THE CYCLICAL CRISIS IN COMMERCIAL AVIATION

Professor Dr. Paul Stephen Dempsey
Director, Institute of Air & Space Law
McGill University

"There are three ways to lose a lot of money:

"1. Slow horses;

"2. Fast women; and

"3. Airlines.

"But you know, they're all a lot of fun."

Omar Fontana, founder, Transbrasil Airlines

TRANSBRASIL AIRLINES

Airlines are perceived to be a glamorous investment.

www.s7.ru

S7 AIRLINES

There are three businesses everyone believes s/he can run:

1. A restaurant;
2. A sports franchise; and
3. An airline.

Issues to Be Addressed

- How severe is the contemporary financial distress which the airline industry suffers?
- What challenges does the industry face in terms of supply, cost and revenue?
- Why the disconnect between demand/supply and price/cost?

The Maturity of the Market, and the Level of Regulation and Degree of Competition, Impacts Industry Profitability

High Profitability

Regulated Growing Markets	Deregulated Growing Markets
Regulated Mature Markets	Deregulated Mature Markets

Low Profitability


The world based on commercial aircraft departures.

Economic Theories (circa 1978)

- There were no barriers to entry in aviation, other than governmental restrictions.
- There were no economies of scale in the airline industry.
- Markets were contestable.
- Therefore, deregulation would produce nearly textbook levels of perfect competition.

Economic Theories (circa 1978)

"Unfortunately, those theories turned out to be wrong as they applied to the airline industry . . ."[1] and "airline markets cannot be modeled by any reasonably pure version of contestability theory."[2]

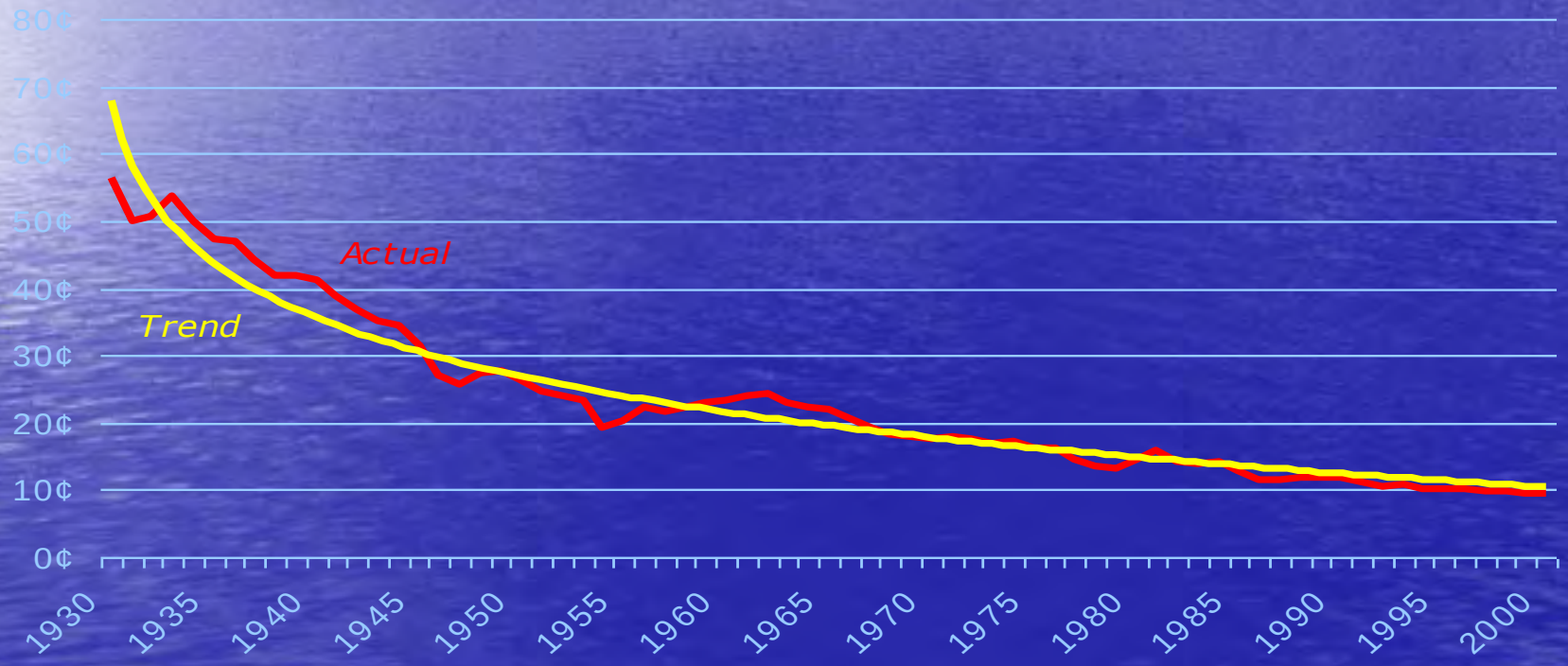
[1] Michael Levine, *Airline Deregulation: A Perspective*, 60 Antitrust L.J. 687 (1991).

[2] Michael Levine, *Airline Competition in Deregulated Markets: Theory, Firm Strategy, and Public Policy*, 4 Yale J. Reg. 393, 405 (1987).

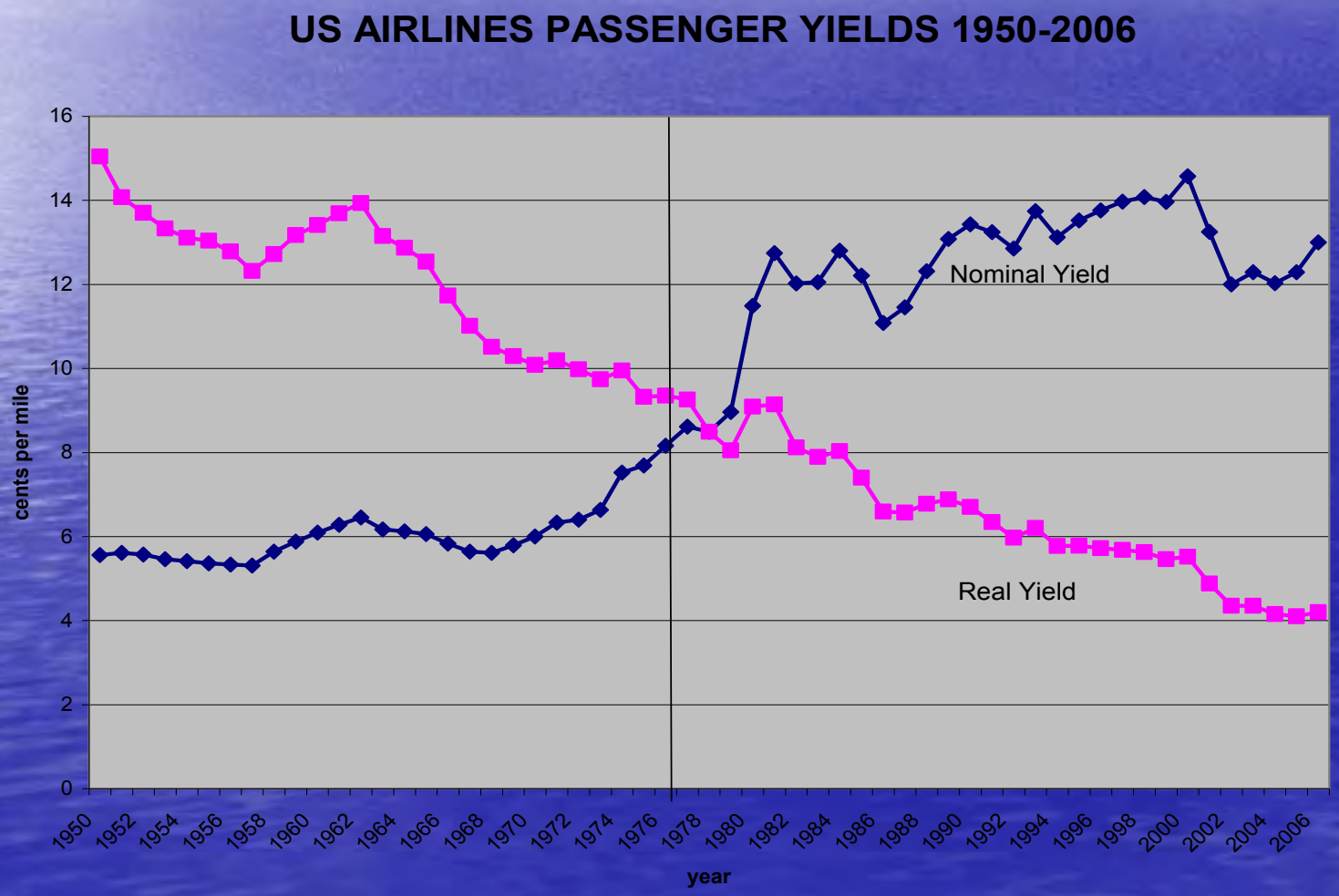
Average Fares Continue to Decline

U.S. Domestic Average Yield Per Mile

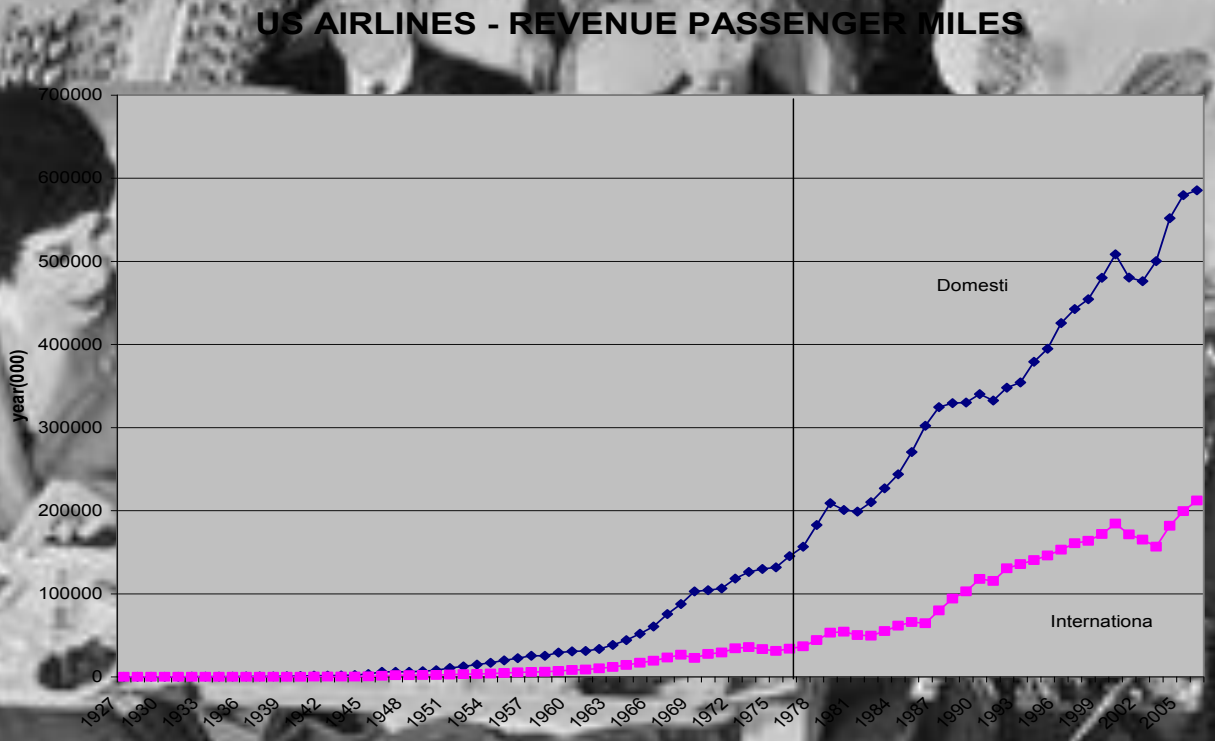
Constant 1987 Dollars



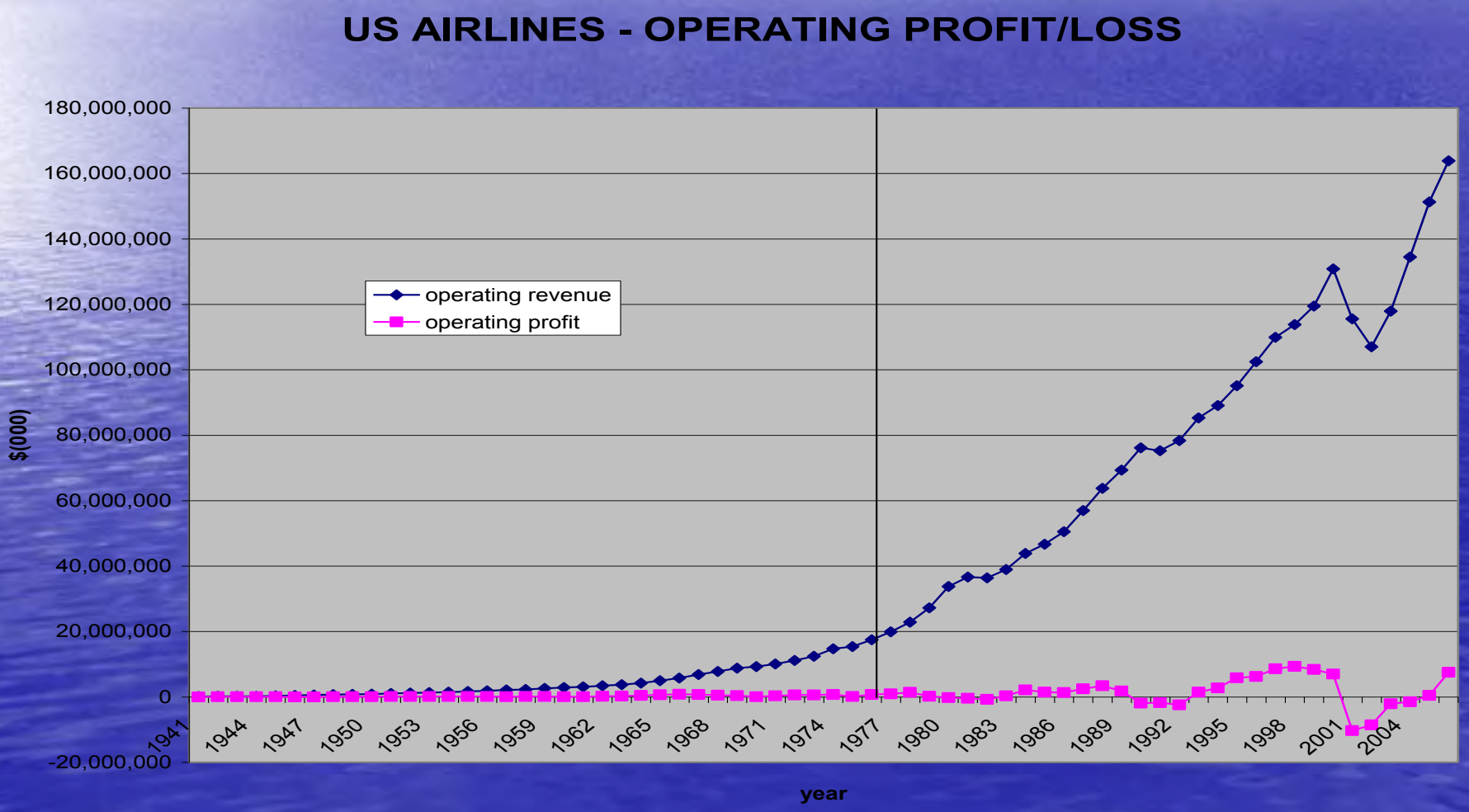
Before deregulation, real yields fell 2.3% annually, on average. After deregulation, they fell only 1.4%.



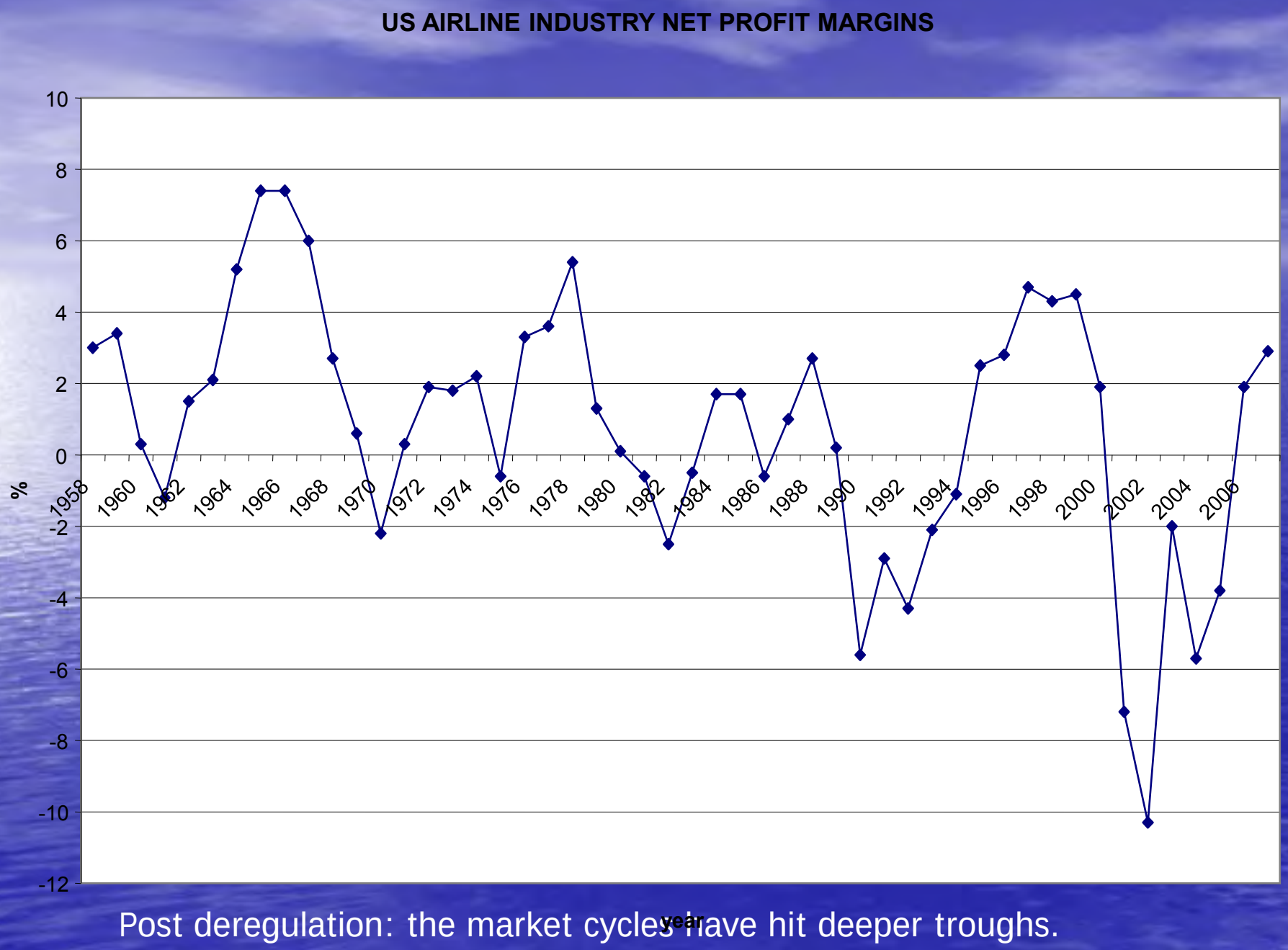
Traffic has grown significantly since deregulation.



Airline revenue has grown too, but profits have been elusive.

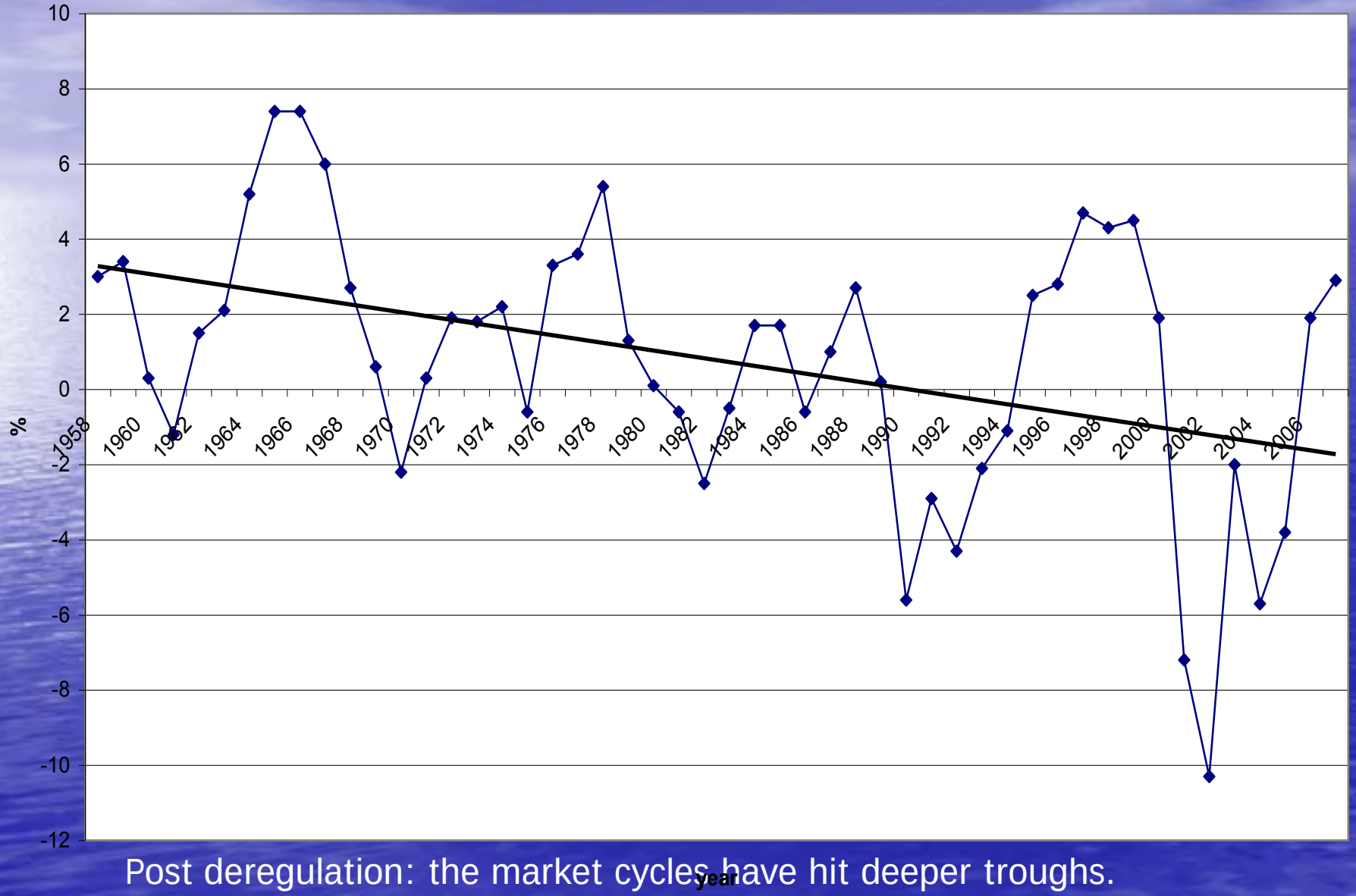



THE CHRISTIAN SCIENCE MONITOR
Bennett
AIRLINE INDUSTRY
QUARTERLY REPORT

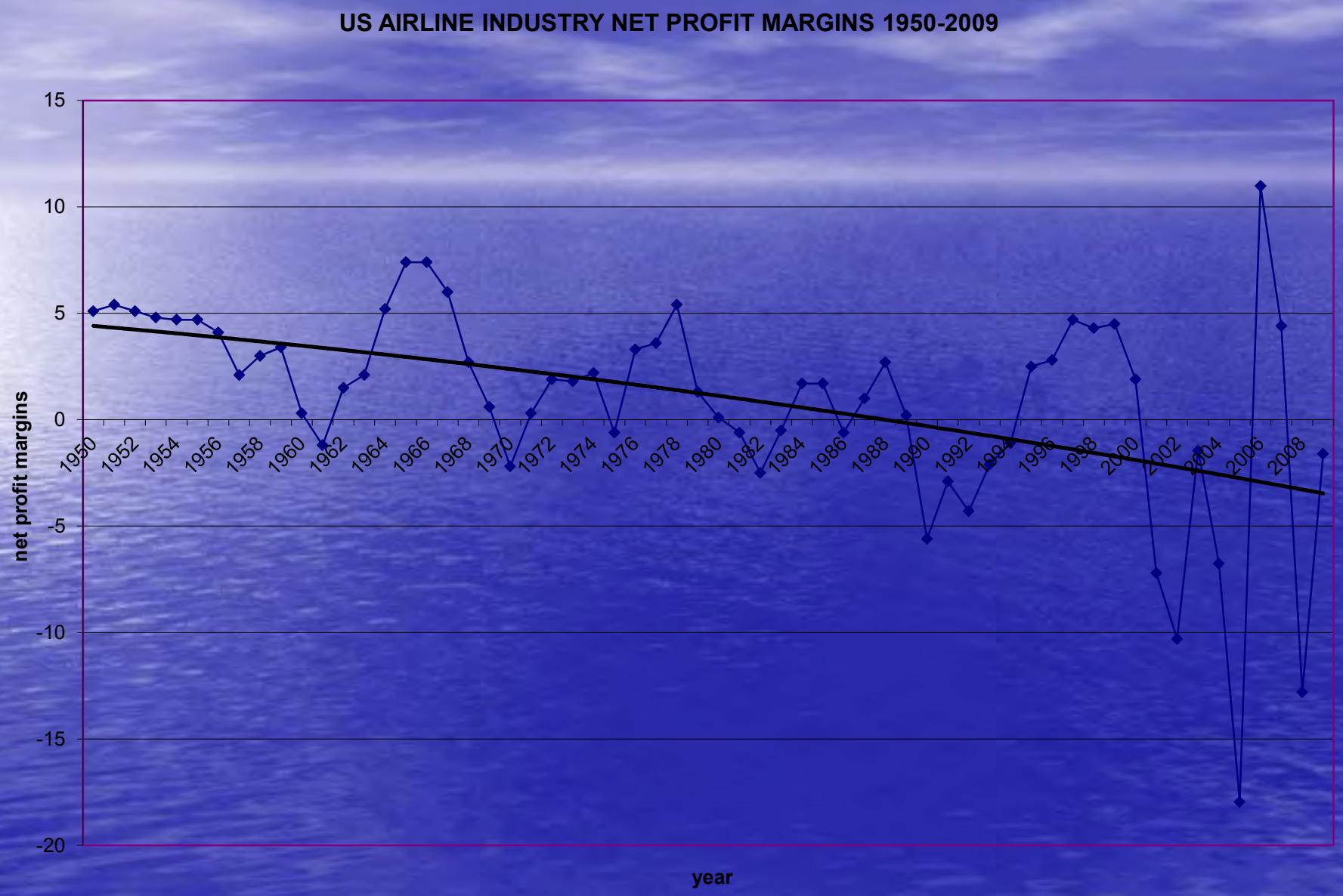


Post deregulation: the market cycles have hit deeper troughs.

US AIRLINE INDUSTRY NET PROFIT MARGINS



Post deregulation: the market cycles have hit deeper troughs.


US AIRLINE INDUSTRY NET PROFIT MARGINS 1950-2009
15
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-5
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net profit margins
1950
1952
1954
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year

Time, Jan. 28, 2008:

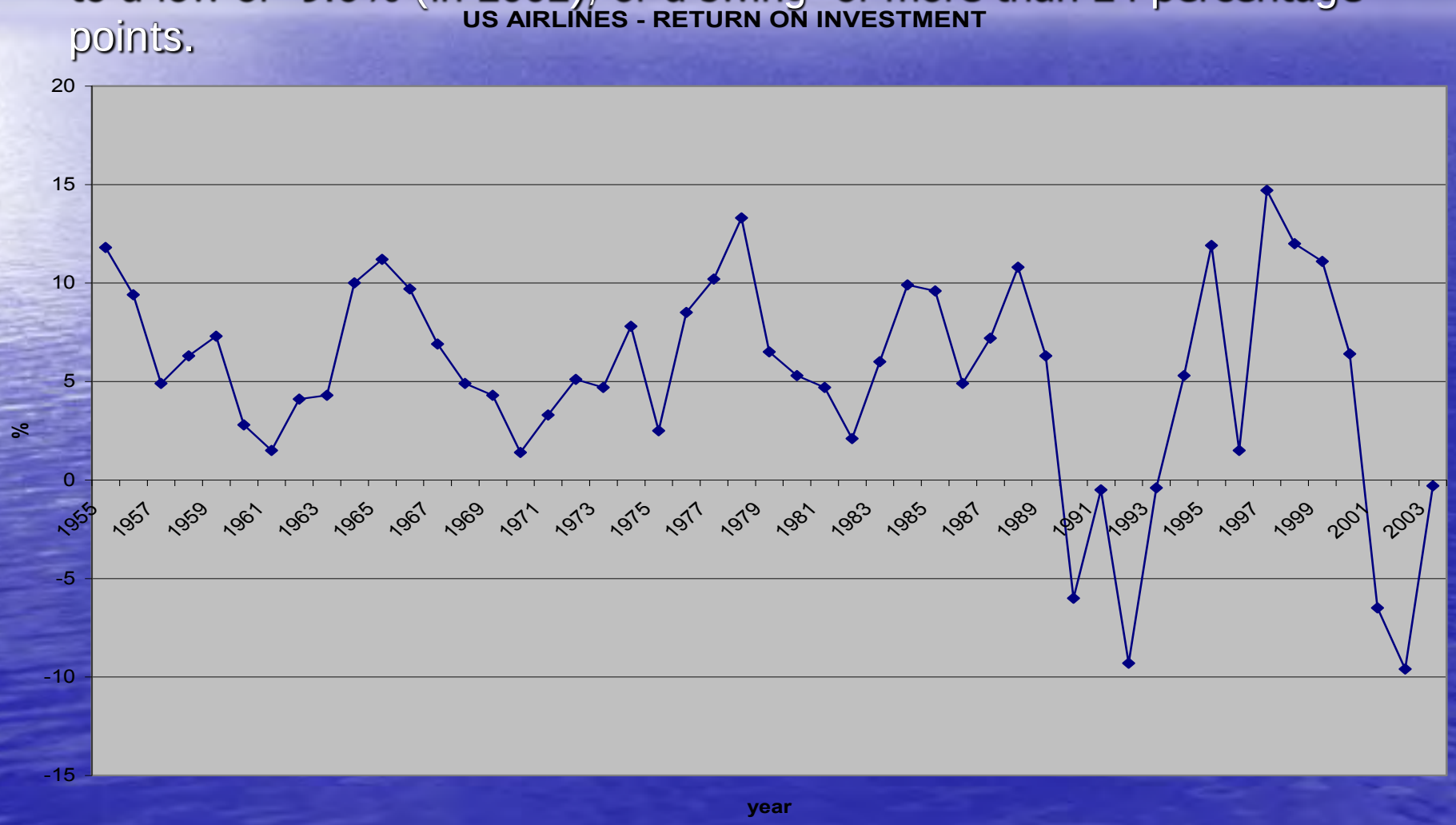
"[T]he US has experienced what economist and former Under Secretary of the Treasury John Taylor of Stanford University calls a 'long boom' since the Fed started to squeeze inflation out of the system in 1979. For nearly 30 years, Taylor points out, the few downturns the U.S. has suffered have, in historical terms, been short and shallow."

Gary Chase, Lehman brothers:

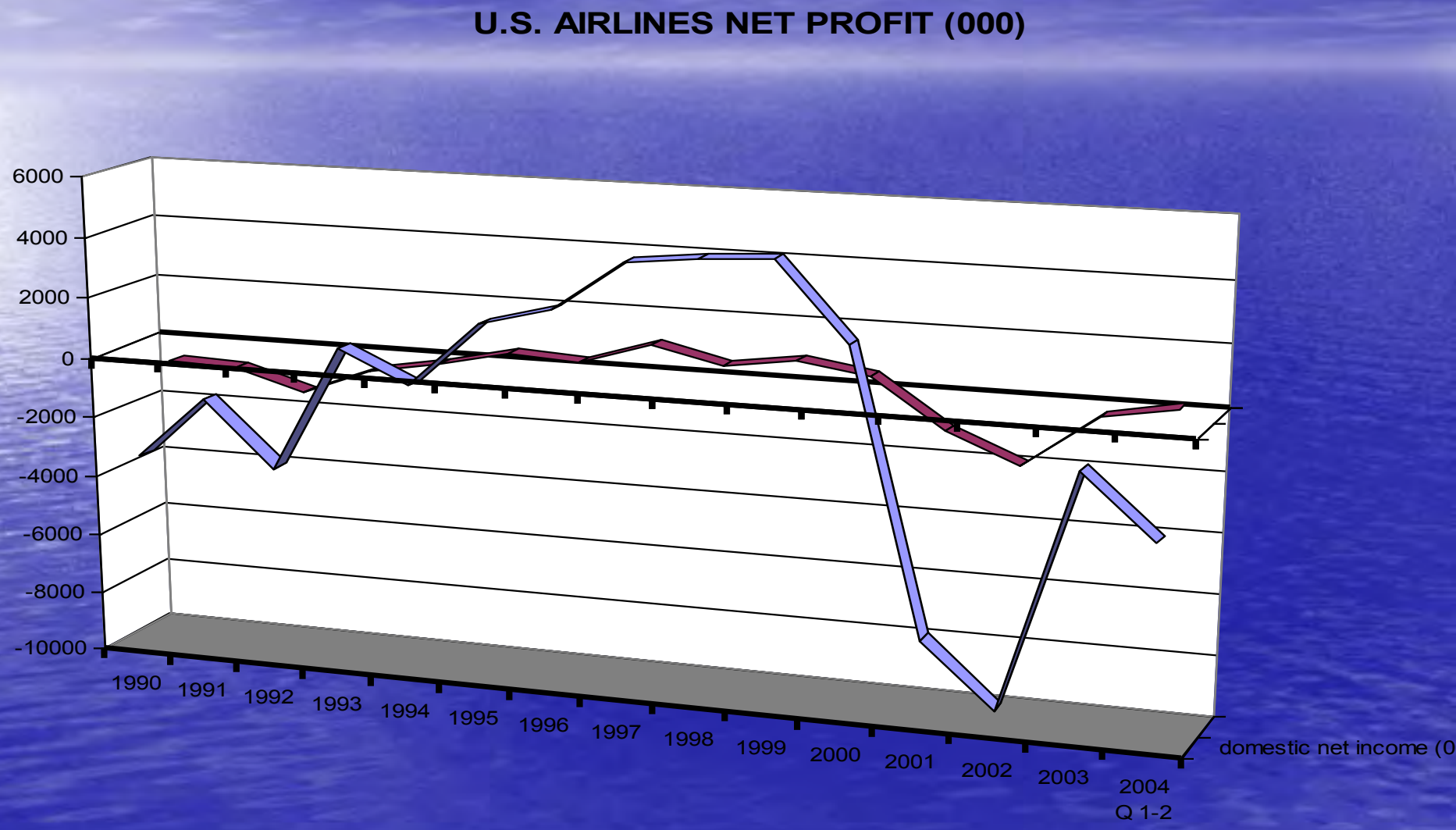
"The industry hasn't seen a real up cycle. 2006-2007 in retrospect now looks more like a brief reprieve from a down cycle rather than an up cycle. The industry has not been profitable enough to justify investment."

Volatility has increased.

Returns on investment ranged between a high of 11.8% (in 1955) and a low of 1.5% (in 1961), a swing of just over 10 percentage points. Post-deregulation, industry ROI swung from a high of 14.7% (in 1997) to a low of -9.6% (in 2002), or a swing of more than 24 percentage points.



U.S. AIRLINE DOMESTIC FINANCIAL PERFORMANCE IS MORE VOLATILE THAN INTERNATIONAL PERFORMANCE



THE MAGNITUDE OF THE FINANCIAL CRISIS

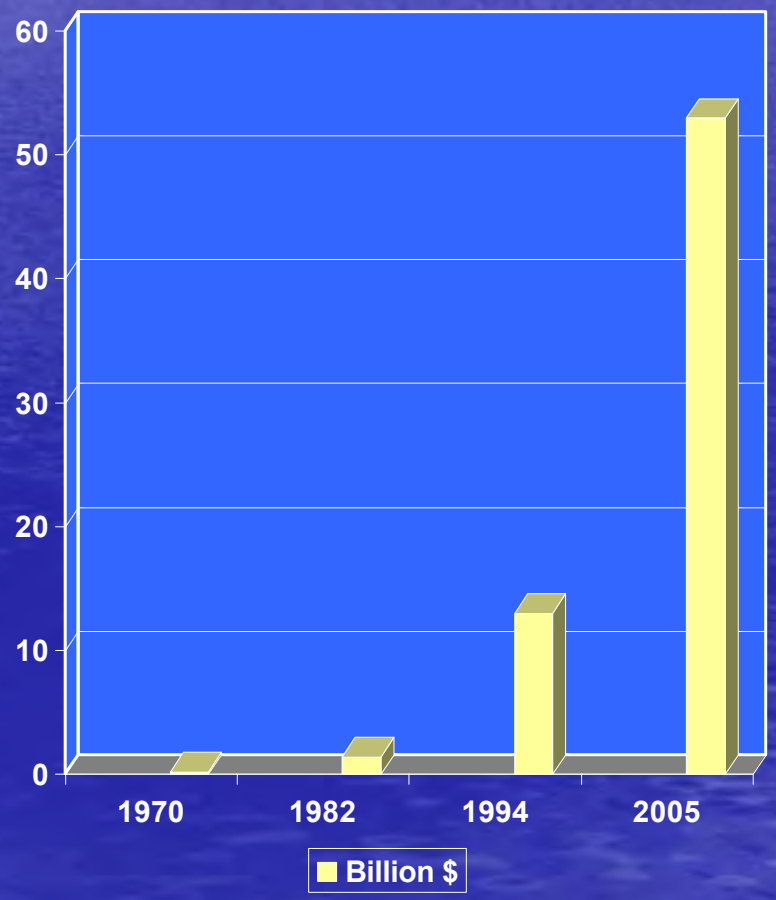
Since 2000, US airlines were profitable for only five years, earning $33.6 billion. But its unprofitable seven years accumulated losses of $84 billion.

- 2000 – U.S. profit $2.5 billion
- 2001 - U.S. losses $8.3 billion
- 2002 - U.S. losses $11.4 billion
- 2003 - U.S. losses $1.7 billion
- 2004 - U.S. losses $9.1billion
- 2005 - U.S. losses $27.2 billion
- 2006 - U.S. profit $18.2 billion
- 2007 - U.S. profit $7.7 billion
- 2008 - U.S. losses $23.8 billion
- 2009 - U.S. losses $2.6 billion
- 2010 – U.S. profit $3.7 billion
- 2011 – U.S. profit of $1.5 billion

US Carriers cumulatively lost $50 billion in this decade.

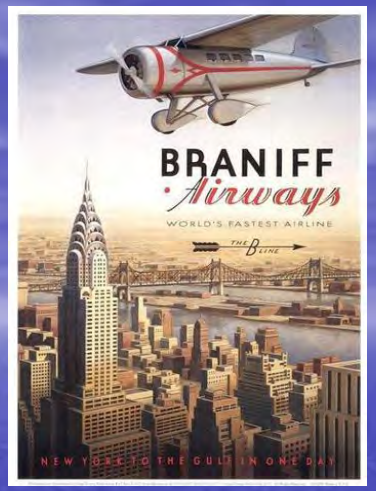
Industry financial performance during the most recent downward cycle is worse than in any prior recession . . .

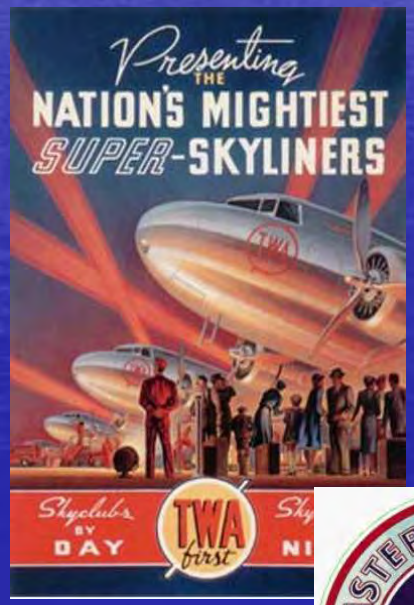
- 1970 - $200 million
- 1981-1982 - $1.4 billion
- 1990-1994 - $13 billion
- 2000-2011 – $50 BILLION

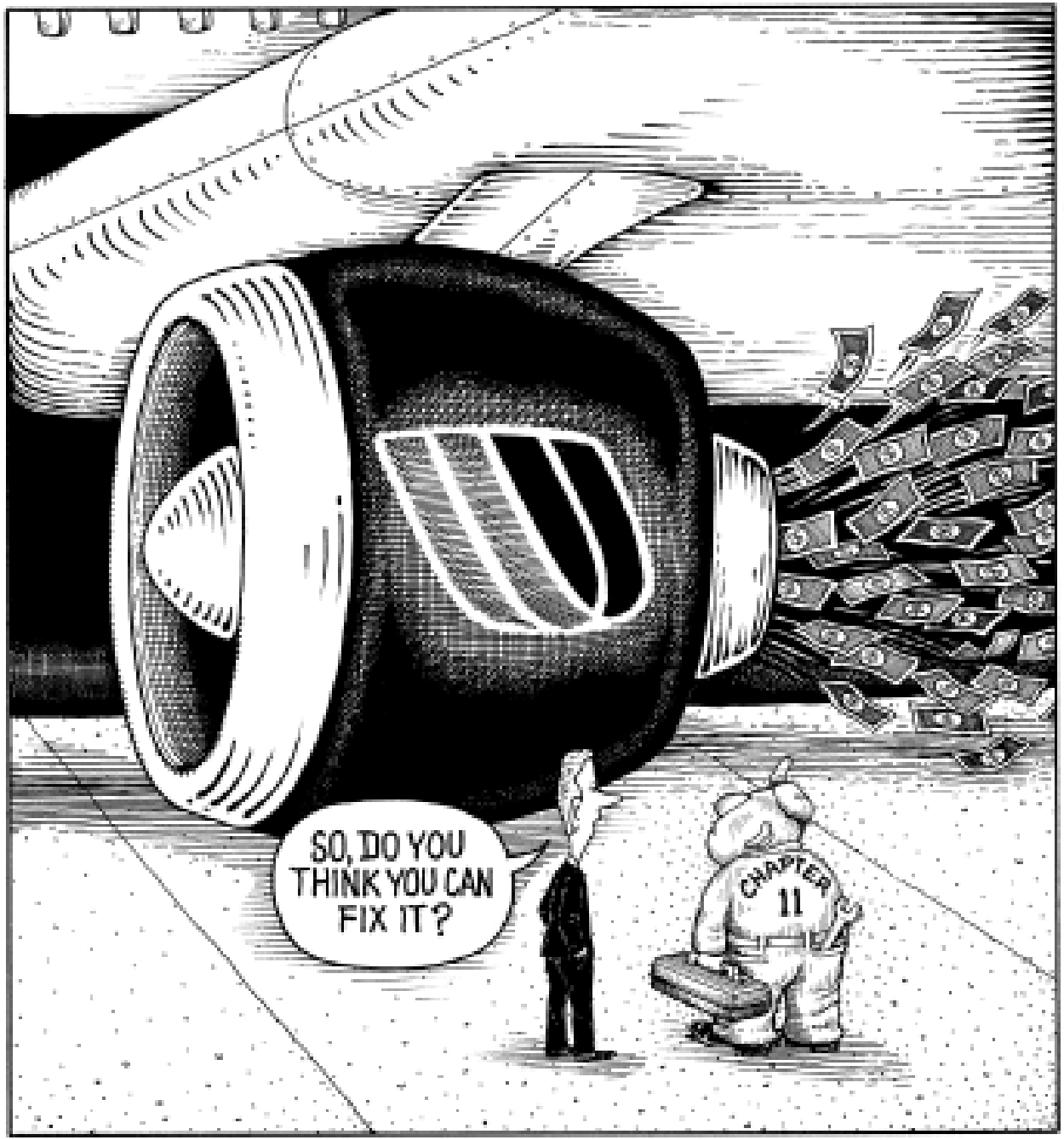


. . . and have grown progressively worse since deregulation

- Pre-deregulation – No airline bankruptcies
- 1981-82 – two major airline bankruptcies; one liquidation
- 1990-94 – five major airline bankruptcies; two liquidations
- 2001-06 – seven major airline bankruptcies; no liquidations; half of US fleet capacity in bankruptcy.






SO, DO YOU THINK YOU CAN FIX IT?
CHAPTER 11


BANKRUPTCY

Entrepreneurial spirit is abundant.

Draft 201

U.S. Domestic Airlines

New York Airways
Aeroamerica
Florida Airlines
Indiana Airways
Air Bahia
Tejas Airlines
Mountain West
LANICA
Coral Air
Pacific Coast
Swift Aire Line
Golden Gate
Pinehurst Airlines
Silver State
Air Pennsylvania
Cochise Airlines
Braniff International
Astec Air East
Will's Air
Aero Sun Int'l
Aero Virgin Islands
Altair
North American
Island Empire
State Airlines
Golden West
Continental Airlines
National Florida
Air Vermont
Pacific Express
Dolphin
Combs Airways
New York Helicopter
Air Florida
Excellair
American Int'l
Emerald
Hammonds Commuter

Exec Express
Caribbean Express
Pocono Airlines, Inc.
Virginia Island Seaplane
Princeton Air Link
Qwest Air
Southern Jersey Airways
Eastern Air Lines
Big Sky Airlines
Air Kentucky
Braniff, Inc.
Presidential
Resort Commuter
Pocono Airlines
SMB Stage Lines
CC Air
Britt Airways
Rocky Mountain Airways
Continental Airlines
Pan Am World Airways
Pan Am Express
L'Express
Eastern Air Lines
Bar Harbor Airlines
Northcoast Executive
Midway Airlines
Grand Airways
Metro Airlines
Mohawk Airlines
Jet Express
Metro Airlines
Northeast

America West
Midway Airlines
Flagship Express
Virgin Island Seaplane
Trans World Airlines
L'Express
MarkAir
Hermans/Markair Express
States West Airlines
Hawaiian Airlines
Florida West
USAfrica Airways
MarkAir
Trans World Airlines
Grand Airways
The Krystal Company
GP Express
Business Express
Jet Aspen
Kiwi International
Conquest
Air 21
Sun Jet International
Mahalo
Air South
Western Pacific Airlines
Mountain Air Express
Pan American World
Euram Flight Center
Sunjet International
Eastwind Airlines
Access Air

Tower Air
Kitty Hawk
Pro Air
Fine Air Services
Legend Airlines
National Airlines
Trans World Airlines
Midway Airlines
Sun Country Airlines
Vanguard Airlines
US Airways
United Airlines
Hawaiian Airlines
Midway Airlines
Great Plains Airlines
Atlas Air/Polar Air Cargo
US Airways
ATA Airlines
Southeast Airlines
Aloha Airlines
Delta Air Lines
Comair
Northwest Airlines
TransMeridian
Mesaba Airlines
Era Aviation
Independence Air
Florida Coastal
Kitty Hawk Aircargo
MAXjet Airways


R.I.P
OASIS
SILVERJET
2006-2008
R.I.P
EOS
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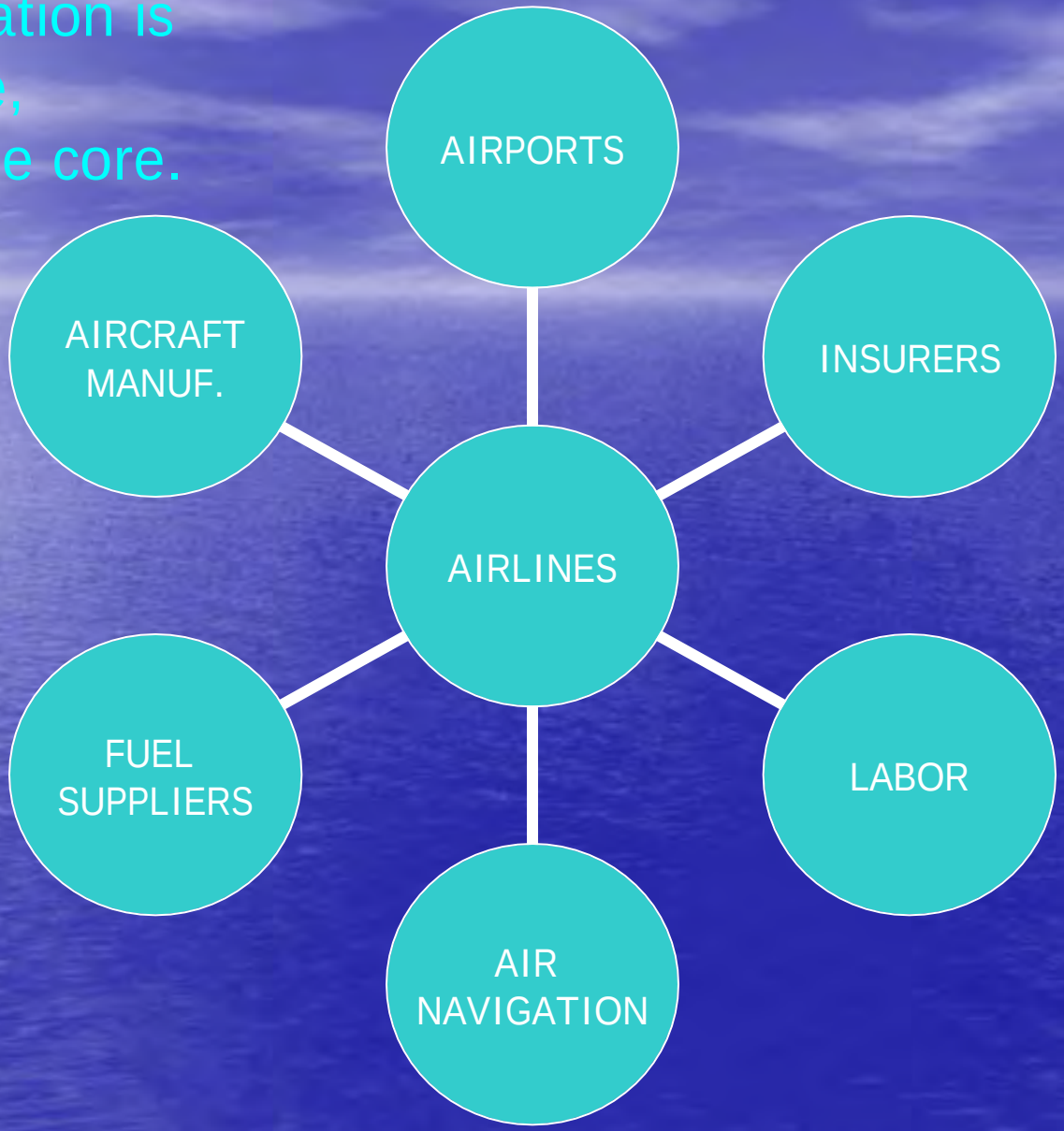
MAXJET
R.I.P
XL
AIRWAYS
R.I.P
ZOOM
2001-2008

All of aviation is profitable, except the core.




London Herald

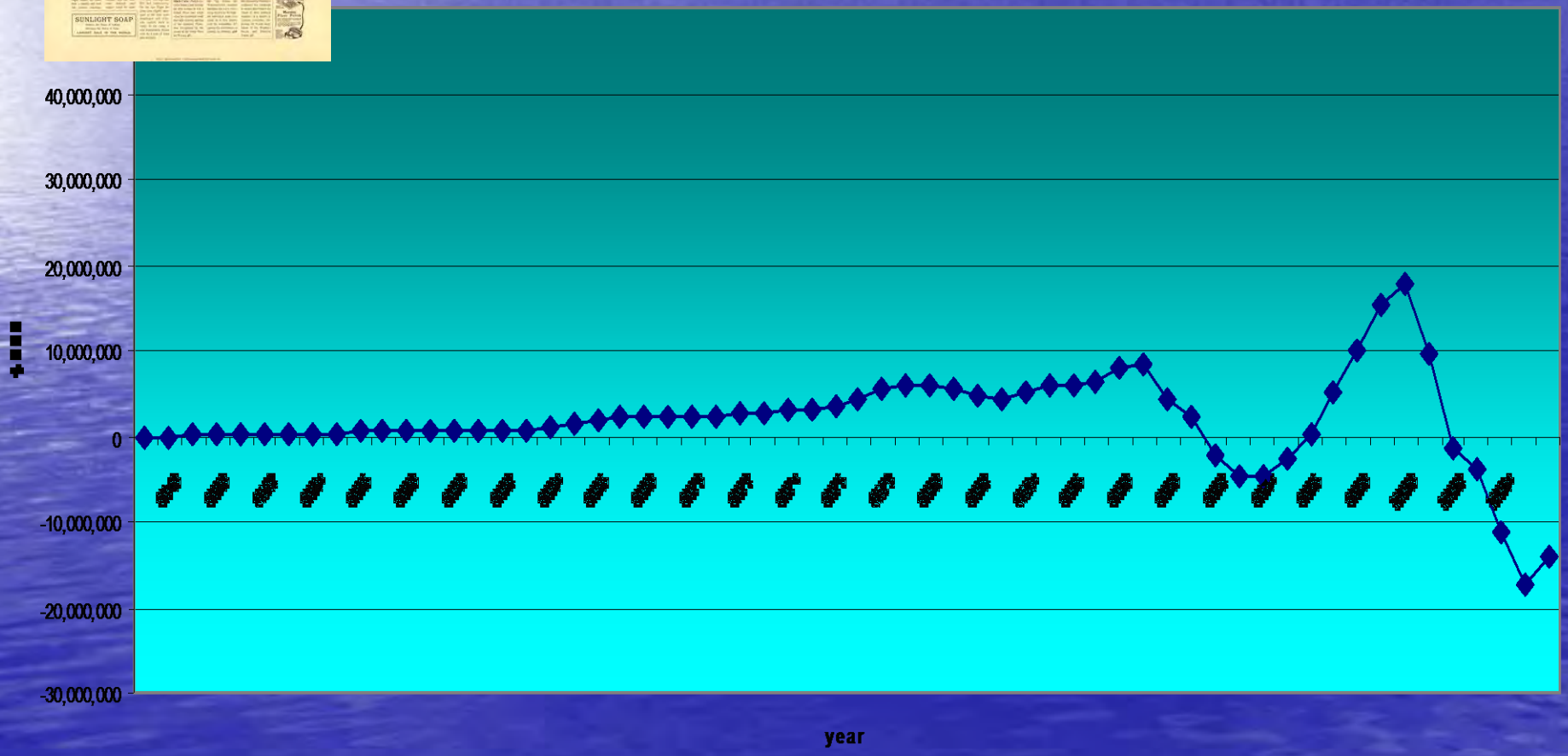
FLYING MACHINE TAKES TO THE AIR!

Wright Brothers Make First Powered Flight

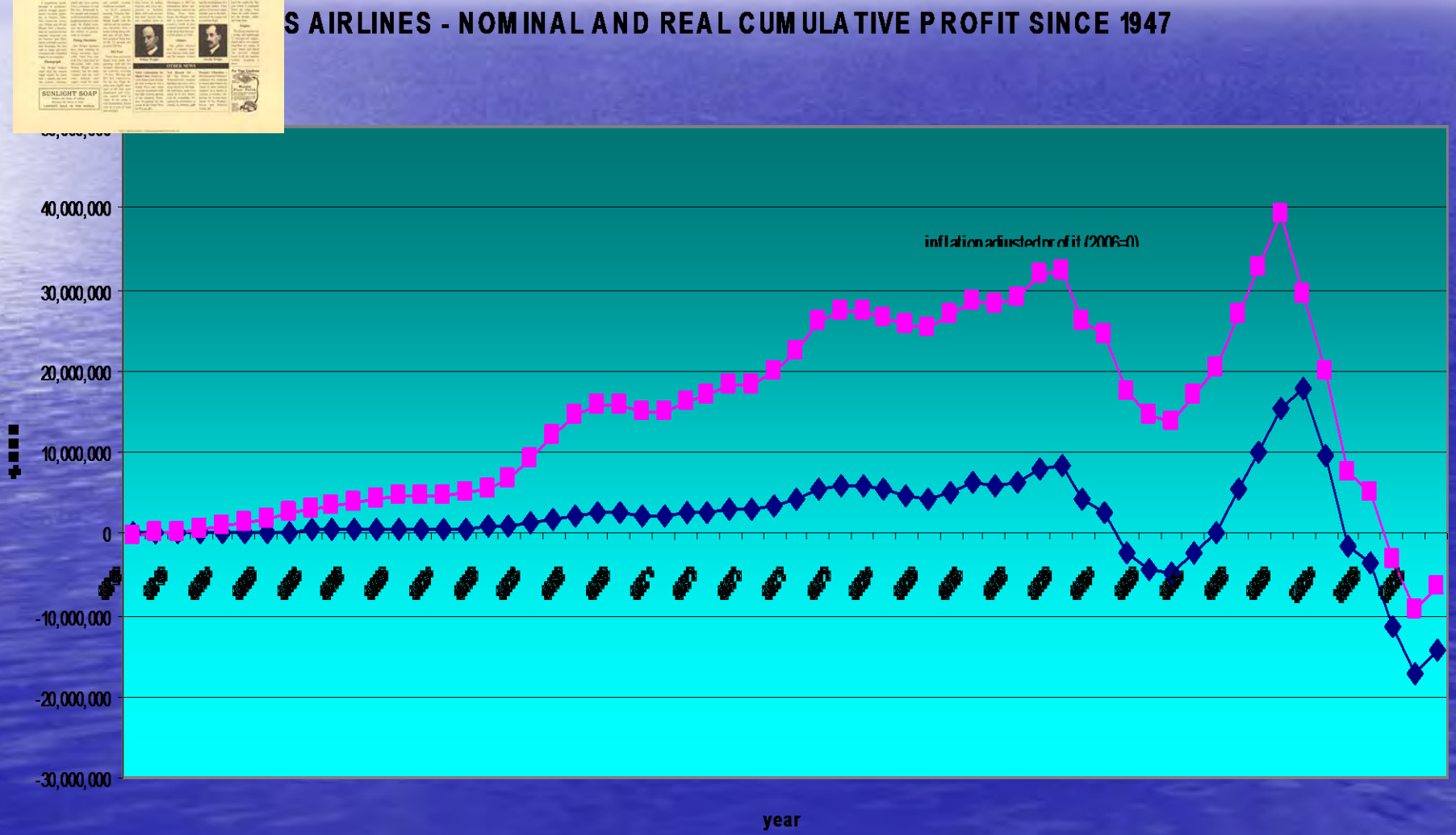
The Wright Brothers

Flyer

The U.S. airline industry lost all the profit earned since the Wright Brothers' inaugural flight.



This is true, even adjusted for inflation



Warren Buffett

- Buffett invested $385 million investment he made in US Air. In 1995, he wrote off 75 percent of that investment to zero.
- Buffett pointed out that the airline business in the U.S. “has made no money.”
- According to Buffett, in 1903, at Kitty Hawk, N.C., when the Wright Brothers flew:
- “If there had been a capitalist down there, the guy would have shot down Wilbur.”

Giovanni Bisignani – DG, IATA:

"Unless investors receive a fairer share of the value the industry creates, future growth in air travel will either be constrained or inefficiently met, with substantial value lost for the global economy. . . . Significant new investment is required to meet the fast-growing demand for air travel, but current rates of return do not even justify retaining the level of capital that is already invested."

IATA: Profitability and the Air Transport Value Chain (2013)

- The **airline industry generated a 4.1% return on invested capital** during 2004-2011, only a modest increase from the 3.8% during 1996-2004;
- That **4.1% return was well below the 7.6% cost of capital;**
- Over a 40 year period, **airlines have generated the lowest returns on invested capital** out of a worldwide sample of almost 30 industries;
- If airlines returns do not increase it may prove **difficult to attract the $4-5 trillion of new capital estimated to be required for new aircraft** over the next 20 years;
- Airlines are **surrounded by stronger firms in the supply and distribution chain** who earn higher returns;
- Yet the study concludes airlines have been **successful in cutting costs, with unit costs falling over 60% in real terms** in the past forty years;
- This has not improved returns on invested capital since unit revenue fell by a similar amount.

Why?

- *"There is no denying that the profit record since 1978 has been dismal, that deregulation bears substantial responsibility, and that the proponents of deregulation did not anticipate such financial distress - either so intense or so long-continued."*
- Alfred Kahn (1988).
- *"Destructive competition . . . has been one of the unpleasant surprises of deregulation."*
- Alfred Kahn (1993).

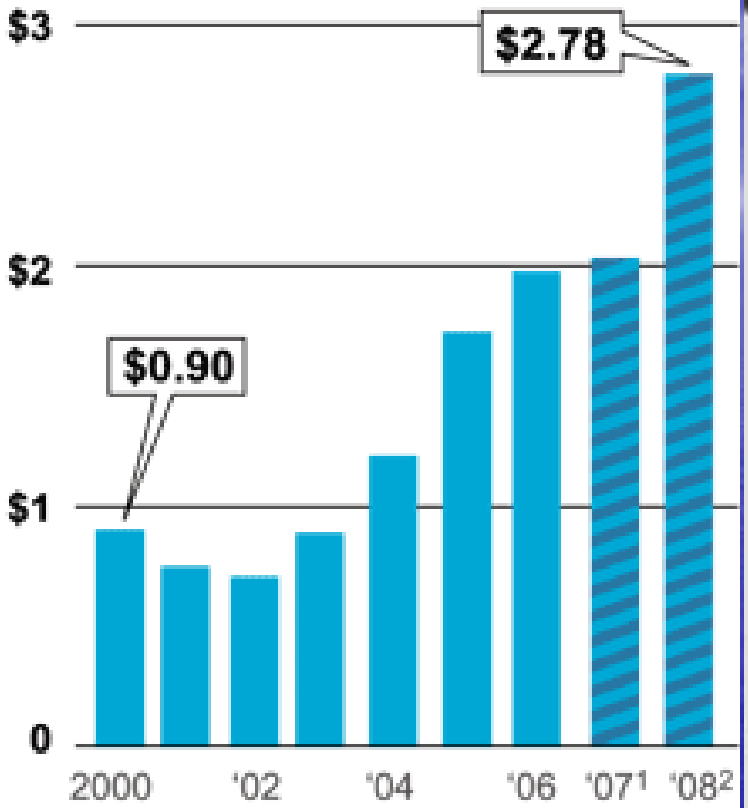
Why?

- *"Individual airlines, following their own interests in a completely rational way, act in a way which is collectively irrational. That's why the airline business has lost a lot of money over many years."*
- American Airlines CEO Robert Crandall (1993)


IMPERIAL AIRWAYS USE
THROUGHOUT EUROPE
SHELL PETROL EXCLUSIVELY

The price of jet fuel today is three times what it was in 2000, and 37% higher than it was during the first half of last year.

Per gallon price of jet fuel in the USA:



1 – First half of 2007
2 – Week ended Jan. 4

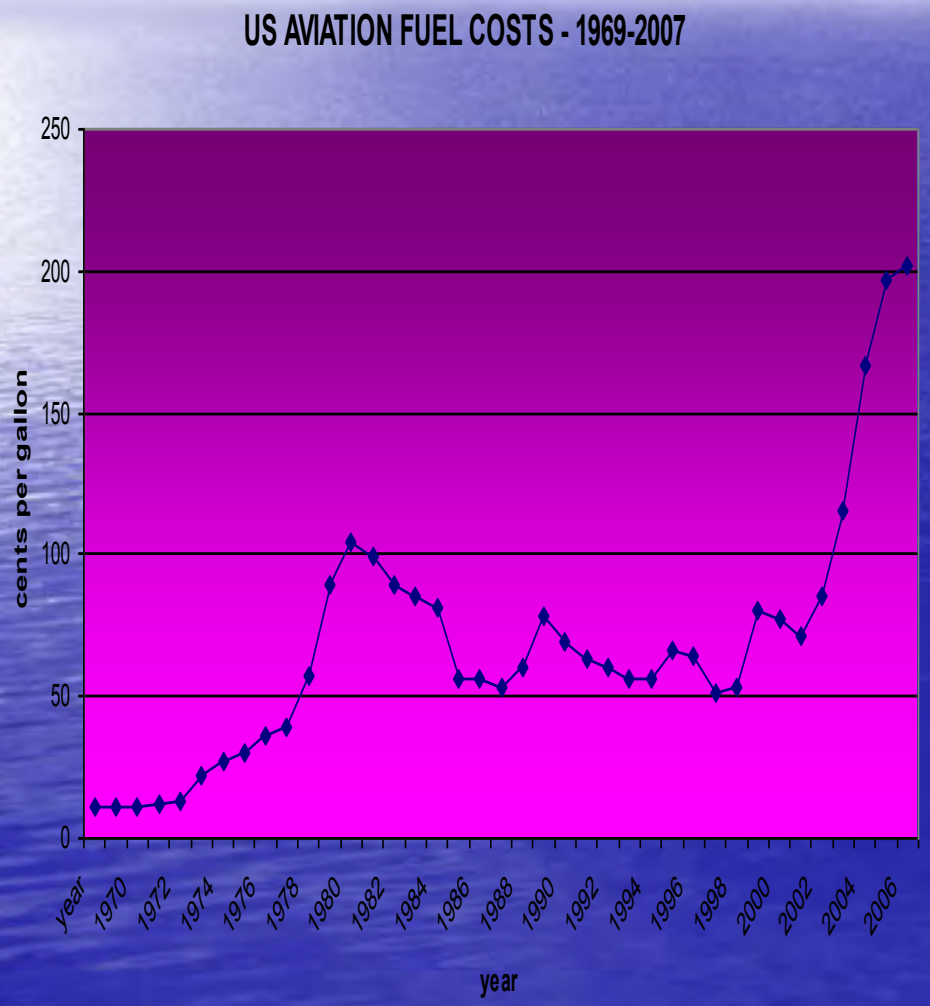
Note: Prices for 2000 through first half of 2007 are actual prices paid by US airlines for fuel bought both on the spot market and through somewhat lower priced contract deals. The price for the week ended Jan. 4 is the average for jet fuel bought on all US spot markets.

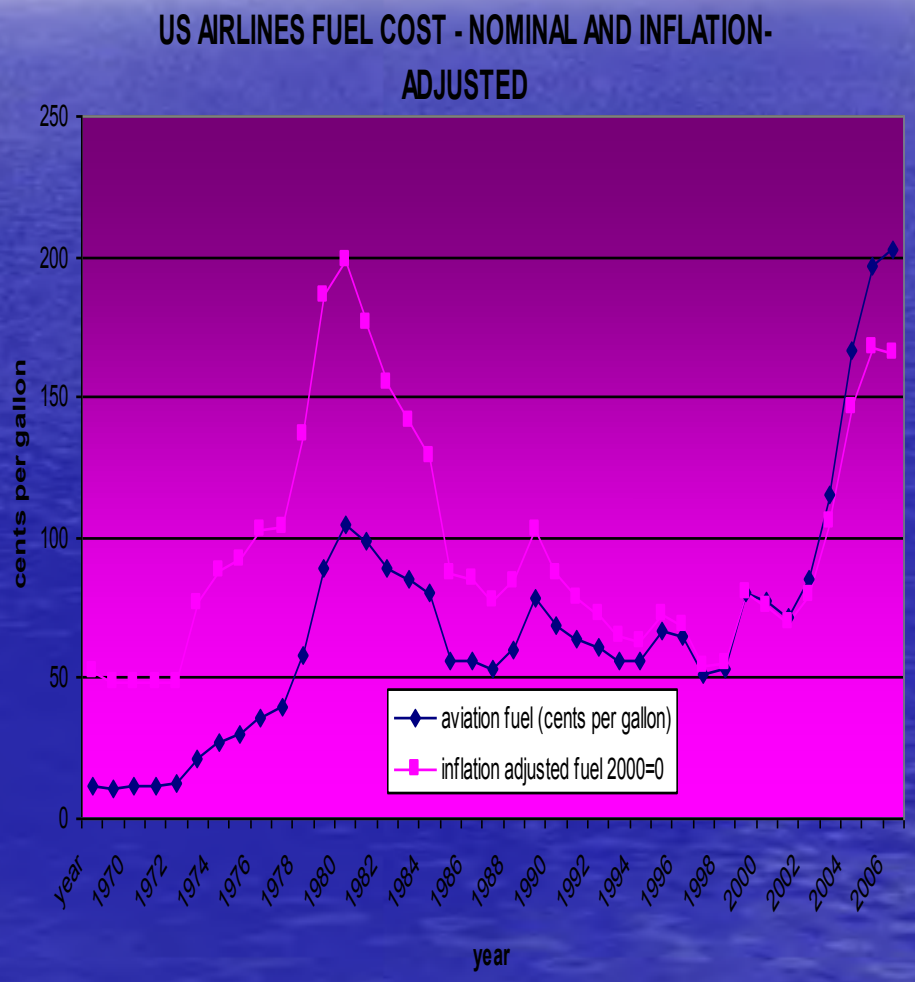
Sources: Air Transport Association and Oil Price Information Service.

USA TODAY

- As of June 2008, aviation fuel cost $4.12 per gallon in the US.
- On Friday, June 8, fuel rose to $138 per barrel – the largest one day increase in history.
- Speculation on commodity futures also propelled prices upward.
- But the financial problems the airline industry faces preceded the fuel crisis.

Fuel price volatility is not new. Compare nominal and inflation-adjusted prices with % changes in fuel costs:





Fuel Impact on Major Carrier Balance Sheets

If Fuel stays high and managements do nothing, cash whittles away

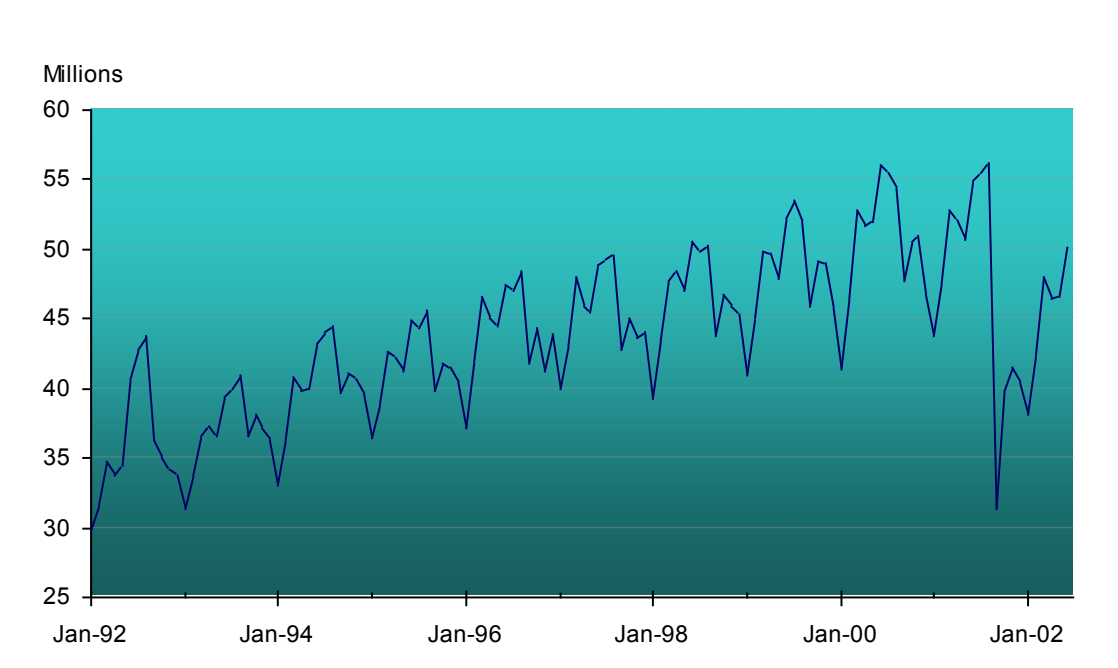
Major Jet Carrier Unrestricted Cash (Excluding Southwest)

Source: JPMorgan Estimates

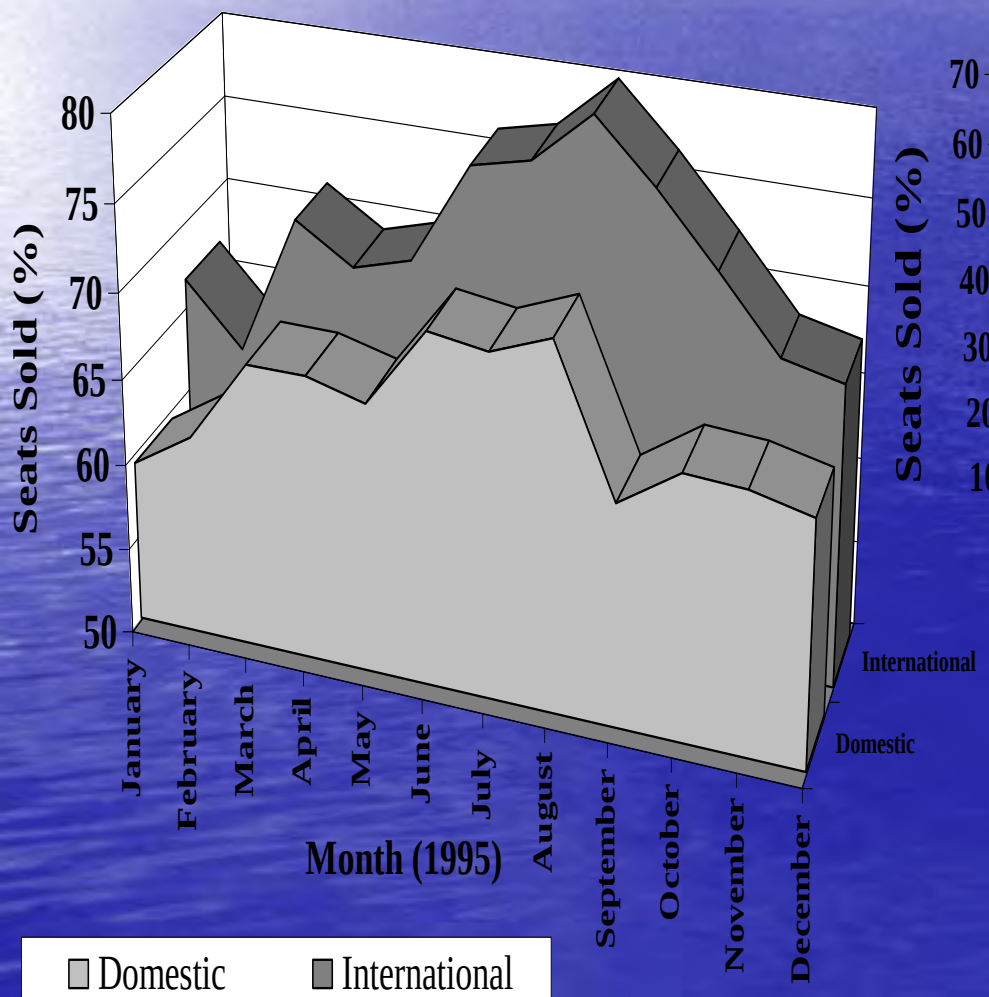
Note: Reflects estimated unrestricted cash based on current fuel prices and assuming existing credit lines and revolvers are tapped

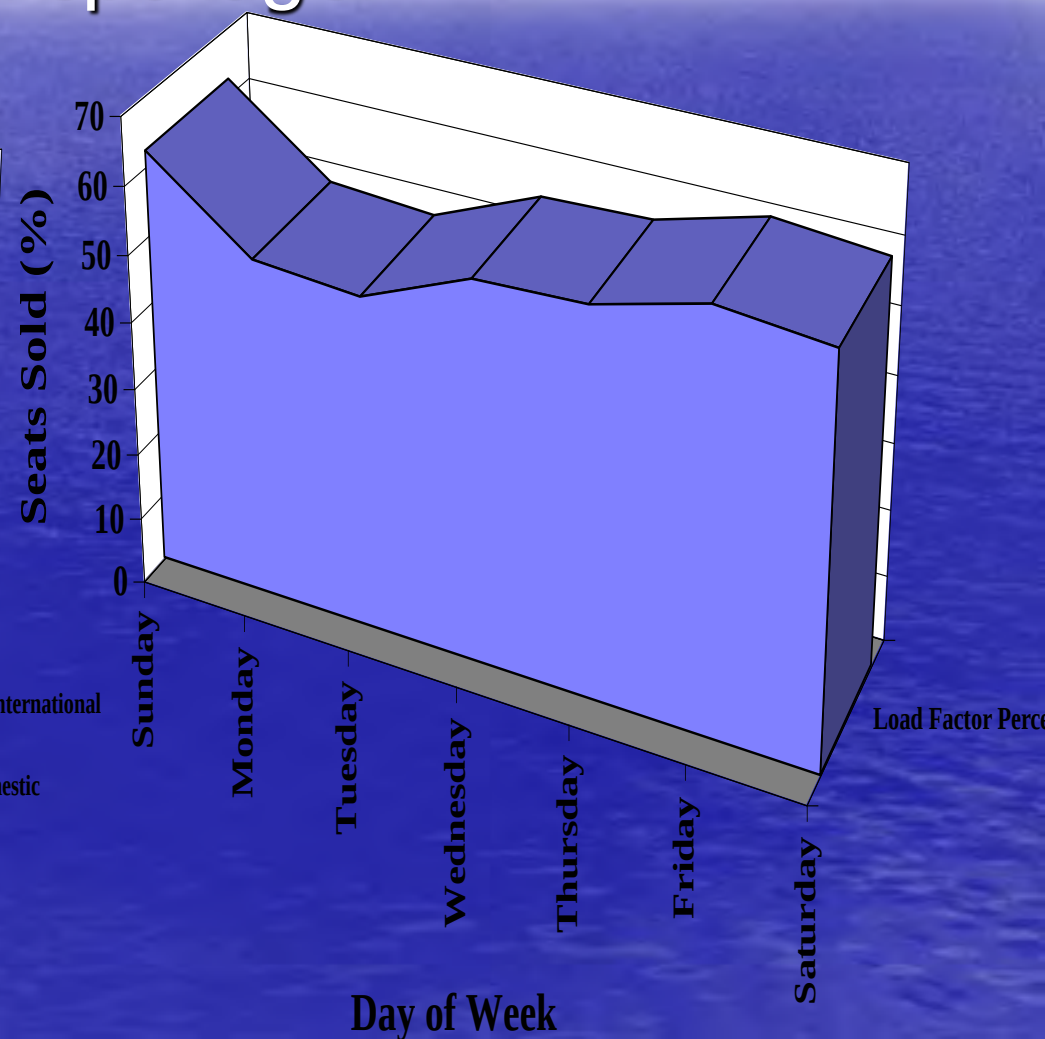
Note: Assumes auction rate securities that are currently not in unrestricted cash are moved to unrestricted cash in 1Q09

Demand is highly cyclical on a seasonal basis, and highly influenced by broader economic trends, consumer confidence, and fear.

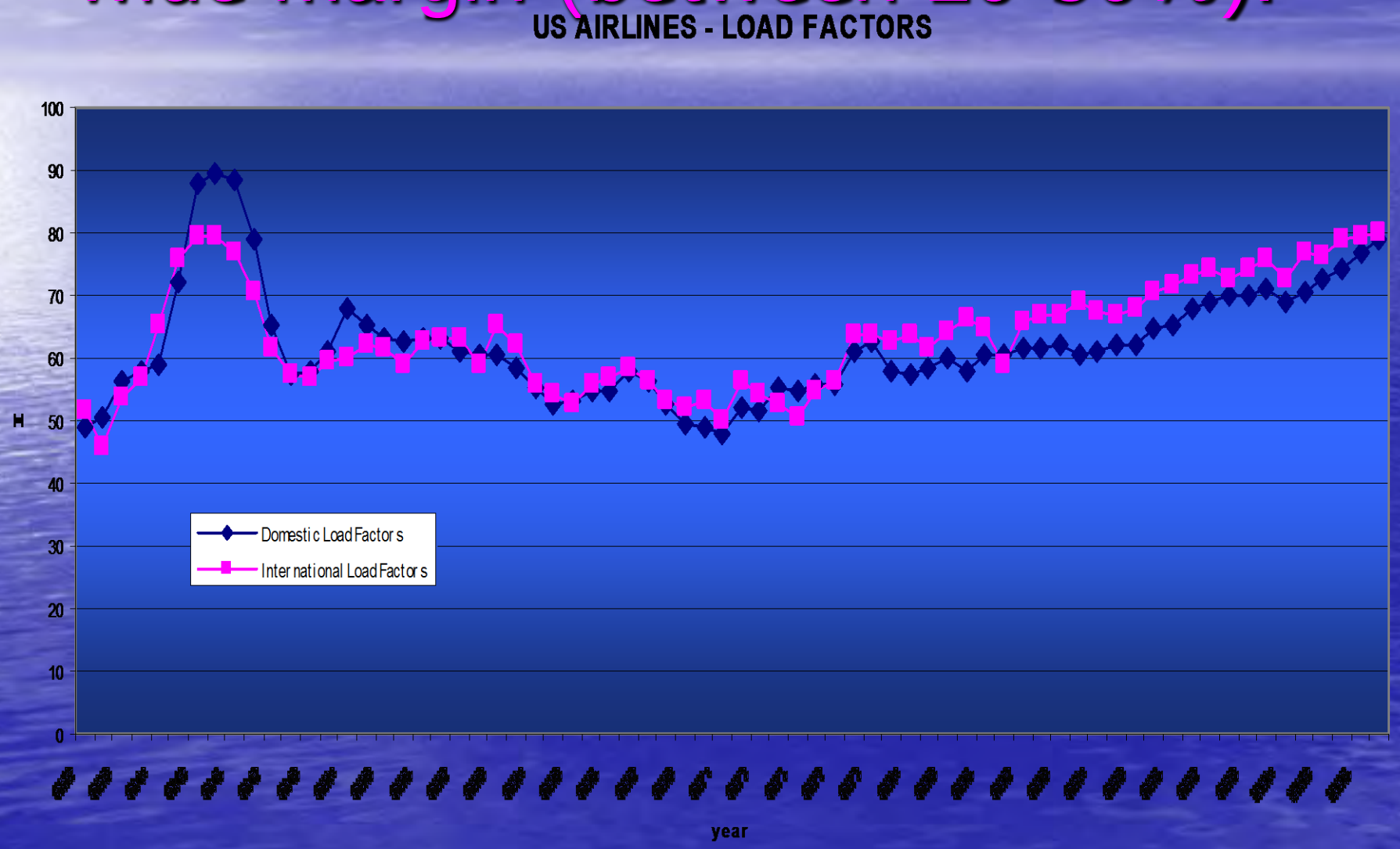


Even absent extraordinary events, demand ebbs and flows monthly, daily, and hourly, yet scheduled capacity cannot be adjusted to avoid spillage and spoilage.





Capacity exceeds demand by a wide margin (between 20-30%).

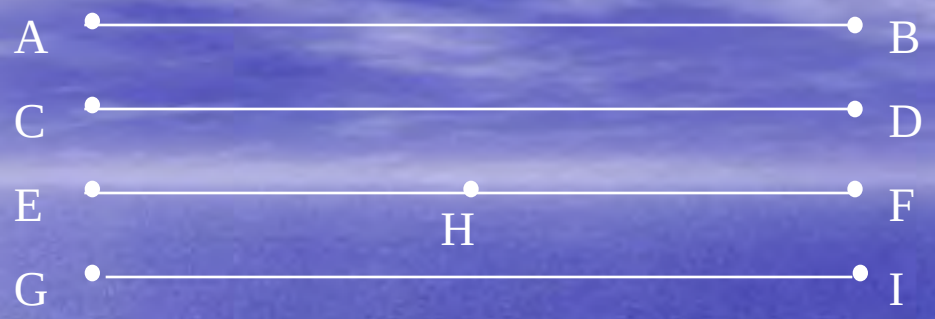


Why does the airline industry suffer relentlessly from overcapacity?

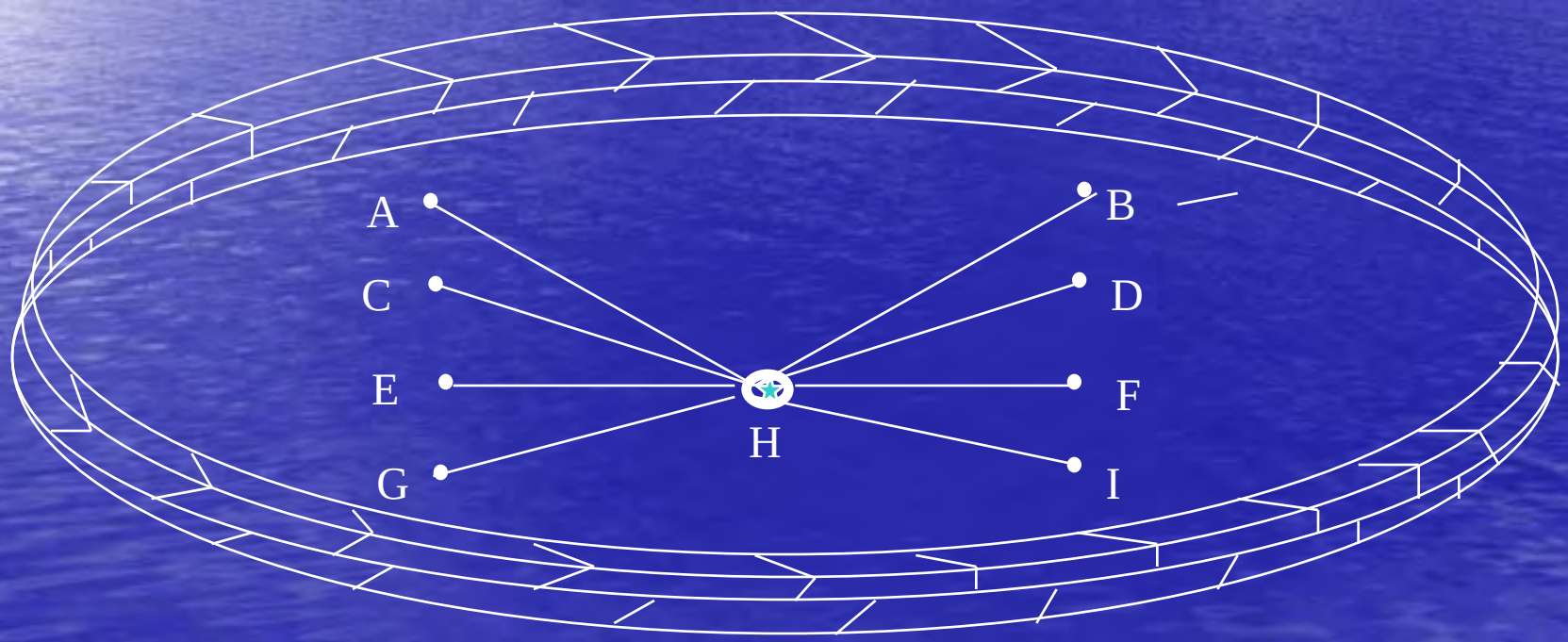
- Aircraft must be ordered years ahead of delivery ("planes are ordered in good times, and delivered in bad"). 750 mainline and 575 RJs added in the late 1990s.
- Airlines have high fixed costs, and fly aircraft even when revenue fails to cover fully allocated costs.
- Export bank financing is available from manufacturing States.
- Leasing companies enjoy tax benefits on depreciation.
- Aircraft and engine manufacturers, and aircraft lessors, are propping up bankrupt airlines with capital infusions.
- Bankruptcy redistributes, but does not eliminate, capacity. Aircraft of bankrupt airlines are recycled into the fleets of other carriers.

HYPOTHETICAL ROUTE STRUCTURE TO SERVE NINE CITIES

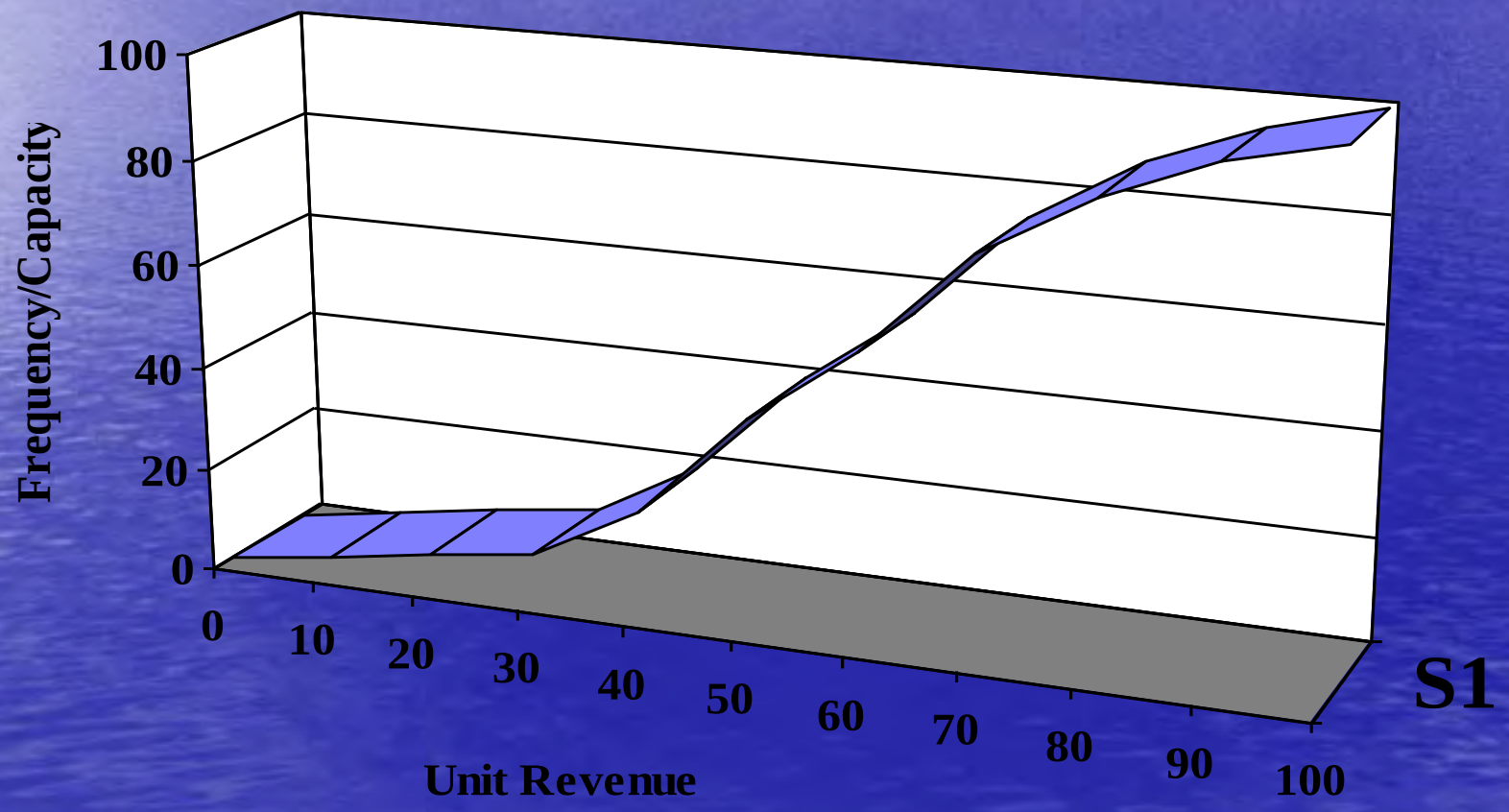
LINEAR ROUTE SYSTEM (8 city-pairs served)

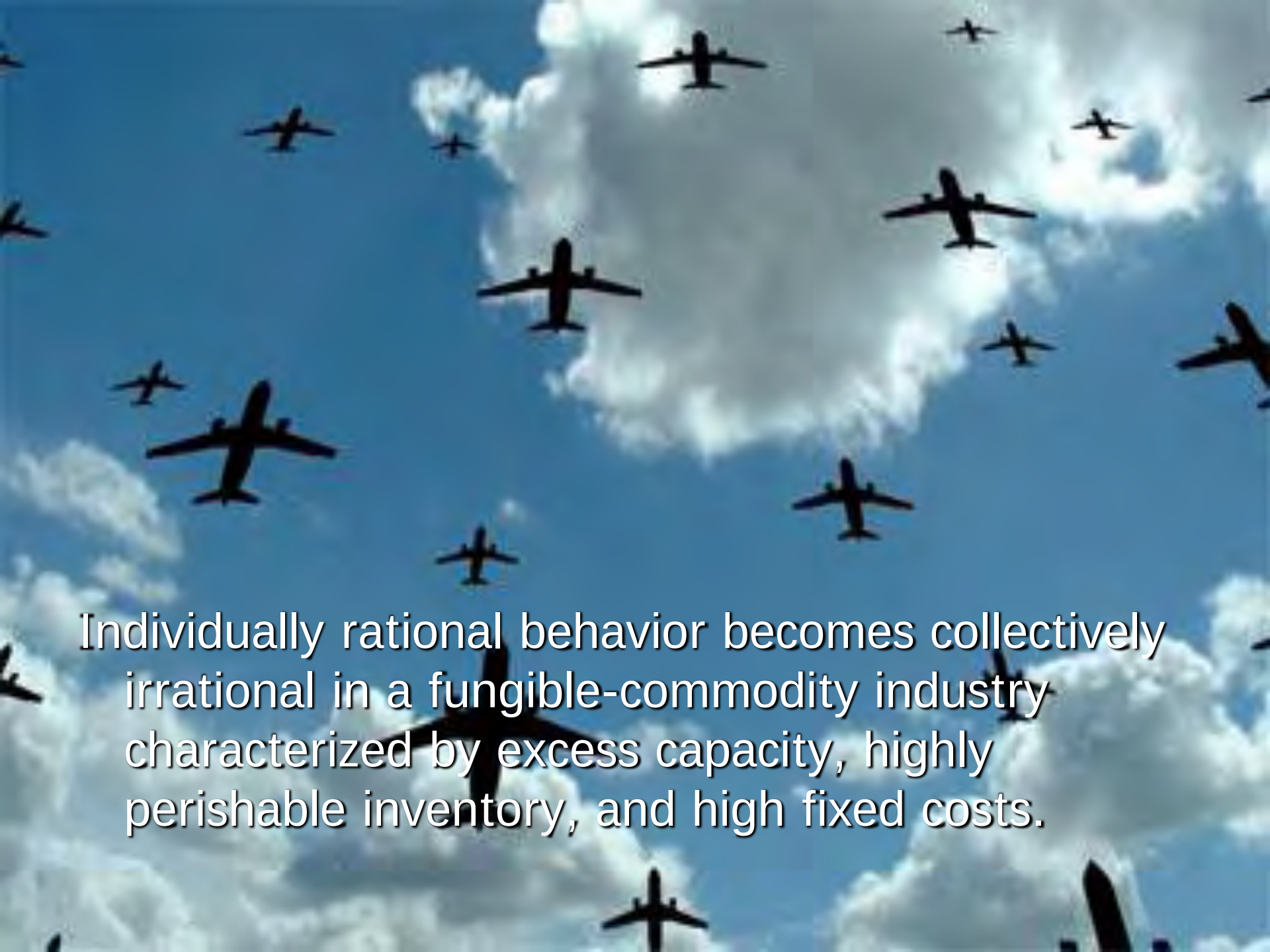


HUB-AND-SPOKE NETWORK (24 city-pairs served)



The S-Curve Phenomenon … in what other industry do capacity increases result in improved unit revenue? Network size enhances revenue.





Individually rational behavior becomes collectively irrational in a fungible-commodity industry characterized by excess capacity, highly perishable inventory, and high fixed costs.

The Tragedy of the Commons

Individually rational action becomes collectively irrational absent collusion, which the antitrust laws prohibit.

Airlines add capacity to improve unit revenue; airlines engage in variable cost pricing to sell perishable inventory.

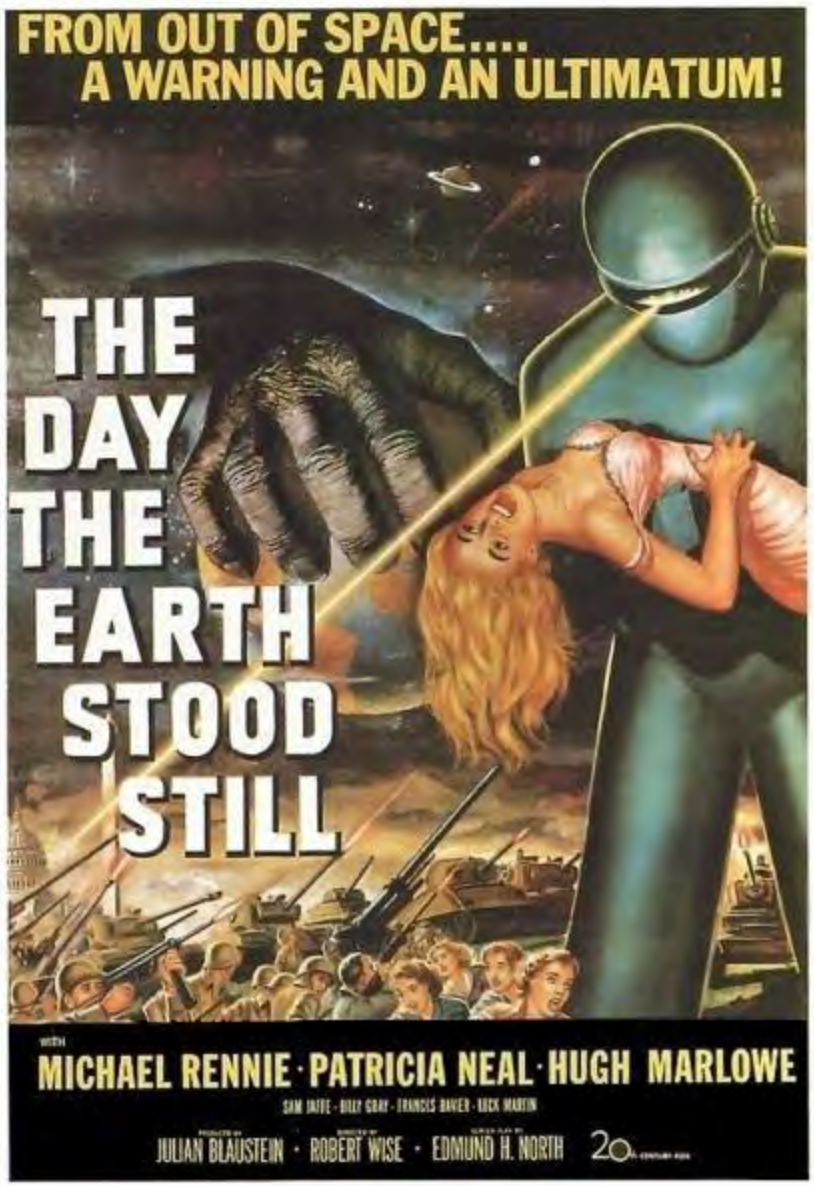
Yet airlines face significant revenue challenges.

- Inventory is perishable. Costs are disproportionately fixed. Therefore, carriers are motivated to sell empty seats at narrow margins above variable costs.
- Demand for air transport is "derived." It is like buying a bushel of wheat. No one buys wheat for the sake of owning wheat; one buys wheat to make bread, or cake.
- Air transportation is a "credence good." It is impossible to assess its quality at the time of purchase.
- There is little room for product differentiation. Airlines fly essentially the same aircraft.
- Hence, for many consumers, air transportation is a commodity.

Theory of Destructive Competition

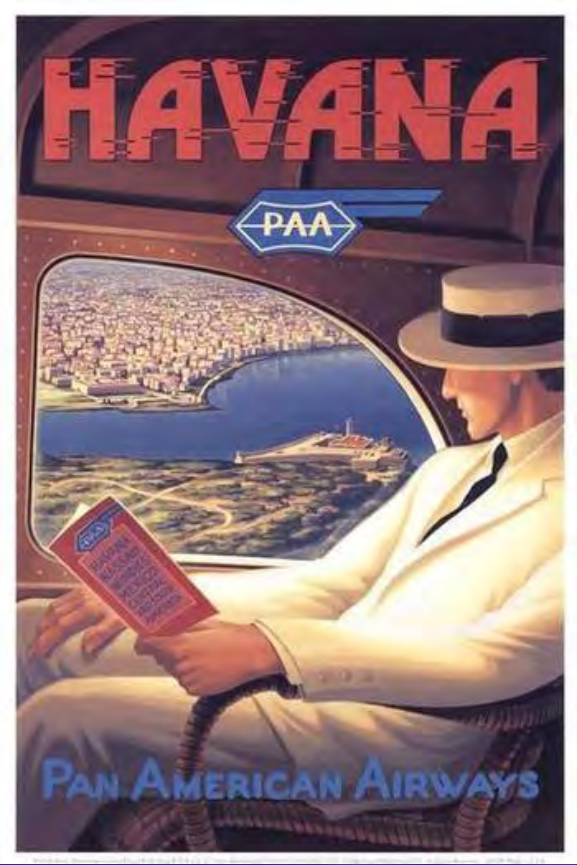
"The major prerequisites [of destructive competition] are fixed or sunk costs that bulk large as a percentage of total cost; and long-sustained and recurrent periods of excess capacity. These two circumstances describe a condition in which marginal costs may for long periods of time be far below average costs. If in these circumstances the structure of the industry is unconcentrated—that is, its sellers are too small in relation to the total size of the market to perceive and to act on the basis of their joint interest in avoiding competition that drives price down to marginal cost—the possibility arises that the industry as a whole, or at least the majority of its firms, may find themselves operating at a loss for extended periods of time."

Alfred Kahn (1988).



Product differentiation is costly.

- Adding seat pitch, frequencies, in-flight amenities, and airport lounges drive costs up.
- Expanding network scope by hubbing drives costs up, while congestion denigrates the product.
- Code-sharing expands network scope, but corrodes product standardization.
- Regional jets enables carriers to maintain frequencies while reducing trip costs, but raises CASM and denigrates product quality.



Price: the dominant differentiator

- Though schedule, network scope, and business class services generate revenue premiums, consumers appear to want a Wal-Mart product – high value at low price.
- The elimination of travel agent commissions coupled with internet access has made it impossible for carriers to engage in traditional yield management "hide the ball" pricing, and obfuscate the lowest fare.
- Since every carrier has an incentive to sell perishable seats, most will follow the price leader down, except when demand is strong.
- The result is that passenger demand is being satisfied at a price lower than sustainable at current cost levels.

$61.49 — **20%** — FEDERAL GOVERNMENT TAXES

$63.47 — **21%** — FUEL COSTS

$51.52 — **17%** — LABOR EXPENSES

$123.11 — **41%** — NON-LABOR/FUEL OPERATING AND OTHER EXPENSES

41¢ — **0.1%** — AIRLINE PROFITS

How will the airlines extricate themselves from this morass?

- Bankruptcy reorganization
- Route restructuring
- Fleet standardization
- Capacity reduction
- Labor cost reduction

Industry is Pulling Capacity

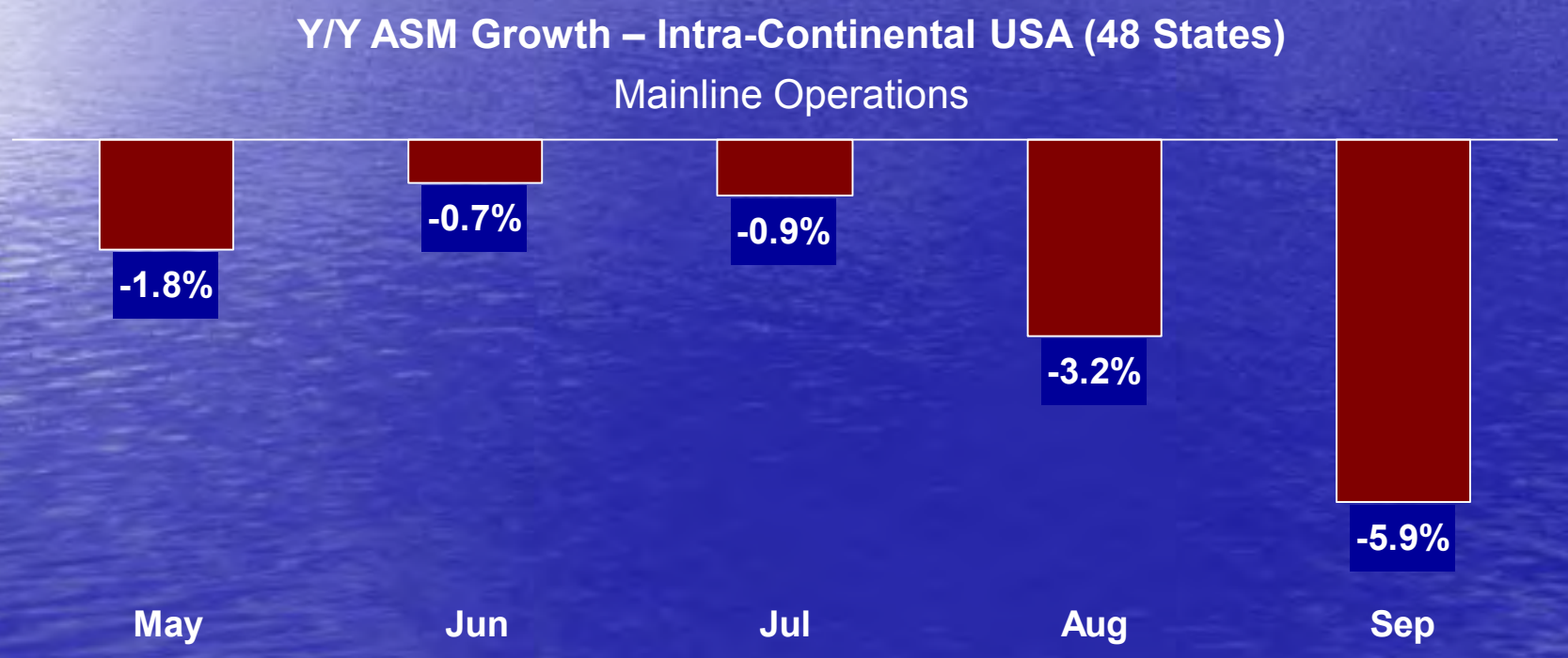
Significant cutbacks in growth and capacity have been announced with more cutbacks expected

- Early in May, AirTran announced it was halting growth beginning this fall
- On May 13, JetBlue announced it was suspending its plan to start serving Los Angeles International Airport. Service was to begin later in May
- On May 14, United announced reduced flights in Denver, San Francisco, Los Angeles, and Washington, D.C. effective September 2
  - Most of these cities saw reductions of approximately 5% in capacity
  - UA lowered frequency in two dozen cities out of Denver
- On May 21, American Airlines announced that they would reduce fourth quarter 2008 domestic capacity by 11-12% versus 2007
  - In addition, AMR regional affiliate capacity is expected to decline 10-11% versus fourth quarter 2007 levels
  - American will retire 40-45 mainline aircraft and 35-40 regional jets

Industry Capacity Reductions (Domestic)

Schedule reductions are already underway with more to come

- Schedules published to date show a reduction of almost 6% by September
  - Does not include American Airlines announced reduction
- Additional reductions are expected in coming weeks



Source: Published schedule analysis

How might government help the airlines extricate themselves from this morass?

- Do nothing
- Nationalize the industry
- Reform the tax laws
- Reform the labor laws
- Eliminate foreign ownership and cabotage restrictions
- Re-regulate the industry

REMARKS OF ROBERT L. CRANDALL
THE WINGS CLUB

JUNE 10, 2008

- OUR AIRLINES, ONCE WORLD LEADERS, ARE NOW LAGGARDS IN EVERY CATEGORY, INCLUDING FLEET AGE, SERVICE QUALITY AND INTERNATIONAL REPUTATION.
- THE FINANCIAL HEALTH OF THE INDUSTRY, AND OF THE INDIVIDUAL CARRIERS, HAS BECOME EVER MORE PRECARIOUS. MOST HAVE BEEN THROUGH THE BANKRUPTCY PROCESS AT LEAST ONCE, AND SOME HAVE PASSED THROUGH ON MULTIPLE OCCASIONS.
- I FEEL LITTLE NEED TO ARGUE THAT DEREGULATION HAS WORKED POORLY IN THE AIRLINE INDUSTRY. THREE DECADES OF DEREGULATION HAVE DEMONSTRATED THAT AIRLINES HAVE SPECIAL CHARACTERISTICS INCOMPATIBLE WITH A COMPLETELY UNREGULATED ENVIRONMENT. TO PUT THINGS BLUNTLY, EXPERIENCE HAS ESTABLISHED THAT MARKET FORCES ALONE CANNOT AND WILL NOT PRODUCE A SATISFACTORY AIRLINE INDUSTRY, WHICH CLEARLY NEEDS SOME HELP TO SOLVE ITS PRICING, COST AND OPERATING PROBLEMS.

"Since the invention of the wheel, in the long term no one has made money moving people."

Anon.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