

45th AIAC Annual General Meeting & Conference



“The major mid-term market, technology, and business operations issues/trends that will impact aerospace businesses”

# *Business and Investment Outlook In the Aerospace and Defense Industry*

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**Alderman & Company**

**Ottawa**  
**September 25, 2006**



# Agenda

1. Introduction
  
3. Defense Industry
  - Market Scope
  - Market Dynamics
  - Business and Investment Outlook
  
4. Civil Aerospace Industry
  - Market Scope
  - Market Dynamics
  - Business and Investment Outlook



# Introduction

## Biography

### Prior Employment:

2000 – 2001	Managing Director, Fieldstone
1996 – 1999	Senior Vice President, Aviation Sales Co (NYSE: AVS)
1990 – 1995	Vice President, GE Capital
1989 – 1990	Associate, BT Alex Brown / Bankers Trust

**Licenses:** FAA: Pilot (PPSEL), SEC/NASD: 7, 63, 65, 24

**Education:** Kenyon College (BA History)  
JL Kellogg Graduate School of Management (MBA Finance & Marketing)

**Honors:** GE Capital Circle of Excellence, Academic All-Ohio Soccer Team

# Introduction

## **Alderman & Company, LLC**

A consulting firm providing financial, strategic, and operations advice to aerospace and defense stakeholders

## **Alderman & Company Advisors, LLC**

A registered investment adviser providing advice to investors in the aerospace and defense industry

## **Alderman & Company Capital, LLC**

A registered broker dealer and member NASD offering securities of companies in the aerospace and defense industry

The common theme in all of our work:  
Projecting future cash flows in the aerospace & defense industry

# Introduction



FORTRESS



HBV Alternative Strategies



# Introduction

*This announcement appears as a matter of record only.*



**Nasco Aircraft Brake, Inc.**  
has been acquired by

**K & F Industries Holdings, Inc.**

*Alderman & Company Capital, LLC initiated this transaction and acted as exclusive financial advisor to Hoffman Engineering Corporation.*



*This announcement appears as a matter of record only.*



**Hoffman Engineering Corporation**

has been acquired by

**Harris Watson, PLC**

*Alderman & Company initiated this transaction and acted as exclusive financial advisor to Hoffman Engineering Corporation.*



*This announcement appears as a matter of record only.*



**GenMech Aerospace, Inc.**

has been acquired by

**SPX Corporation**

*Alderman & Company initiated this transaction and acted as exclusive financial advisor to GenMech Aerospace, Inc.*



*This announcement appears as a matter of record only.*



**TecoMetrix, LLC**

has been acquired by

**ESCO Corporation**

*Alderman & Company initiated this transaction and acted as exclusive financial advisor to TecoMetrix, LLC.*



*This announcement appears as a matter of record only.*



**Metalcraft Technologies, Inc.**

has been acquired by

**A Private Investment Group  
Led by Management**

*Alderman & Company initiated this transaction and acted as exclusive financial advisor to Metalcraft Technologies, Inc.*



# **Business & Investment Outlook In the Defense Industry:**

*A top down look at defense industry cash flows*



# Defense: Market Scope

**US Defense spending is approximately equal to the combined defense spending of all other nations on earth**

Global Defense Spending 2005			
	US \$Billion	% Total	US Multiple
United States <sup>1</sup>	522	<b>48%</b>	1
China <sup>2</sup>	63	6%	8
Russia <sup>2</sup>	62	6%	8
United Kingdom	51	5%	10
Japan	45	4%	12
France	42	4%	13
Germany	30	3%	17
All others	269	25%	2
	<b>1,083</b>		

<sup>1</sup>Includes additional Congressional funding provided for Iraq and Afghanistan

<sup>2</sup>2004 budget data

Source: International Institute for Strategic Studies, U.S. Department of Defense, Center for Arms Control and Non-Proliferation, February 6, 2006, [www.armscontrolcenter.org/archives/002244.php](http://www.armscontrolcenter.org/archives/002244.php)

# Defense: Market Scope

**The US Defense budget is forecast to remain well in excess of \$400 billion**

US\$ Billion	FY2005	FY2006	FY2007	FY2008	FY2009	FY2010	FY2011
Military Personnel	121.3	115.8	113.1	114.6	117.9	121.2	124.6
O&M	179.2	178.3	152.6	159.3	165.3	171.9	174.5
<b>Procurement</b>	<b>96.6</b>	<b>86.2</b>	<b>84.2</b>	<b>99.8</b>	<b>108.6</b>	<b>111.7</b>	<b>117.7</b>
RDT&E	68.8	71.0	73.2	74.4	75.1	73.2	70.6
Military Construction	7.3	8.9	12.6	12.9	12.6	12.0	10.6
Family Housing	4.1	4.4	4.1	3.2	3.1	3.0	3.0
R&M Funds	7.9	4.7	2.4	1.2	2.4	2.2	4.4
Offsetting Receipts	(1.4)	(1.5)	(1.4)	(1.3)	(1.3)	(1.4)	(1.4)
Trust Funds	0.3	0.3	0.2	0.2	0.2	0.2	0.2
Interfund Transactions	(0.2)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)
Total 51 Budget Authority	483.9	468.2	441.0	464.2	483.8	493.9	504.2
<b>Annual Growth Rate</b>		<b>-3%</b>	<b>-6%</b>	<b>5%</b>	<b>4%</b>	<b>2%</b>	<b>2%</b>

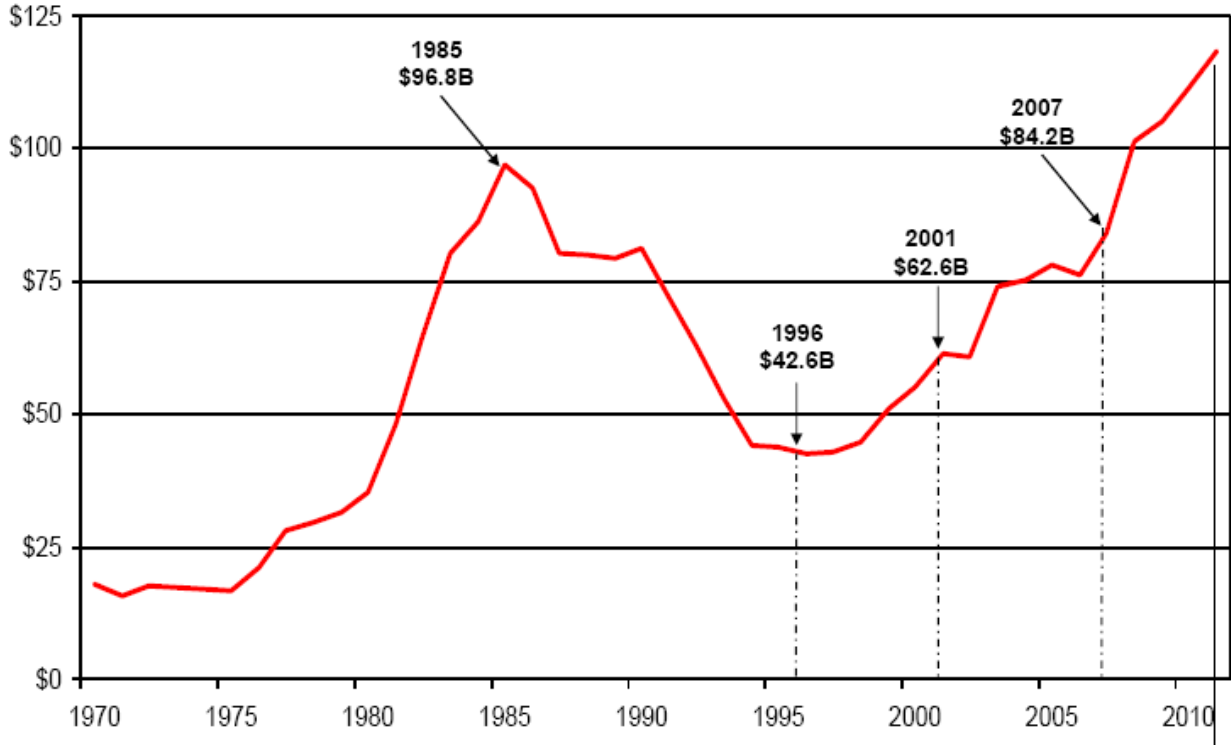
Source: OMB, Defense Department Budget, <http://www.whitehouse.gov/omb/budget/fy2007/defense.html>

Risk to forecast: policy shifts following mid-term and presidential elections

# Defense: Market Scope



## DoD Procurement (current \$ in billions)



Source: Department of Defense

## Quadrennial Defense Review: QDR

Title 10, Section 118 of the United States Code specifies: “The Secretary of Defense shall every four years...conduct a comprehensive examination (to be known as a "quadrennial defense review") of the national defense strategy, force structure, force modernization plans, infrastructure, budget plan, and other elements of the defense program and policies of the United States.”



## Highlights from the 2006 QDR

“Although U.S. military forces maintain their predominance in traditional warfare, they must also be improved to address the non-traditional, asymmetric challenges of this new century.”

These challenges include:

- Irregular warfare (conflicts in which enemy combatants are not regular military forces of nation-states);
- Catastrophic terrorism employing weapons of mass destruction (WMD); and
- Disruptive threats to the United States’ ability to maintain its qualitative edge and to project power.

*Source: United States Department of Defense Quadrennial Defense Review, February 6, 2006*

## Highlights from the 2006 QDR

- Strengthen forces to defeat terrorist networks
  - Increase Special Operations Forces by 15%
  - Increase in SEAL Team manning
  - Expand Psychological Operations & Civil Affairs by 3,700 personnel (33%)
  - Develop a wider range of conventional and non-kinetic deterrent options
  - Convert a number of Trident submarines to conventional weapons
  - Double unmanned aerial vehicle capacity
  
- Strengthen homeland defense and homeland security
  - 5-year \$1.5 billion medical countermeasures against bio-terror
  - Developing advanced detection
  - Facilitating full-scale civil-military exercises to improve planning

# Defense: Market Dynamics

## **U.S. Cold War era combat equipment remains unsurpassed but is ineffective against asymmetrical threats**

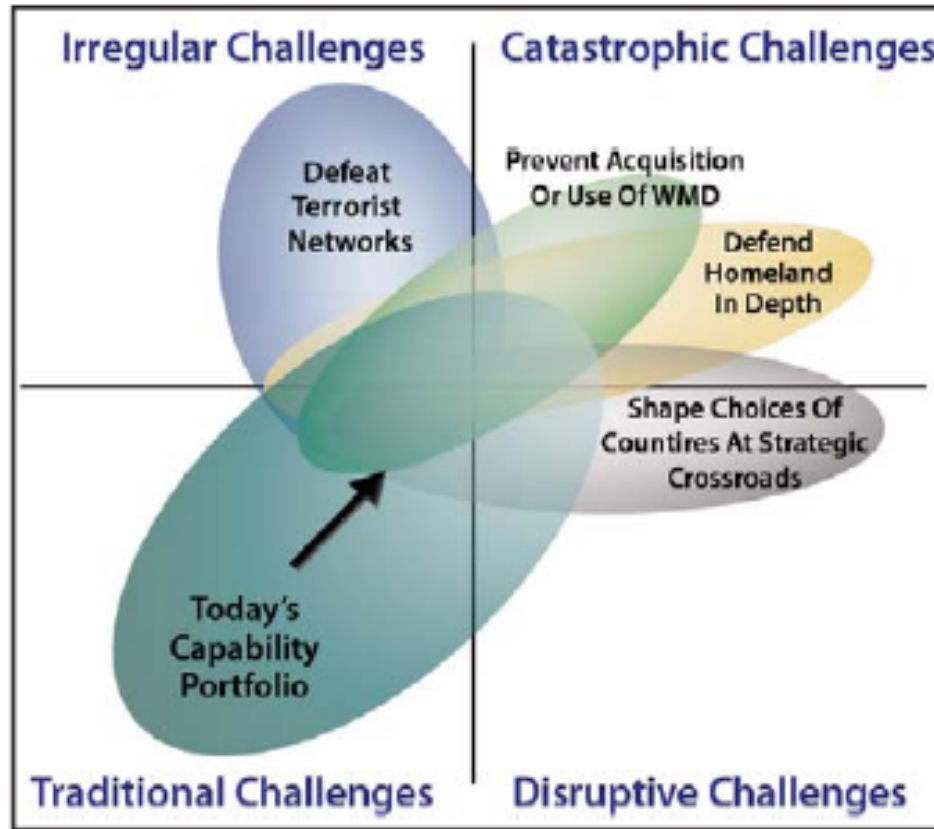
- **Gone is the threat of Sino/Soviet Invasion**
  - No Longer: Protection of nation and national interests through assured mutual destruction from massive arsenals of nuclear weapons
- **The immediate threats are Urban and Asymmetrical**
  - Now : Protection of nation and national interests through intelligence, agility, and information

“From an emphasis on ships, guns, tanks and planes – to focus on information, knowledge” <sup>1</sup>

“From major conventional combat operations – to multiple irregular, asymmetric operations” <sup>1</sup>

<sup>1</sup>Source: 2006 Quadrennial Defense Review, page vii

# Defense: Market Dynamics



Source: 2006 Quadrennial Defense Review, Page 19

Shifting capabilities to address irregular, catastrophic and disruptive challenges

## Legacy Programs are at risk

- “DoD will reduce major systems over the next few years based on their cost-effectiveness and/or potential to counter future threats.”<sup>1</sup>
- 2004 cancellation of the \$40-billion Comanche reconnaissance helicopter program
- Restructuring the Air Force KC-X tanker replacement program, saving \$896 million through 2011
- Canceling the Joint Strike Fighter alternate engine program
- Canceling the T-AOE(X) fast tanker ship, saving \$4.4 billion through 2011

<sup>1</sup>Source: Office of the President of the United States, September 17, 2006

## **2007 United States Defense Budget Major Themes**

3. Prevail in Irregular Warfare Operations
5. Defend the Homeland against advanced threats
7. Maintain America's military superiority
9. Support Service Members and their families

Source: <http://www.defenselink.mil/news/feb2006/d20060206slides.pdf>

## 1. To Prevail in Irregular Warfare Operations

- Special Operations Forces (SOF) grow by over 14,000.
- Expand combat battalions by 33% (from 15 to 19).
- Initiate new SOF Unmanned Aerial Vehicle Squadron.
- Expand Navy SEAL Commando Teams
- Language and cultural awareness training
- Expand language training for special operations and intelligence units.



## 2. Defend Against Catastrophic Terrorism

- Develop countermeasures against advanced biological and other weapons.
- Tag, track, locate and render-safe nuclear weapons
- Homeland Security annual budget \$30.5 billion
  - Pending award for c. \$2 billion Secure Border Initiative (SBI)
  - September 14, 2006 Senate approval of \$6.7 billion port radiation monitors (98 percent scan goal) for nuclear material

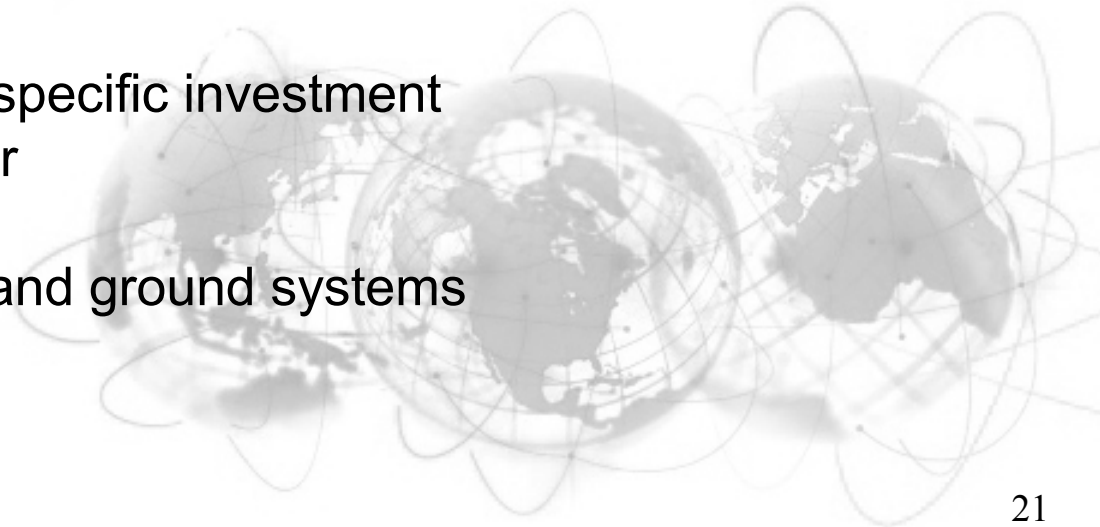
## 3. Maintain Military Superiority (in the Air)

- Reinvestments:
  - Apaches (AH-64)
  - Chinooks (CH-47)
  - Black Hawks (UH-60)
- New Investments
  - Ospreys (V-22)
  - Raptor (F-22A)
  - Super Hornet (F/A-18 E/F)
  - Procure 322 Unmanned Aerial Vehicles
  - Research and Development for future Unmanned Aerial



## 3. Maintain Military Superiority (on the Ground)

- Expand and convert 48 regular brigades to 70 fully equipped
  - Active Brigade Combat Teams to 42 from 33
  - Brigade Combat Teams to be “deployable” and “flexible”
- National Guard Brigade Combat Teams to 28 from 15
- Three major areas of specific investment
  - Precision firepower
  - Joint networking
  - Unmanned aerial and ground systems



## 3. Maintain Military Superiority (in Space)

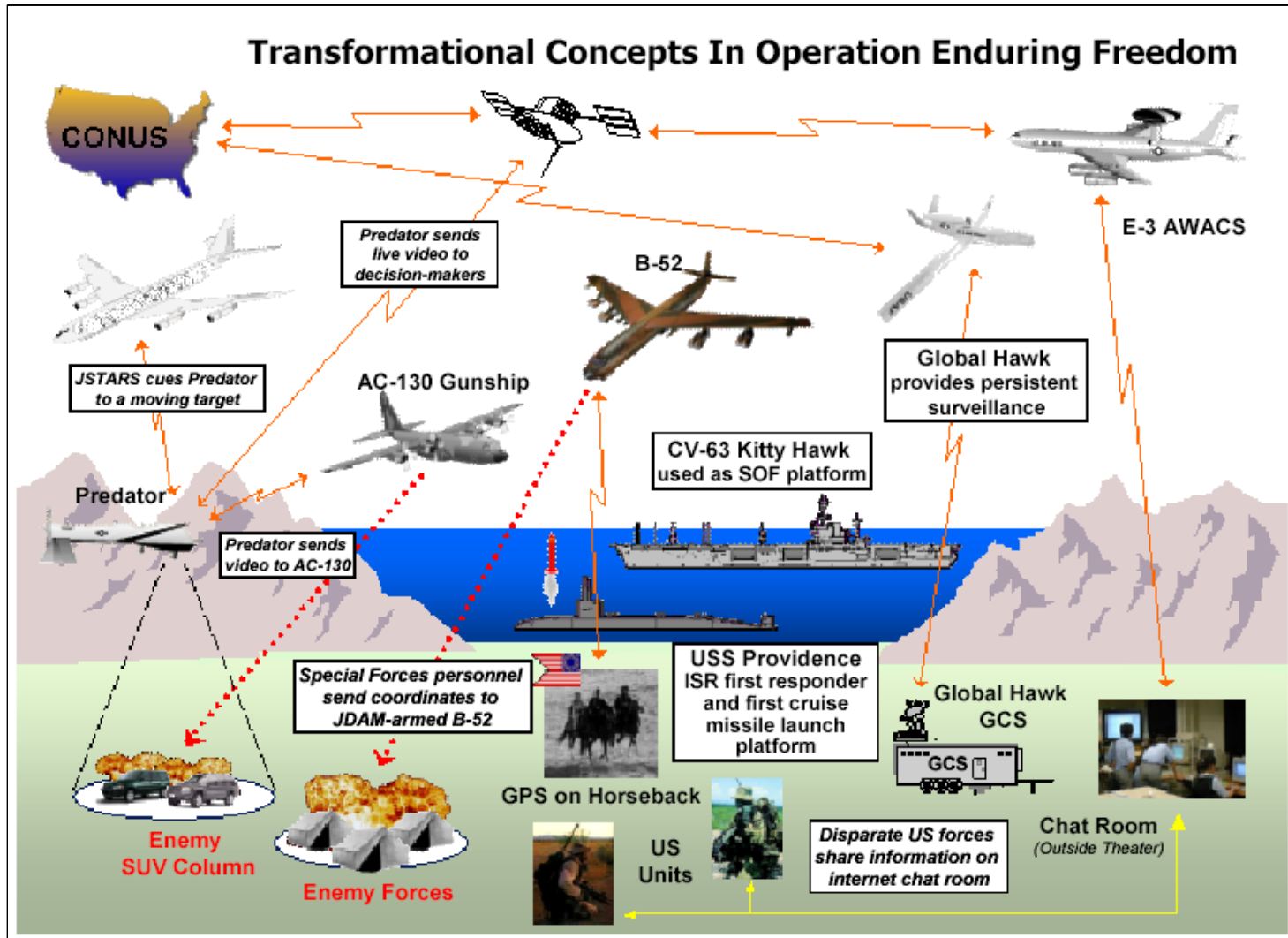
- Extend satellite capabilities to deployed troops worldwide.
- Substantially increase ability to transmit data.
  - Ever-increasing bandwidth
  - Defense against enemy jamming



## 4. To Support Service Members

- Increase Military Pay (already up 29% Since 2001)
  - Bonuses and retention incentives
  - Increase basic allowance for Housing 5.9%
- Improve military housing
  - Privatization
  - Elimination of remaining inadequate military housing
    - 48 new barracks projects
    - 8 child development centers
    - 4 dependent education school projects

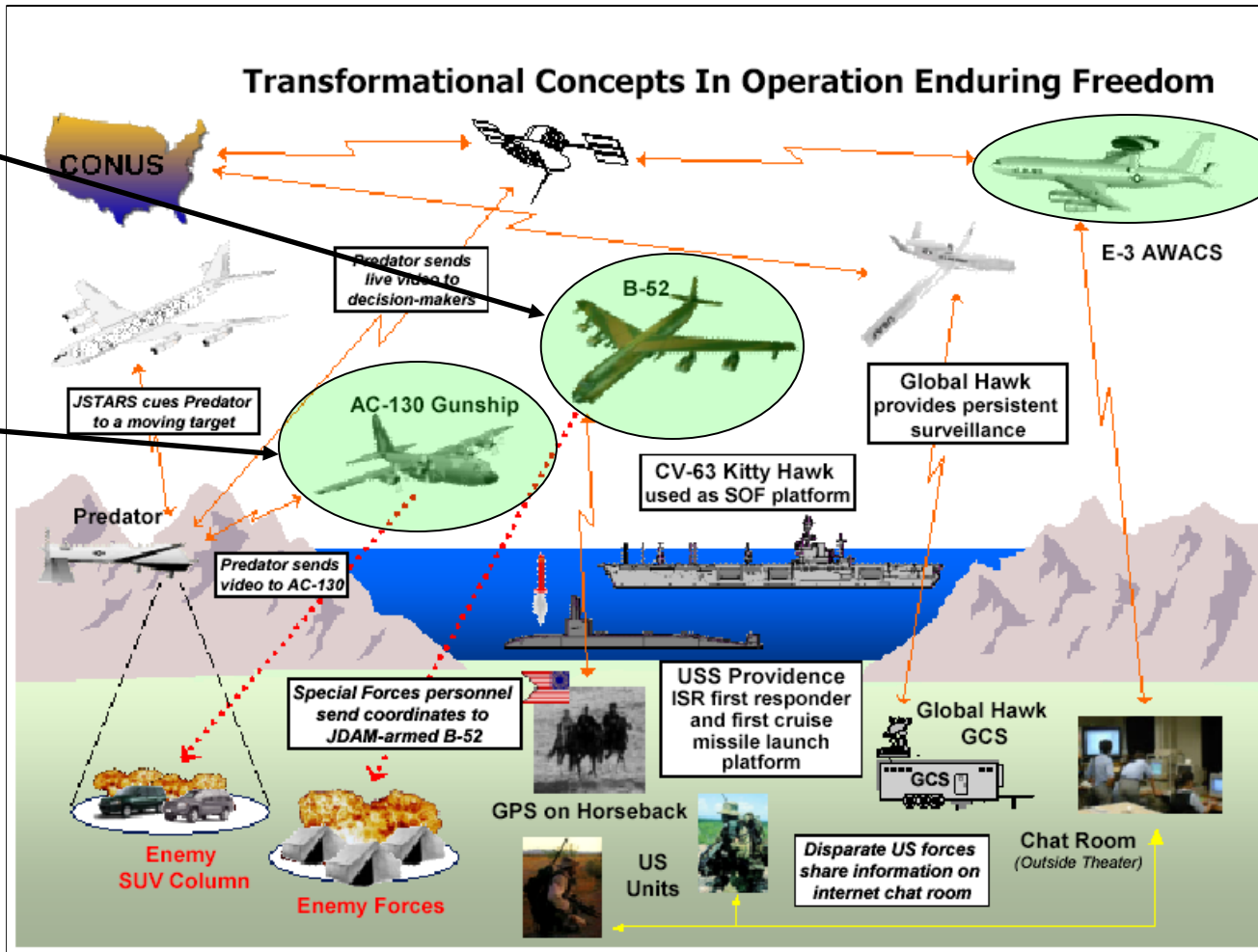
# Defense: Outlook



Source: ODUSD (Industrial Policy)

# Defense: Outlook

## Transformational Concepts In Operation Enduring Freedom



First flown in 1954

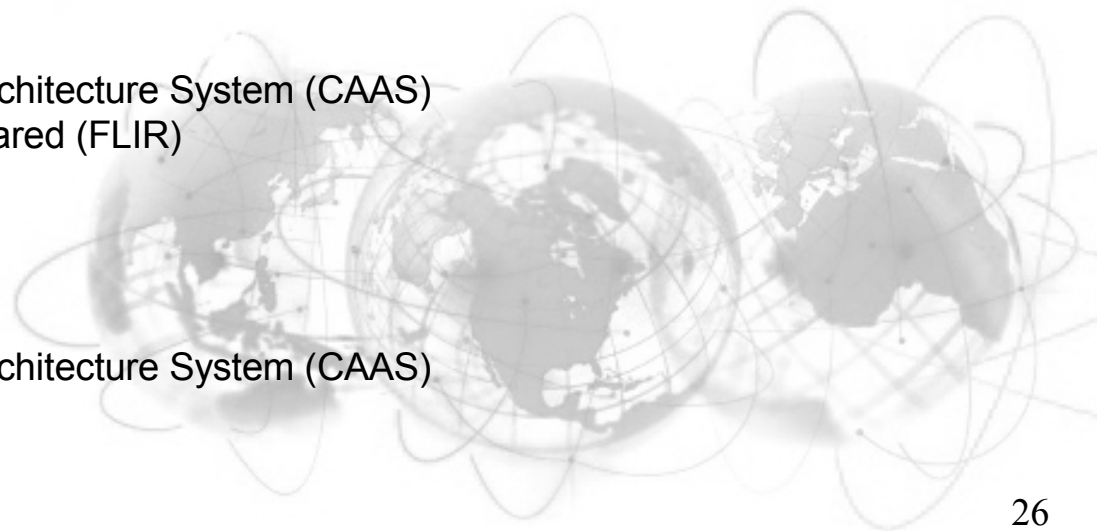
First flown in 1977

Hercules first flown in 1954

Source: ODUSD (Industrial Policy); Alderman & Company analysis

## Another Growth Area: Upgrades (Putting old platforms on the Network)

- **C-130 Avionics Modernization Program (AMP)**
  - Avionics upgrades (500 aircraft)
    - Six digital displays and new flight management system
    - Network enabled
    - Boeing chosen to design, develop, **integrate**, test, fabricate and install the new system
  
- **CH-47 Chinook**
  - First delivered 1962
  - Avionics upgrades
    - Common Avionics Architecture System (CAAS)
    - Forward Looking Infrared (FLIR)
  
- **UH-60 Black Hawk**
  - First delivered 1974
  - Avionics upgrades
    - Common Avionics Architecture System (CAAS)
    - Multi-node radar



# Investment Themes in Civil Aerospace

*A top down look at Civil Aerospace industry cash flows*



## The Primary Segments of Civil Aerospace

- **Space:** Satellite operators and their suppliers & space tourism
  - Iridium, Boeing, Scaled Composites
- **Commercial Aviation:** Airlines and their suppliers
  - Air Canada, Airbus
- **Corporate Aviation:** Business aircraft operators and their suppliers
  - NetJets, Pratt & Whitney Canada
- **General Aviation:** Personal use aircraft and their suppliers
  - Simcom flight schools, Piper Aircraft Company



# Investment Themes in Space



## Space Tourism: “Exciting but not yet”

- RSA & Space Adventures
  - Russian Space Agency
  - \$20,000,000 per flight
  - 2001 Dennis Tito - world's first space tourist
  
- Virgin Galactic
  - Suborbital
  - \$200,000 per flight
  - Backed by Paul Allen and Sir Richard Branson
  
- Blue Origin
  - Orbital
  - Backed by Jeff Bezos

**This isn't venture capital – it's Adventure Capital**

## Commercial Satellites: A real market, but....

### Positives:

- Strong demand from consumer video (HD)
  - Advancing technology keeps driving down the costs of HD production and transmission, as well as receiver equipment.
- Mobile broadband satellite demand being driven by military, emergency, and to a lesser extent, in-flight services

### Negatives:

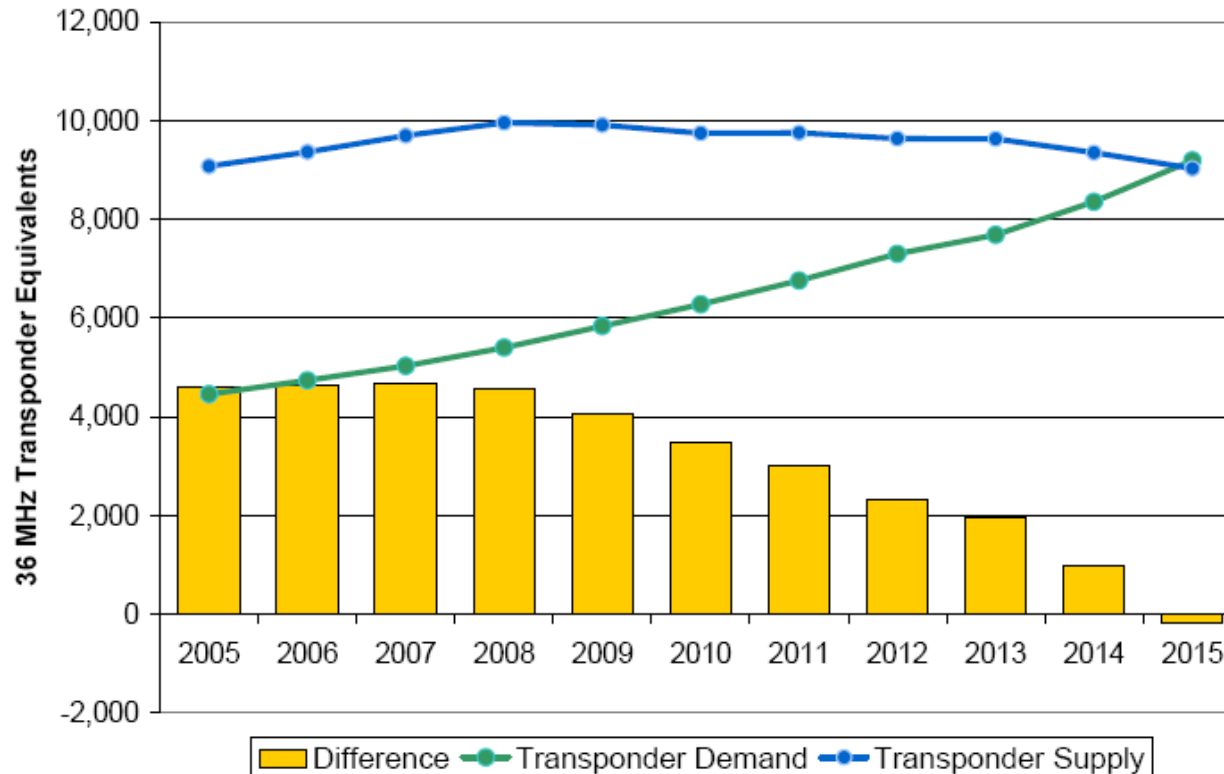
- Substantial Excess Capacity
- Consolidation and rationalization (can be a positive for M&A players)
- Governments increasing available channels / creating supply
- Boeing (Connexion) just announced its exit from in-flight market

## Satellite Outlook is improving, slowly

- In 2005, worldwide launch industry revenue increased by 7% over 2004 with 39 commercial launches
  - 46% were for commercial customers (54% government customers)
  - U.S. companies captured c. 33% of the total launches vs. 46% in 2004.<sup>1</sup>
  - U.S. revenue percentage equal to 2004 at 50%
    - Lower percentage of U.S. share offset by two high-revenue Titan IV launches
- 17 new commercial GEO launch orders in 2005
  - 6 for Ariane, 5 for ILS, 5 for Sea Launch/Land Launch, 1 for China Great Wall Industry Corporation

<sup>1</sup> Source: Futron Corporation, *State of the Satellite Industry Report*, June 2006

## Commercial GEO Supply vs. Demand



Source: Satellite Statistics, Futron Corporation, February, 2006

**Bottom Line: Supply probably not in balance with demand for a while**

# Investment Themes in Civil Aviation

*A top down look at civil aerospace industry cash flows*



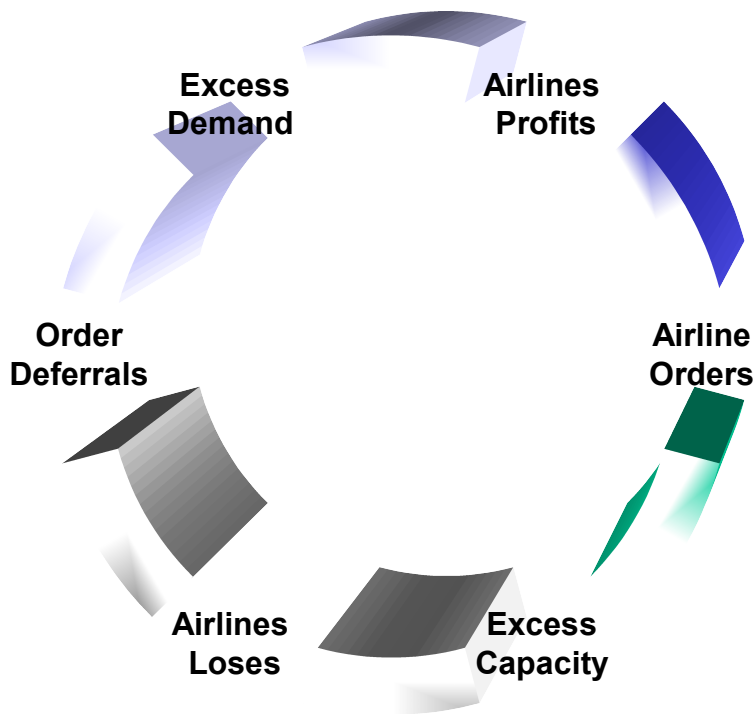
## Commercial Aviation Defined

- Airlines
  - Legacy carriers
  - LCCs (Low-Cost carriers)
  - Regional airlines
- Suppliers
  - OEMs
  - Third-party service providers
    - Maintenance
    - Catering



# Civil Aerospace – Commercial Aviation: Market Dynamics

## Bill's 7 Rules for Commercial Aviation



- **Rule #1: This is a commodity business**
- **Rule #2: Almost all costs are fixed in the near-term**
- **Rule #3: In bad times airlines don't buy aircraft**
- **Rule #4: Profits occur when demand matches capacity**
- **Rule #5: When airlines make money they buy aircraft**
- **Rule #6: When capacity exceeds demand airlines lose money**
- **Rule #7: See Rule #3**

## This was a REGULATED Industry

- 1950s – 1970s: Routes and fares regulated, making aviation a “safe place to invest” with “good growth prospects” and “high profit margins” for many suppliers.

## But how good was the business model – from a consumer perspective?

- Fares high
- Service poor
- Little competition
- Few frequencies



## With deregulation came industry restructuring

- Reorganizations (bankruptcies)
  - Continental
  - Air Canada
  - Delta
  - Northwest
  - Varig (liquidation?)
  - United
  
- Liquidations
  - Pan Am
  - Eastern
  - Sabena
  
- Mergers
  - American - TWA
  - Canadian International – Air Canada
  - America West - USAirways



- While Terrorism, SARS and fuel price spikes have caused disruptions....
- .... The **ROOT CAUSE** of the industry's need to restructure was

## **DEREGULATION**

- Airlines built around the paradigm of regulated fares have great difficulty changing their business models to effectively compete in a free market



## Airline restructuring.... Not done yet

- Delta, Northwest, Varig, etc.
- July 14, 2006, Air Transat announced agreement to acquire British tour operator The Airline Seat Company
- September 27, 2005 merger of America West Airlines and US Airways Group
- May 5, 2005 merger between Air France and KLM

**Friction is from Labor and Governments, not economics**

# Civil Aerospace – Commercial Aviation: Market Dynamics

- While Legacy Carriers lost billions following 9/11....
  - 2002 the top nine US airlines lost \$10 billion
  - 2003 they lost \$6 billion
  - 2004 they lost \$4 billion
- Not all Carriers lost money...for example, Southwest
  - 2002 Net Income \$241 million
  - 2003 Net Income \$442 million
  - 2004 Net Income \$313 million

**The key issue is economics:  
This is a cyclical and price elastic industry**

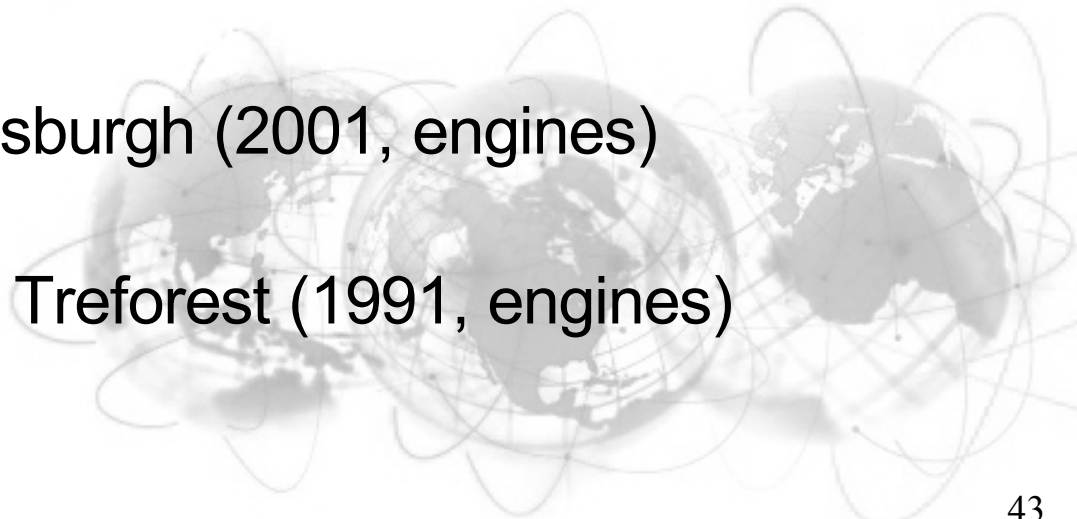
## Changing Labor Markets

- Historically airline labor unions had tremendous power
  - Threat / cost of labor actions (strikes) high
  - When airlines had substantial equity value, the potential harm from a strike was immense
- Since 1990, airline labor unions have lost power
  - Risk of liquidation is real
    - Pan Am, Braniff, Eastern
  - Risk of massive down-sizing is very real
    - United, USAirways, Delta
  - Since 2001, legacy network carriers have shed 165,000 jobs
    - 37% reduction

Source: Air Transport Association, State of the Industry, April 2006

## **Example: Airlines have been shedding maintenance bases**

- United: Indianapolis & Oakland (2003, airframes)
- Northwest: Atlanta (2002, engines)
- USAirways: Pittsburgh (2001, engines)
- British Airways: Treforest (1991, engines)



## Airlines have had more success outsourcing

<b>Percent of Maintenance Expense Outsourced</b>			
	<b>2002</b>	<b>2003</b>	<b>2004</b>
<b>Jet Blue</b>	<b>39%</b>	<b>51%</b>	<b>63%</b>
<b>United</b>	<b>33%</b>	<b>41%</b>	<b>54%</b>
<b>ATA</b>	<b>22%</b>	<b>20%</b>	<b>43%</b>
<b>Air Tran</b>	<b>31%</b>	<b>46%</b>	<b>46%</b>
<b>Frontier</b>	<b>20%</b>	<b>27%</b>	<b>33%</b>
<b>US Airways</b>	<b>50%</b>	<b>58%</b>	<b>60%</b>
<b>Northwest</b>	<b>44%</b>	<b>56%</b>	<b>51%</b>
<b>American</b>	<b>38%</b>	<b>38%</b>	<b>42%</b>
<b>Alaska</b>	<b>79%</b>	<b>75%</b>	<b>80%</b>
<b>Continental</b>	<b>65%</b>	<b>65%</b>	<b>65%</b>
<b>Southwest</b>	<b>65%</b>	<b>65%</b>	<b>64%</b>
<b>Average</b>	<b>44%</b>	<b>49%</b>	<b>55%</b>

Source: Aircraft Maintenance Technology, August, 2005

# Civil Aerospace – Commercial Aviation: Outlook

## Supply/Demand now back in balance in US

Year	ASMS	RPMS	Load Factor
2000	926.2	670.9	72.4%
2001	936.0	666.1	71.2%
2002	843.5	600.5	71.2%
2003	828.8	608.2	73.4%
2004	875.5	664.4	75.9%
2005 E	910.4	709.1	77.9%
2006 F	914.9	715.8	78.2%
2007 F	952.8	746.8	78.4%
2008 F	989.0	775.5	78.4%
2009 F	1,026.9	805.6	78.4%
2010 F	1,066.9	837.5	78.5%
2011 F	1,109.2	906.3	81.7%

Source: FAA Aerospace Forecast 2006 -2017, Table 11

**RPMs above pre-9/11 levels and ASMs below**

# Civil Aerospace – Commercial Aviation: Outlook

## Remember Rule #4....

**Profits occur when demand matches capacity**

6-months 6/2006 \$MM	Revenue		Operating Income		
	2006	Change	2005	2006	Change
<b>Alaska Air Group</b>	873	15.4%	51	84	65%
<b>AMR/American</b>	5,975	12.5%	229	476	108%
<b>Continental</b>	3,507	22.8%	119	254	113%
<b>Southwest Airlines</b>	2,449	26.0%	256	402	57%
<b>UAL/United</b>	5,113	15.6%	66	282	327%
<b>Average</b>		18.5%	2,726	3,504	134%

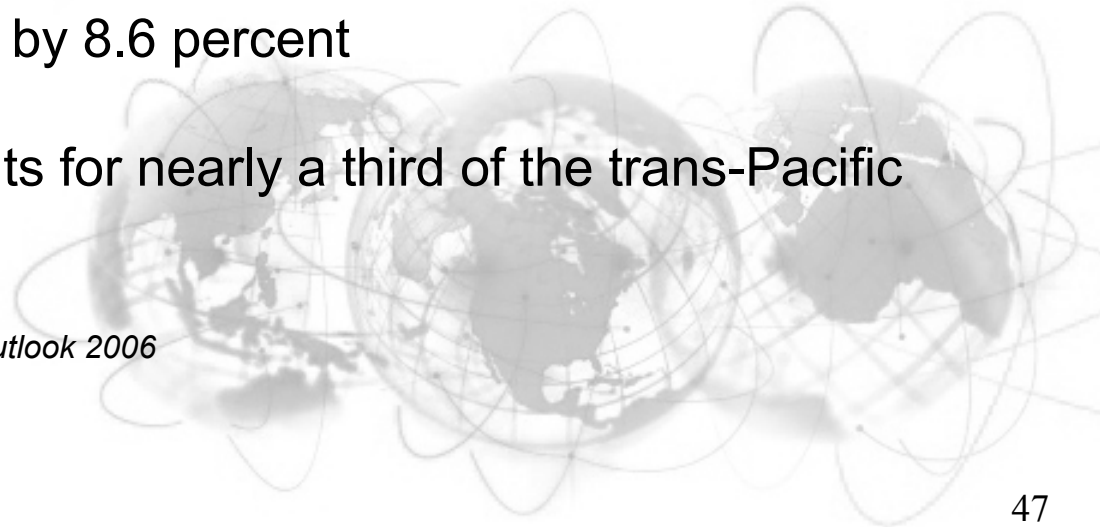
Source: Airline Business September 2006

**6-Month Profits up 134%**

## Air Cargo: Outlook Excellent

- World Air Cargo is expected to grow by an annual average of 6.1 percent during the next two decades<sup>1</sup>
  - Domestic China markets will grow by 10.8 percent a year during that span
  - Intra-Asia markets by 8.6 percent
  - China now accounts for nearly a third of the trans-Pacific air-cargo market

<sup>1</sup>Source: Boeing Current Market Outlook 2006



## Airlines of India & China: “growth engines”

- Indian aviation companies have placed orders valued at more than US\$31B since last year for planes, engines, simulators and services.
  - India's newly deregulated airlines industry has sparked a big rise in the number of low-cost carriers.
  - With domestic traffic growing by 25 percent this year, and overseas air travel expanding by 15 to 18 percent, India is one of the world's fastest-growing air-travel markets<sup>1</sup>
- China is now the world's second-largest commercial aviation market after the United States.
  - Chinese passenger volumes have doubled in the past five years
  - Expected to nearly double again in the next five years.

<sup>1</sup>Source: *The Financial Times* (London, England) August 29, 2006

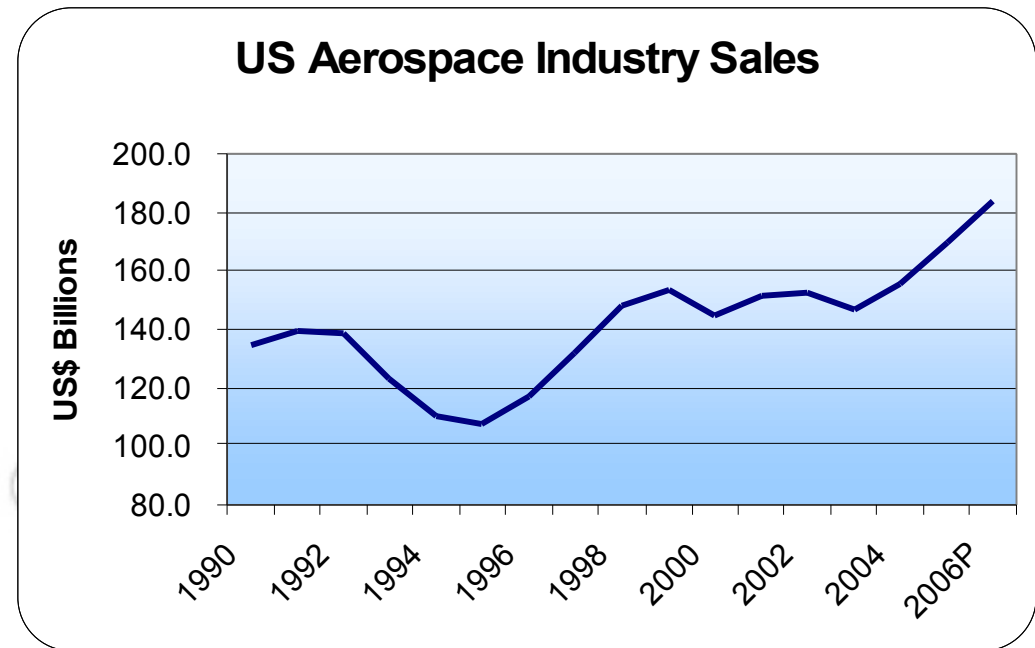
# Civil Aerospace – Commercial Aviation: Outlook

## Rule #5: When airlines make money they buy aircraft

US Aerospace Industry Sales		
	US\$ B	Change
1990	134.4	
1991	139.2	4%
1992	138.6	0%
1993	123.2	-11%
1994	110.6	-10%
1995	107.8	-3%
1996	116.8	8%
1997	131.6	13%
1998	148.0	12%
1999	153.7	4%
2000	144.7	-6%
2001	151.6	5%
2002	152.3	0%
2003	146.6	-4%
2004	155.7	6%
2005	170.0	9%
2006P	184.0	8%

Source: Aerospace industry Association: Aircraft Production

**2006 is forecast to be another  
RECORD YEAR**



## Global Sourcing (examples)

- Boeing
  - 787 Production
    - Moving Assembly Line
    - Major structures moved into supply chain
  - Spin off of “Sprit Aerostructures”
  
- Bombardier
  - New plant in Queretaro, Mexico, for Challenger 850 major assemblies
  - New venture in China (AVIC I) for A400 fuselage sections and empennages.
  - August 2006 announced 1,350 layoffs at Montréal and Belfast area plants<sup>1</sup>

**Leading manufacturers are benefiting from using global best practices**

<sup>1</sup> Source: *Flight international* 8-14 August 2006, p. 9

## US aerospace industry has become more efficient

- Employment down to 634,700<sup>1</sup> from 665,800 in 2001, despite record production levels this year
- Led by Boeing, the North American market is doing very well on a global basis
  - Boeing has won 561 firm orders thus far this year, compared to 222 for Airbus in the same period<sup>2</sup>

Sources: <sup>1</sup>Aerospace Industry Association Statistics; <sup>2</sup>Bloomberg, Sept. 16, 2006

## Manufacturing: Outlook is very good

U.S. Aerospace industry (includes military aircraft), orders shipments and backlog are at record levels

- Booked \$116 billion in orders for the first half of 2006
  - Projecting this to an annual figure of \$233 billion, this would be 6% ahead of the record orders received in 2005 (\$219B)<sup>1</sup>
- First-half shipments were \$88 billion. Last year's total shipments were a record \$162 billion.
- Up 50% from the trough suffered in 2003
- The overall industry's backlog was \$280 billion at the half-way point in 2006.

Sources: <sup>1</sup>Aviation Week & Space Technology, August 21, 2006 and Aerospace Industry Association Statistics

## Canada: Recovering Nicely

- Air Canada restructuring completed successfully
- Canadian aerospace manufacturing up
  - Profits est. \$802 million in 2006
  - Double the \$398 million generated in 2005
  - ... But still less than half the peak of \$2.3 billion in 2001
  - Forecast to exceed \$1 billion in 2007
- Bombardier
  - Renewed interest in turboprops due to high oil prices
  - Strong corporate profits result in rising demand for business jets
    - Delivered 45 percent more business jets in 2005 than 2004
    - This type of aircraft generates higher profit margins than regional jets
  - However, airline market outlook is in question for Bombardier

Source: Canadian Conference Board, *Canada's Aircraft and Aircraft Parts Industry: Industrial Outlook, Summer 2006*

## *Trading* Comments on ~~Investing in~~ Airlines Equities

- These are historically highly volatile investments
- Typically not attractive for long-term investors, but can be rewarding for traders
- Highly sensitive to exogenous shocks
  - GDP
  - World events (political stability, terrorism, pandemics)
  - Fuel cost spikes

# Investment Themes in General Aviation



# Civil Aerospace – General Aviation: Scope

- General Aviation is defined as all aviation other than military and commercial airlines<sup>1</sup>
  - From 2-seat single-engine piston training aircraft
  - To hi-bypass intercontinental business jets
- Nearly 70 percent of the hours flown by general aviation are for business purposes<sup>1</sup>
- Over 320,000<sup>1</sup> general aviation airplanes are in services worldwide
  - 219,000<sup>1</sup> of those are based in the United States

Source: <sup>1</sup>General Aviation Manufacturers Association, 2006

# Civil Aerospace – General Aviation: Scope

- Pistons
  - In 2005, manufacturers shipped a total of 2,465 units, a 20.2% increase over the previous year's impressive numbers.
  - This market reached a 20-year peak in 2004, and this upward trend continued again last year.
- Turboprops
  - Manufacturers experienced a 13.7% increase in shipments of turboprop airplanes to 365 in 2005
- Business Jets
  - Shipments up to 750 units in 2005
  - Up 26.9% from 591 in 2004
  - Prior peak was 784 in 2001

*Source: General Aviation Manufacturers Association, 2006*

## Long-term favorable trends

- Growing “wealthy class”
  - The number of high-net-worth individuals (individuals with a net worth of at least US\$1 million excluding their primary residence) grew by 7.3% percent to 8.3 million people<sup>1</sup>
  - North America led with a nearly 10 percent growth rate to 2.7 million
- Growing demand for non-airline options
  - “Hassle factor,” Door-to-Door travel times
- US General Aviation Revitalization Act in 1994
  - Manufacturers not liable for their products 18 years after production
- Long-term declining costs
  - Financial option (Fractionals, Jet Cards, Charter)
  - Improving technologies

Source: <sup>1</sup>Merrill Lynch and Capgemini, June 9, 2005

## Growing demand for “jet cards”

- Leading brands: Marquis Jet Card, Sentient
- Do not require a capital commitment
- Cost more per hour than fractional shares
- Most jet cards are sold in hourly increments — providing from 10 to 100 hours of on-demand flying
- Typically in increments of \$100,000, \$250,000 and \$500,000
- Delta AirElite’s 10-hour jet card currently sells for c. \$42,000.

## Manufacturing has been “revitalized”

- Cessna launching “Next Generation Piston” program
- New technologies entering market
  - Composites entering market (Cirrus)
  - Micro-turbines (PW600, Honda HF118 )
  - Glass cockpits
  - Avidyne Entegra, Garmin G1000

## VLJs (very light jets)

- Defined by Honeywell as having MTOW of no more than 7,500 pounds and prices below about \$2.2 million.
  - Eclipse 500, Adam A700, Diamond Jet and HondaJet
- Honeywell sees potential 10-year demand at
  - 800 – 900 units in corporate flight departments
  - 3,700 to 4,600 with private owner pilots
- Air taxi/limo operators???? (Pogo, Dayjet)

## FBOs are Consolidating

- Limited “Real Estate” at prime facilities
  - e.g., NYC: Teterboro (TEB) & White Plains (HPN)
- Large private equity players now in the market
  - Carlyle
    - Landmark (Garrett, Piedmont- Hawthorne, and Associated Air Center): 33 facilities
  - Macquarie
    - Atlantic Aviation (Trajen): 19 facilities



## Manufacturers are doing well

- General aviation airplane sales rose 27.2% in 2005 to \$15.1 billion
- 2005 worldwide shipments of general aviation airplanes were up 21% to 3,580
- US-based manufacturers shipped 2,857 airplanes, up 21.3% from 2004

*Source: General Aviation Manufacturers Association, 2006*

## Results continued to be excellent in Q1 2006: Billings up 38%

General Aviation - Worldwide						
<u>Shipments</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>Change</u>	<u>Q1 2005</u>	<u>Q1 2006</u>	<u>Change</u>
Pistons	2,051	2,465	20.2%	434	597	37.6%
Turboprops	321	365	13.7%	57	59	3.5%
Business Jets	591	750	26.9%	139	189	36.0%
Total Units	2,963	3,580	20.8%	630	845	34.1%
<b>Billings US\$B</b>	11.90	15.14	27.2%	2.9	4.0	37.9%

Source: General Aviation Manufacturers Association April 28, 2006 Press Release and 2006 Industry Review

# Civil Aerospace – General Aviation: Outlook

Like Commercial Aviation  
General Aviation is also very demand-sensitive

## *Examples:*

- Dassault Aviation SA
  - Falcon deliveries rose 21 percent to 23 planes from 19 units a year earlier.
  - Sales up 25% to 1.41 billion euros (first half 2006)
  - Profit up 22% to €126 million (first half 2006)
- NetJets
  - Revenue up 26% to \$347 million (first half 2006)
  - Profit up 126% to \$131 million (first half 2006)

# Civil Aerospace – General Aviation: Outlook

*It's about time we ended on a favorable note...*

“Based on the encouraging market activity throughout the industry in this first quarter, and the exciting new technologies and products on the horizon, it is hard to not get excited about the future of general aviation.”

*Press Release, April 28, 2006, General Aviation Manufacturers Association*



## The trends we see

### Defense

- US is half of the entire world's defense market
- US is Moving to Light, smart, lethal, intelligent systems
- Don't expect aggregate spending to increase on major weapons systems
- Change in US politics could change this, but not very likely

### Space

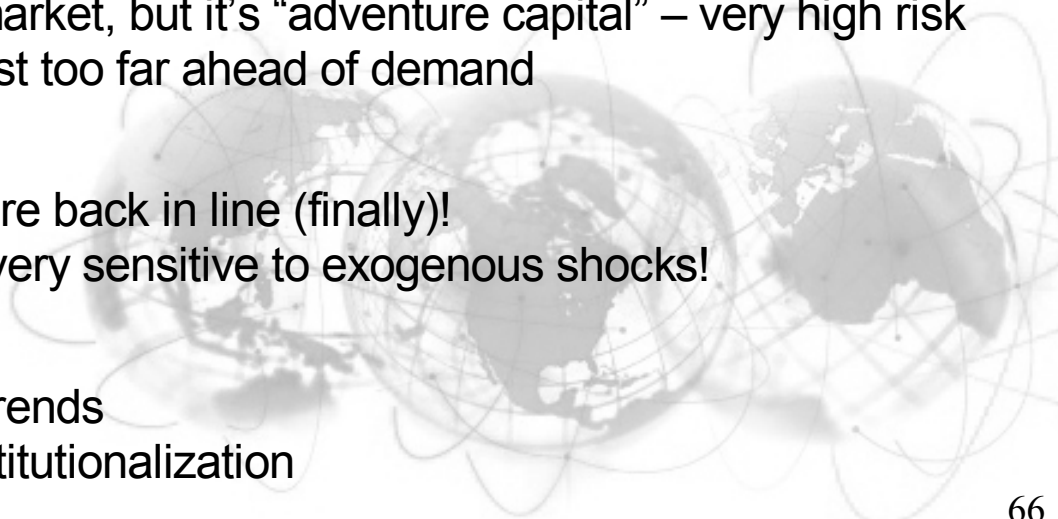
- Tourism an exciting market, but it's "adventure capital" – very high risk
- Satellites: supply is just too far ahead of demand

### Commercial Aviation

- Supply and demand are back in line (finally)!
- But... this industry is very sensitive to exogenous shocks!

### General Aviation

- Favorable long-term trends
- Consolidation and institutionalization



# Investment Banking

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