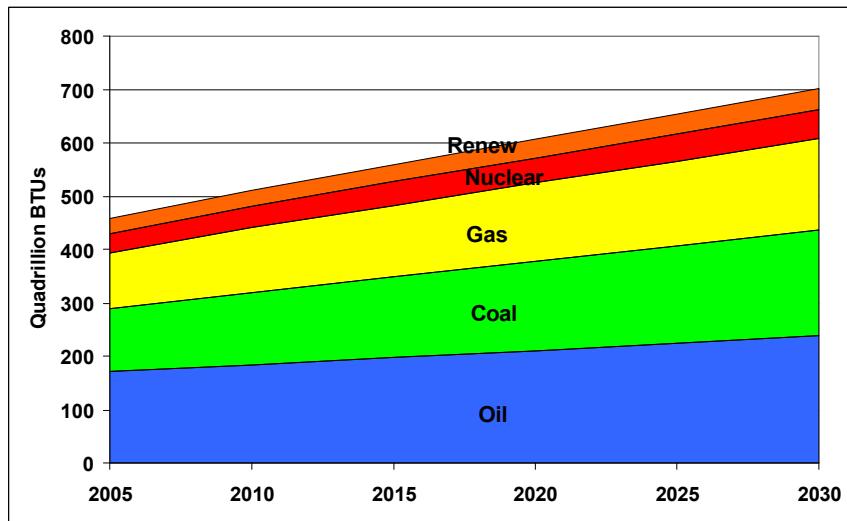
Source: Wall Street Journal, 1/28/2008, P. A1

Source: Wall Street Journal, January 31, 2008, P. C 14

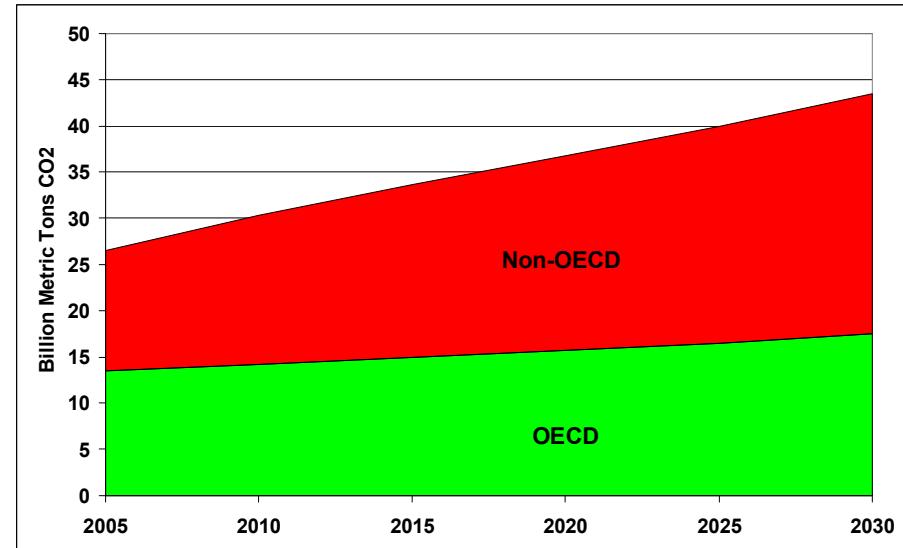


Between 2005 and 2030, World Energy Demand and Carbon Emissions Will Grow 55 Percent

Energy Demand



Carbon Dioxide Emissions



and Developing Countries will Account for 4/5 of the Increase

Source: USDOE EIA IEO 2007 Reference Case



The World's Proven Fossil Fuel Reserves are Geographically Concentrated

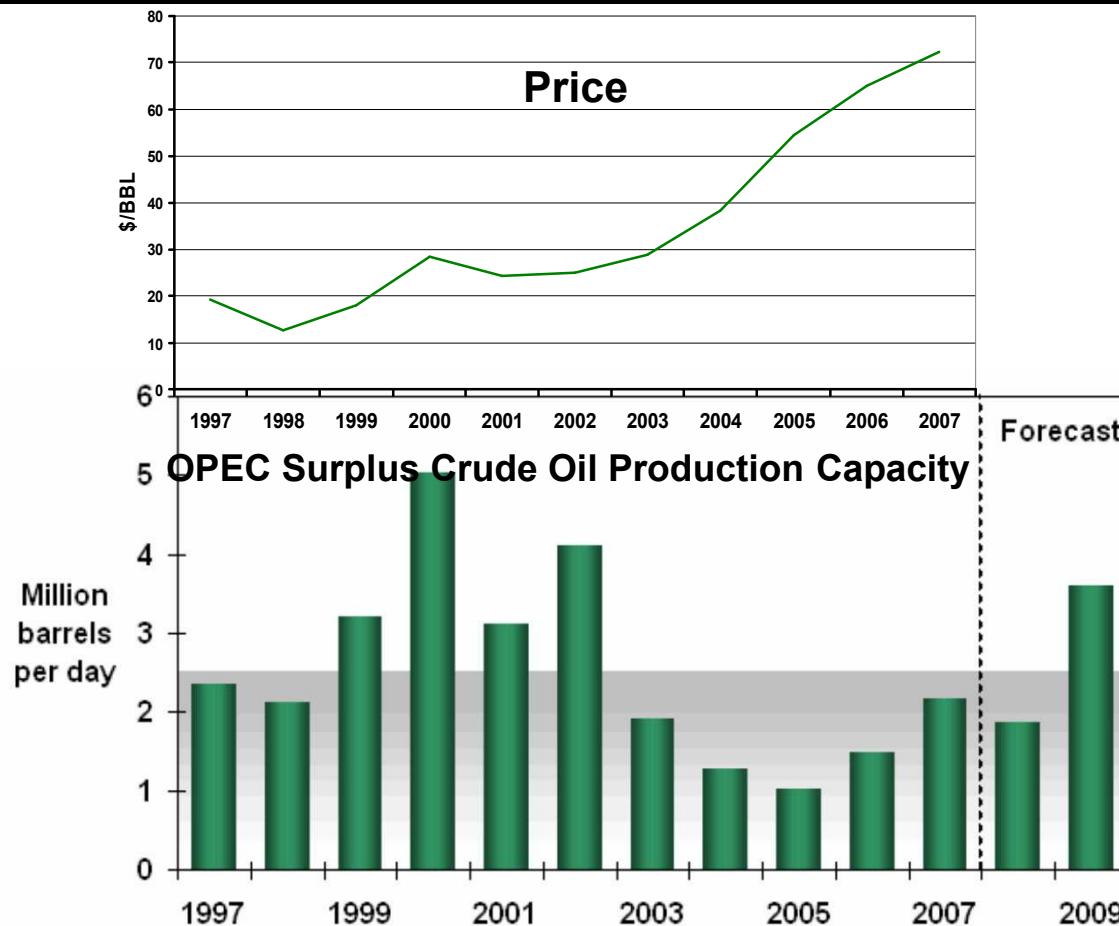
(Percent Share)

Region	Oil	Gas	Coal
Key Persian Gulf	55	41	< 1
Saudi	20	4	0
Iran	10	16	< 1
Iraq	9	2	0
Kuwait	8	< 1	0
UAE	7	3	0
Qatar	1	15	0
Canada	14	< 1	< 1
Venezuela	6	2	< 1
Russia	5	27	17
U.S.	2	3	27
China	1	1	13
India	< 1	< 1	10
ROW	17	24	32
Total	100	100	100

Source: Oil & Gas Journal 1/1/07; EIA Int. Energy Ann. 6/21/07.

And National Oil Companies Own 70-80% of Proven Oil Reserves

Surplus OPEC Oil Production Capacity Drives Market Prices



Note: Shaded area represents 1997-2007 average (2.5 million barrels per day)

Short-Term Energy Outlook, January 2008



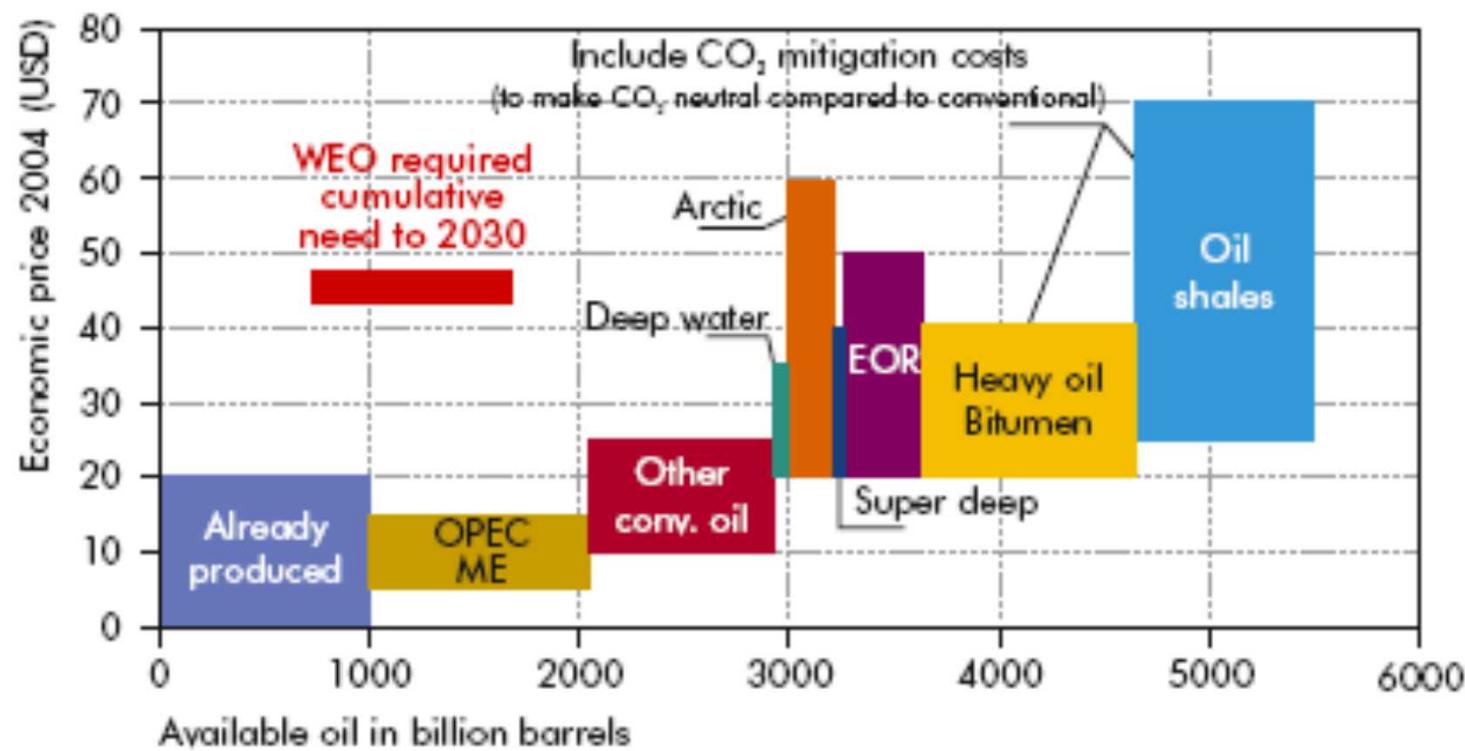
24



A Wide Range of Prospects for Alternative Liquid Fuels, But They Will Take Time to Develop

IEA's Oil Cost Curve

Figure ES.1 • Oil cost curve, including technological progress: availability of oil resources as a function of economic price

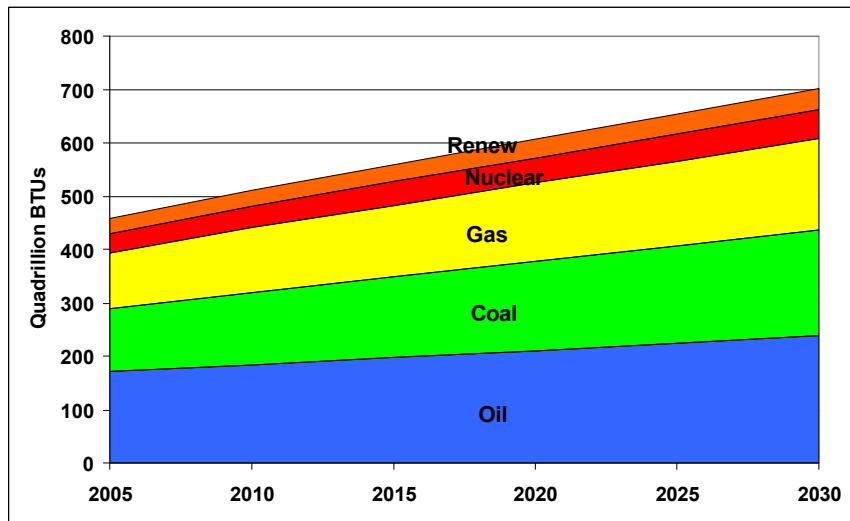


Source: Resources to Reserves, Oil and Gas Technologies for the Energy Markets of the Future, OECD/IEA 2005, P. 17

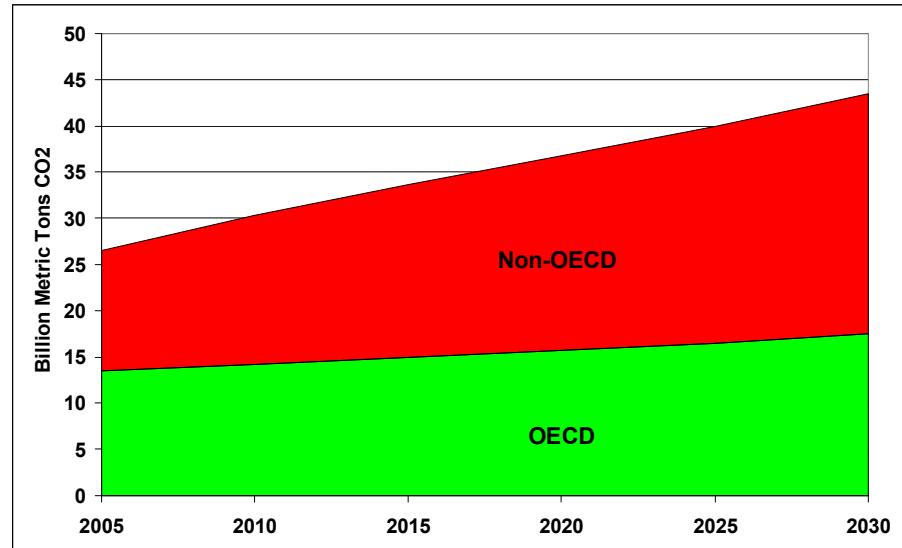


Between 2005 and 2030, World Energy Demand and Carbon Emissions Will Grow 55 Percent

Energy Demand



Carbon Dioxide Emissions



and Developing Countries will Account for 4/5 of the Increase

Source: USDOE EIA IEO 2007 Reference Case

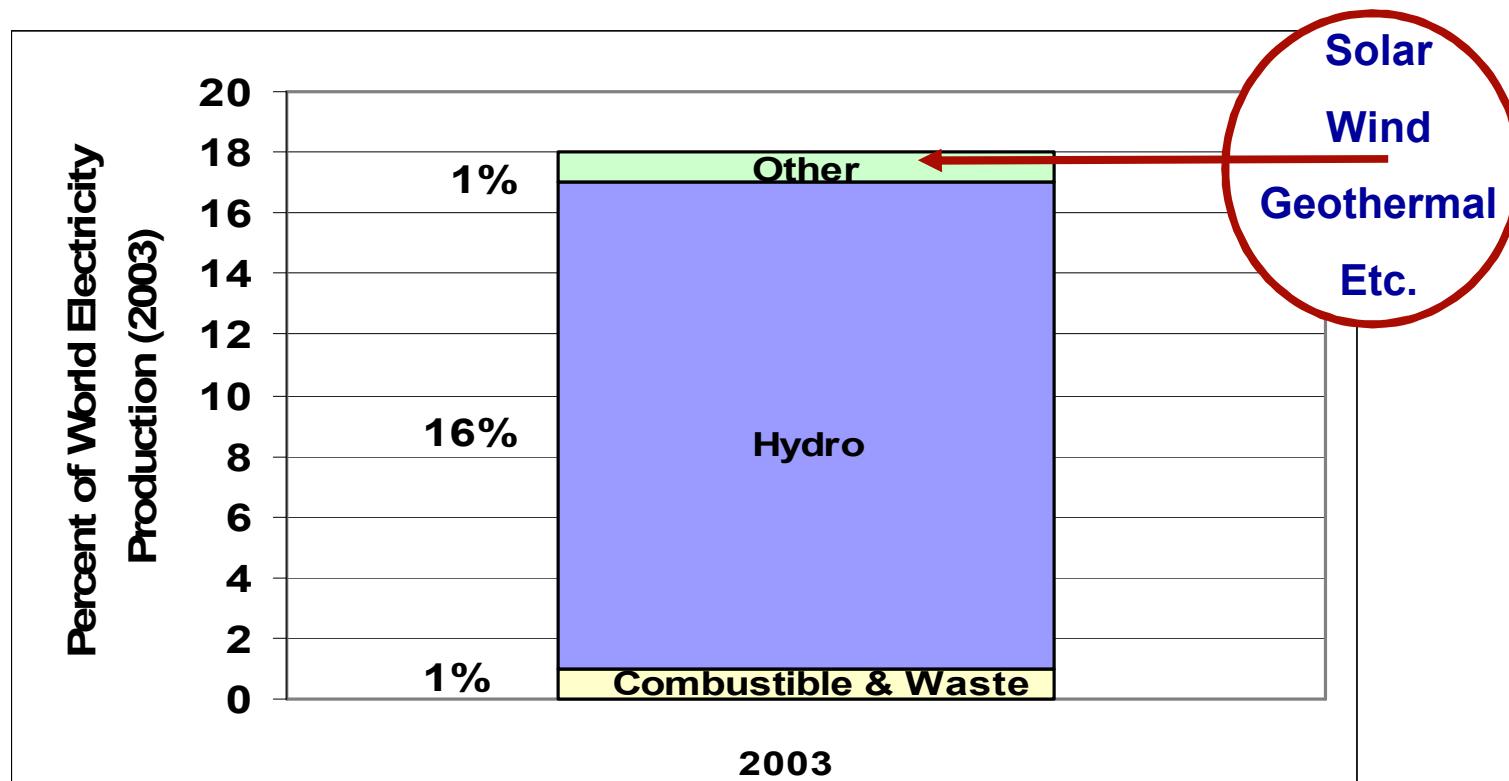


The Climate Change Policy Problem is Enormous

- The theoretical climate change relationship is between atmospheric concentrations of GHG and climate change, not annual emissions
- According to the Intergovernmental Panel on Climate Change, stabilizing atmospheric concentration of GHG at current levels would require permanent emissions reductions of 60% or more below current levels
 - Kyoto Protocols: Industrialized countries agreed to reduce emissions, on average, 5.2% from 1990 levels by 2008-2012

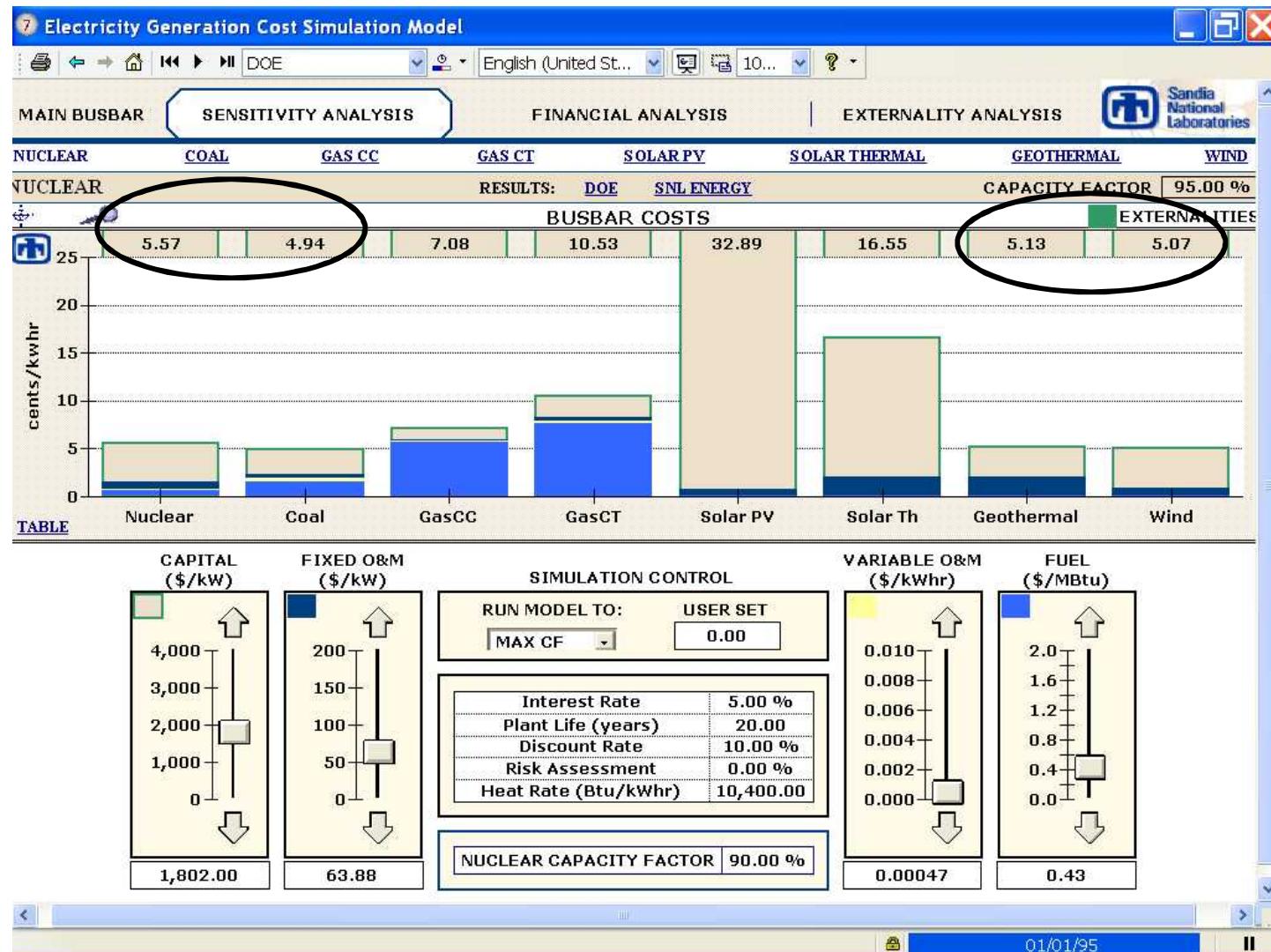


Current Renewable Electricity is Largely Hydro



Source: Renewables In Global Energy Supply, IEA Fact Sheet 2006

New Nuclear Electricity Plants are Cost Competitive in US, Depending on Capital Cost and Perceived Risk





Carbon Emissions Trading vs. Taxes As Policy Instruments

- **Carbon taxes**
 - Send clear price signals to accelerate clean technology development and reduce fossil fuel use
 - Do not specify the quantities of carbon to be emitted
- **Carbon trading**
 - Creates a new financial instrument—a government guaranteed right to emit carbon
 - Specifies politically determined emissions quantities
 - Does not specify (hides) the price
 - Would involve \$billions/\$trillions and likely would attract financial market investment from pension funds, hedge funds, mutual funds, etc.
 - What happens when/if governments decide to make large quantity changes or that they do not like where the financial flows are going (e.g., from the US and EU to China, India and Russia)?



Protectionist Seeds

- “National champion” utility company mergers: **Gas de France--Suez (Enel); E.On--Endesa (Gas Natural)**
- **ChevronTexaco—UNOCAL (CNOOC); Dubai Ports World--Peninsular & Oriental Steam Navigation Co.**
- **China/emerging markets competitive threats**
 - **Low cost manufacturing, “low value” Yuan “management”**
- **Foreign currency devaluations**
- **Sovereign Wealth Funds**
- **U.S. and Europe considering “carbon” import fee**
- **Domestic politics vs. international competition and economics:??**



Protectionist Seeds (Continued)

Turning Away?

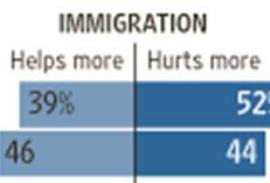
Poll numbers point to an increasingly negative attitude among Americans on the issues of globalization and immigration.

All adults

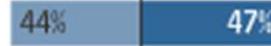


December 2007

June 2007



December 2007 by party



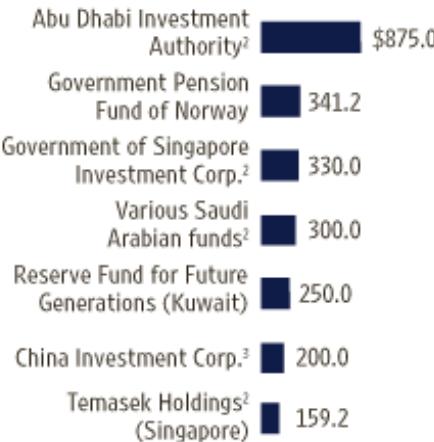
Note: Globalization question for 2007 was asked of only half the respondents

Source: WSJ/NBC News telephone polls of 1,008 adults in December and June 2007, and 2,007 adults in June 1997; margin of error for December 2007 full sample: ± 3.1 percentage points; margins of error for subgroups are larger

Source: Wall Street Journal, December 20, 2007, P. A13

Sovereign Wealth Funds

Estimated assets of sovereign wealth funds
in billions



Sources: McKinsey Global Institute; Morgan Stanley

Sovereign Salvation

Recent investments in major financial-services firms



Source: Bank disclosures



Emerging International Economic Issues and Prospects

- Growing global economic, financial and monetary interdependency, with political resistance to be overcome, leading to longer term
 - Economic competitiveness
 - Global prosperity and improved quality of life
 - Reduced relative global U.S. role and responsibilities, though with appropriate public policies, a very gradual reduction
- Concentrated fossil energy resource ownership with prospects for supply manipulation, energy supply interruptions and price swings, leading to longer term
 - Advanced, more secure energy technologies
- Uncertainty of global climate change (how much, how fast and where) requiring global collective action beyond current geopolitical capabilities, leading to longer term
 - Advanced, cleaner energy technologies
 - Improved adaptation capabilities
 - Some political public policy misfires
 - And still, climate change

Will require greater international political economic openness, competition and collaboration



Backup

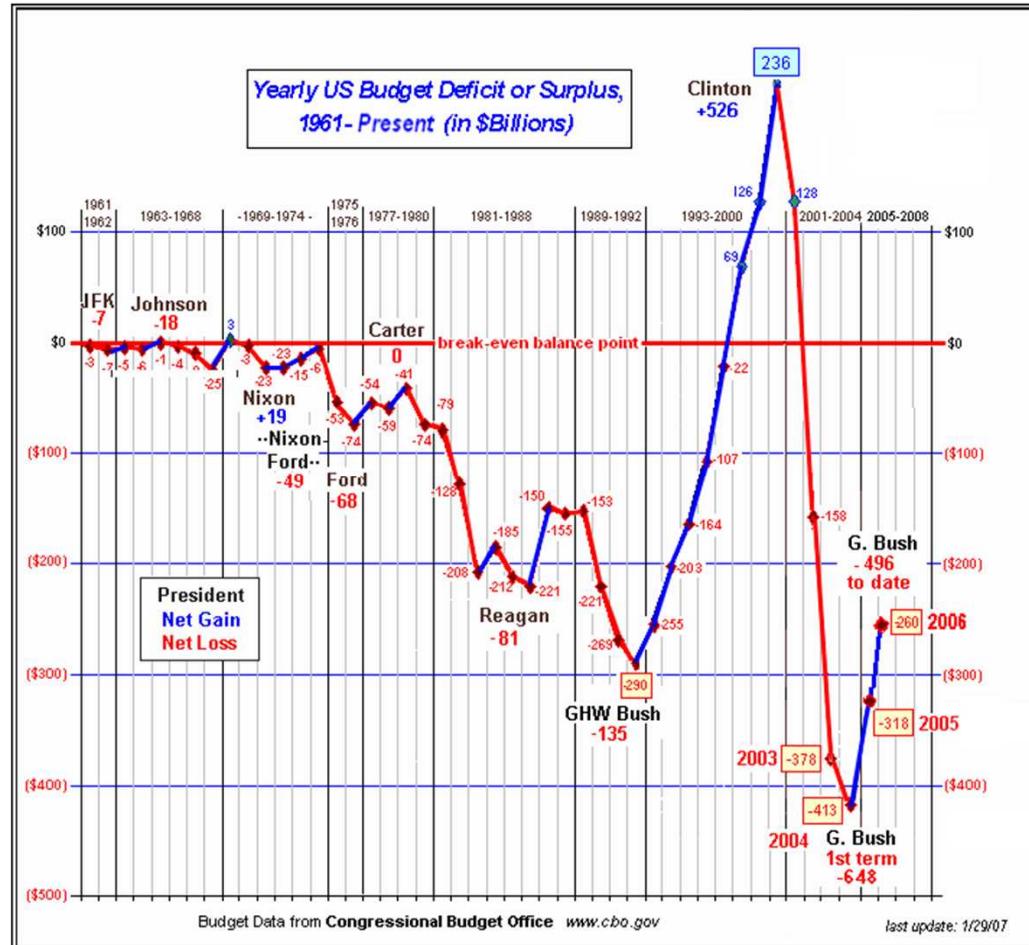
U.S. Debt and Budget Deficit

U.S. Debt:

Public: \$5

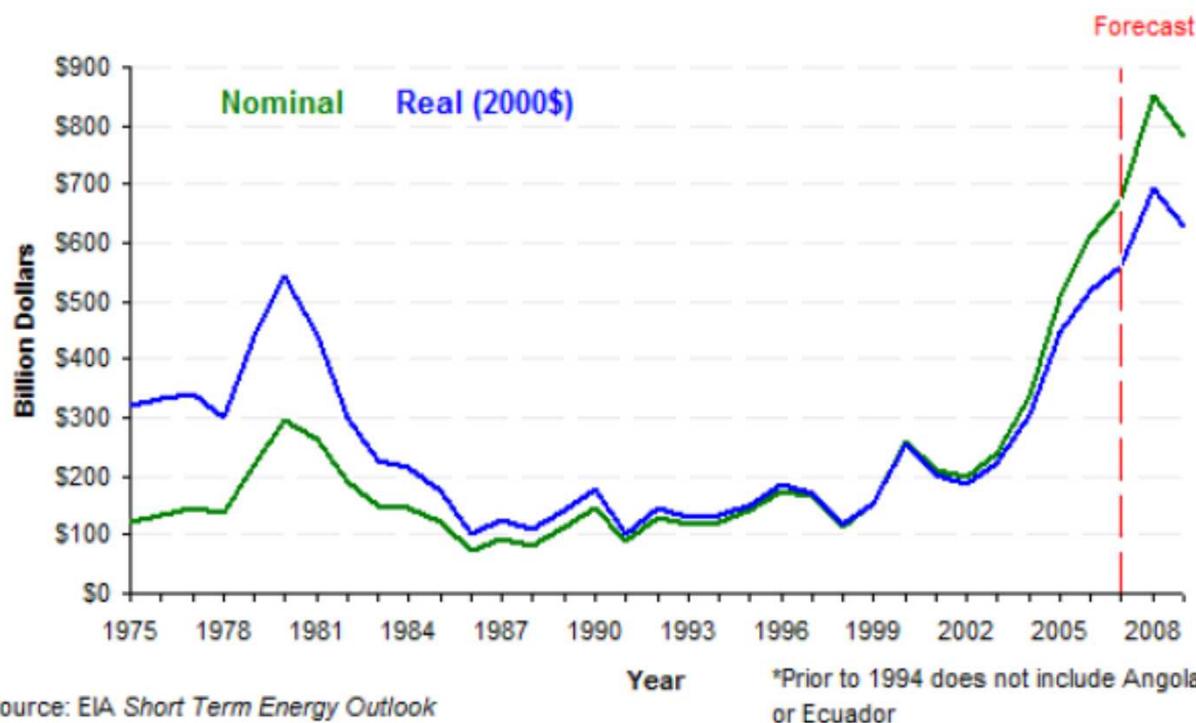
+ Intgovt Debt: \$4

+ Unfunded: \$50



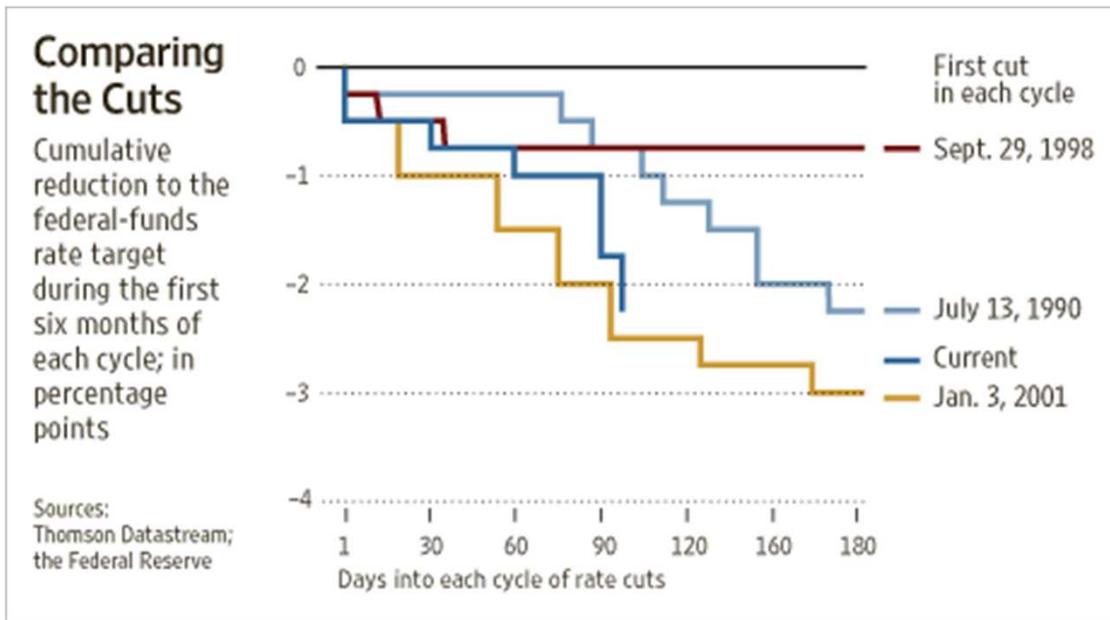
Source: US Congressional Budget Office

OPEC Net Oil Export Revenues*



Source; EIA OPEC Revenues Fact Sheet, January 8, 2008;

Federal Funds Rates Historical Trends

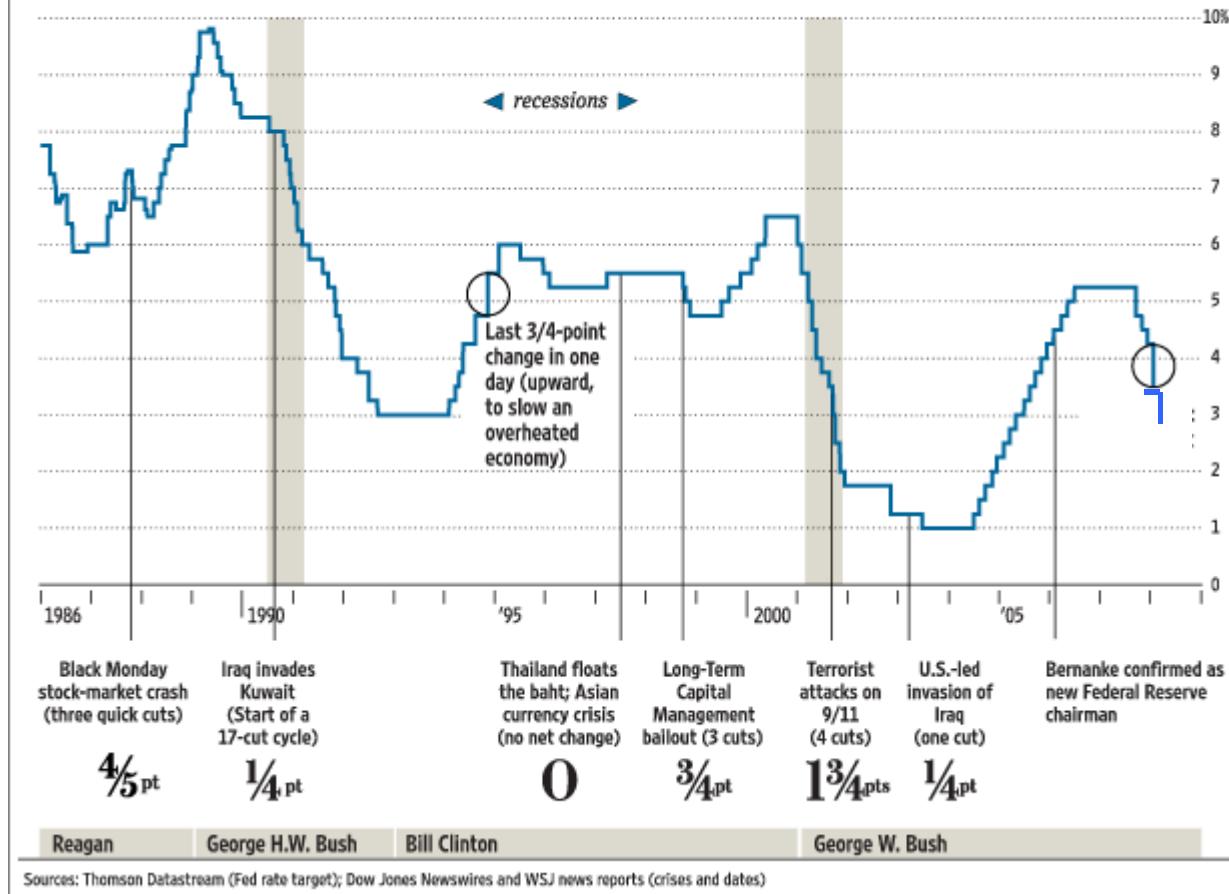


Source: Wall Street Journal, January 31, 2008, P. A1

Federal Funds Rates

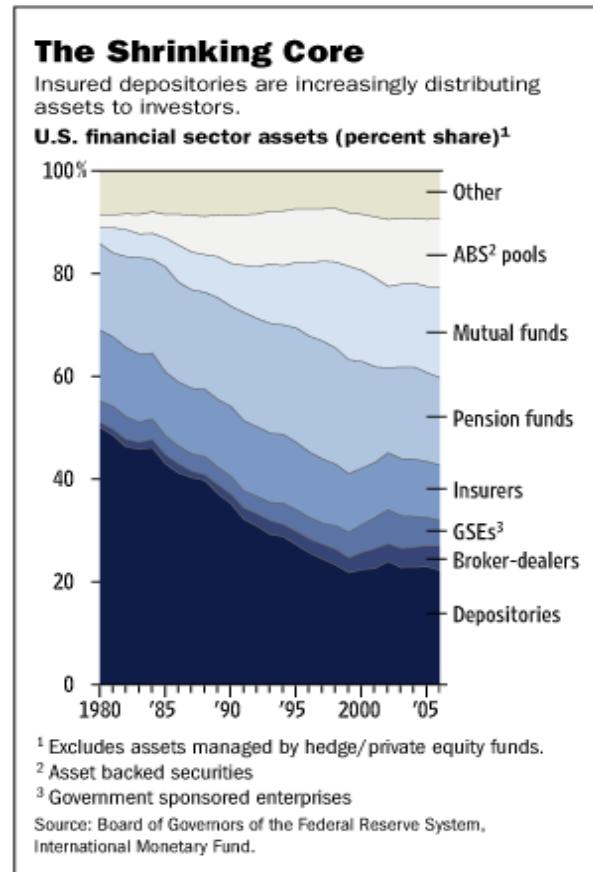
Crisis Control at the Fed

The Fed often cuts rates in response to unexpected shocks, such as war, terrorist attacks, and stock market plunges.



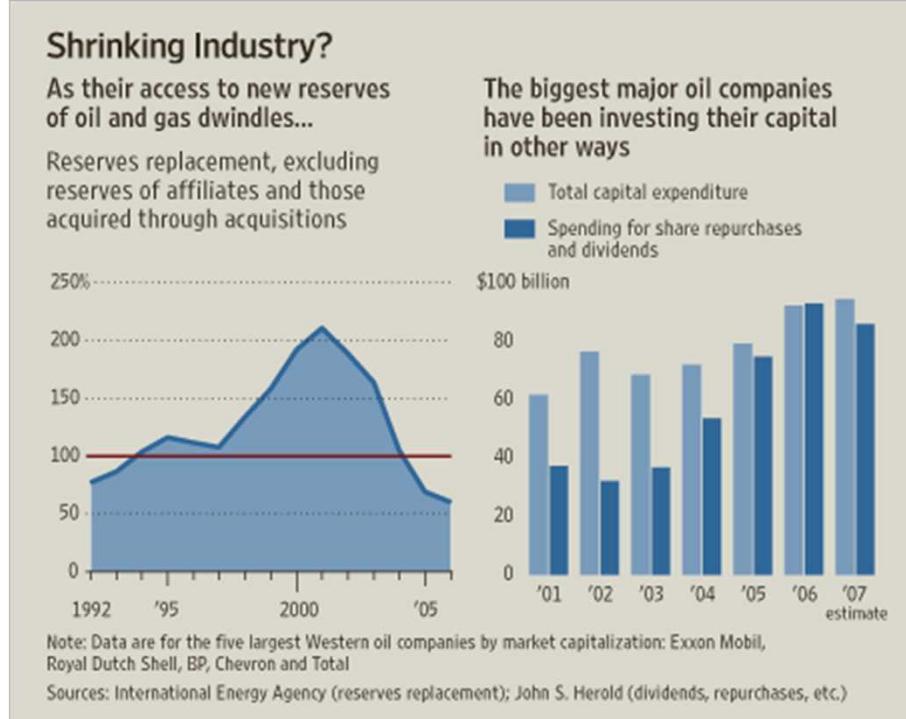
Source: Wall Street Journal, January 23, 2008, p. A1.

Control of the Domestic/International Financial System is Shifting



Source: Federal Reserve System and IMF

Top Five Western Oil Companies Reserve Replacement and Capital Expenditures



Source: Wall Street Journal, January 31, 2008, P. A10