

# THE COMMERCIAL AVIATION MARKET AND THE ECONOMY

*Prepared for*

## THE TITANIUM 2011 CONFERENCE ECONOMICS PANEL DISCUSSION

**SAN DIEGO, CA**

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*Presented by*

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# COMMERCIAL AVIATION MARKETS

## THREE MARKETS MOVING IN THREE DIFFERENT DIRECTIONS

- **Commercial Transport Aircraft Market (B&A)**
- **Regional Jet Transport Aircraft Market (B&E)**
- **Business Jet Aircraft Market**

# ECONOMIC UPDATE

**WORLD GDP GROWTH RATES**  
**PERCENTAGE CHANGES FROM PREVIOUS YEAR**

**MORGAN STANLEY - 9/14/2011**

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
CHINA	14.2	13.5	12.6	10.5	9.6	8.8	7.8	7.1	8.0	7.5	8.3
INDIA	4.2	5.0	6.8	7.6	7.5	5.0	5.8	6.7	5.4	4.1	4.7
KOREA	5.4	5.5	8.3	8.9	6.8	5.0	-6.7	10.9	9.3	3.8	7.0
CANADA	0.9	2.4	4.8	2.8	1.6	4.2	4.1	5.5	5.3	1.8	3.4
USA	3.1	2.7	4.0	2.7	3.6	4.4	4.3	4.1	3.8	0.3	1.6
FRANCE	1.5	-0.9	1.9	1.8	1.1	1.9	3.6	3.2	4.2	2.1	1.3
SPAIN	0.7	-1.2	2.4	2.8	2.4	4.0	4.3	4.2	4.3	2.8	2.7
UNITED KINGDOM	0.1	2.5	4.7	2.9	2.6	3.4	2.9	2.4	3.8	2.3	2.0
SWEDEN	-1.4	-2.2	4.1	4.0	1.3	2.4	3.6	4.6	3.6	1.3	2.0
JAPAN	1.0	0.5	0.9	1.8	3.5	1.9	-1.1	0.2	2.8	0.4	-0.3
GERMANY	2.2	-1.1	2.3	1.7	0.8	1.4	2.0	2.0	2.9	0.8	0.2

WORLD	2.0	2.0	3.4	3.3	3.7	4.0	2.5	3.8	4.8	2.5	3.1
EUROPEAN UNION	1.2	-0.3	2.8	2.1	1.7	2.6	2.9	2.2	3.5	1.6	0.9
ASIA EX-JAPAN	8.4	8.8	8.4	8.3	7.6	6.9	2.1	6.5	7.4	4.2	6.2
LATIN AMERICA	3.0	3.6	4.5	-0.3	3.8	5.6	2.1	3.1	4.1	3.5	-0.2

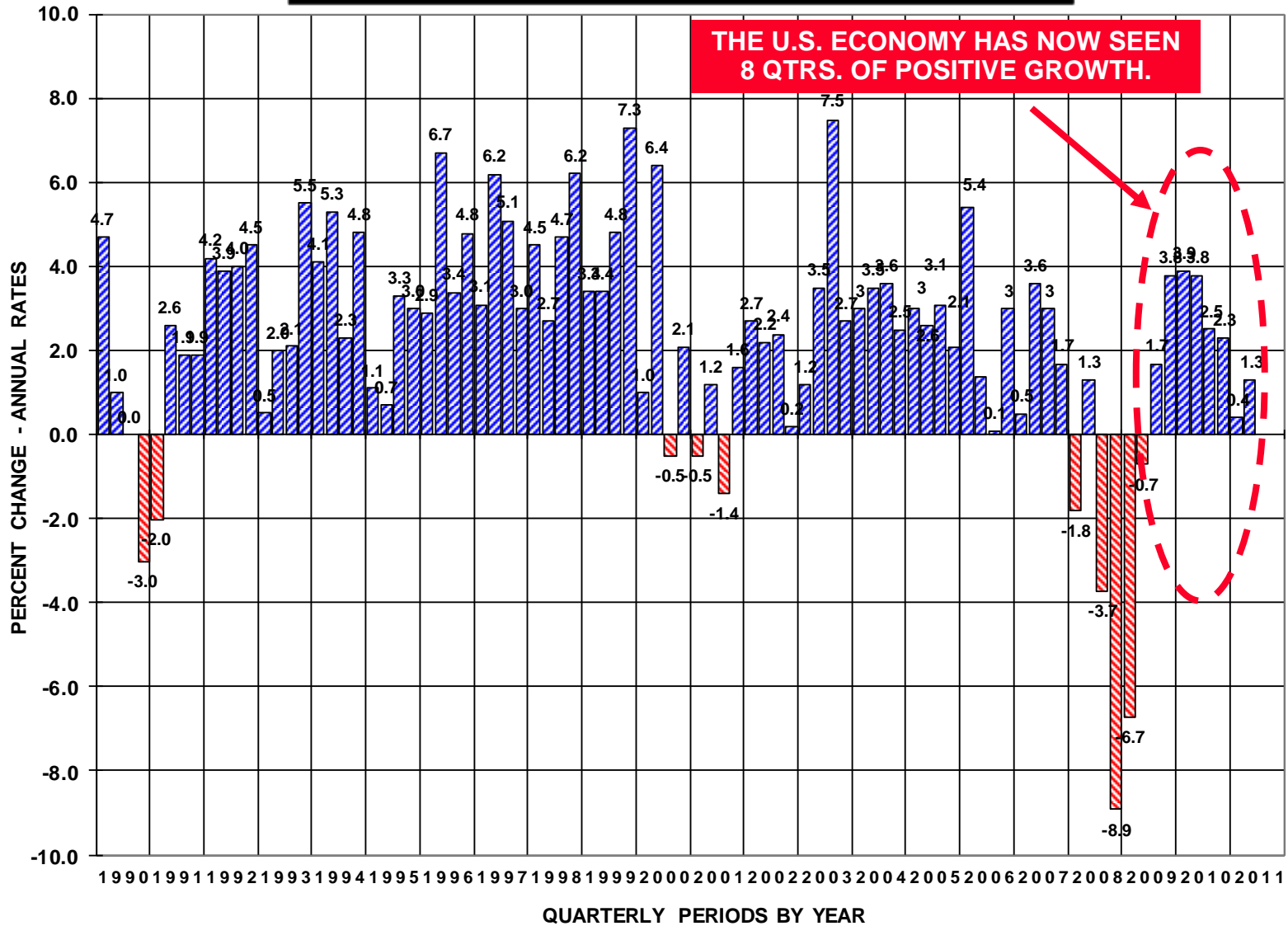
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
CHINA	10.0	10.1	10.4	11.6	13.0	9.6	9.2	10.3	9.0	9.0
INDIA	7.4	7.0	9.1	9.9	9.2	7.3	7.2	9.0	7.3	7.4
SWEDEN	1.8	3.7	3.3	4.3	2.7	-0.2	-5.3	5.7	4.5	2.0
KOREA	3.1	4.7	4.2	5.1	5.0	2.2	0.2	6.2	3.8	3.6
GERMANY	0.0	1.2	0.8	3.0	2.5	1.2	-4.7	3.6	2.7	0.7
CANADA	1.8	3.1	2.9	3.1	2.7	0.4	-2.8	3.2	2.3	2.1
USA	2.5	3.6	2.9	2.8	2.0	0.4	-2.6	3.0	1.7	2.0
FRANCE	1.1	2.3	1.9	2.4	2.1	0.3	-2.6	1.4	1.6	0.9
UNITED KINGDOM	2.7	3.3	1.8	2.8	3.0	0.5	-4.9	1.2	1.2	1.4
SPAIN	3.0	3.2	3.6	3.9	3.7	0.9	-3.7	-0.1	0.7	0.0
JAPAN	1.8	2.7	1.9	2.0	2.4	-1.2	-6.3	1.0	-0.6	1.3

WORLD	4.0	5.3	4.4	5.1	5.1	3.0	-0.7	5.1	3.9	3.8
EUROPEAN UNION	0.8	1.8	1.8	3.0	2.6	0.6	4.1	1.7	1.7	0.5
ASIA EX-JAPAN	7.0	7.9	8.4	9.4	10.1	6.9	6.4	9.4	7.6	7.3
LATIN AMERICA	2.1	6.1	4.6	5.4	5.8	4.1	-1.8	6.3	4.4	3.6

**THE GLOBAL RECESSION OF 2009 WAS BOTH WIDESPREAD AND DEEP.**

**EU A BIG ISSUE IN 2012?**

# U.S. REAL GDP GROWTH RATES (CHAIN INDEX METHOD)



Data Source: U.S. Economic Indicators

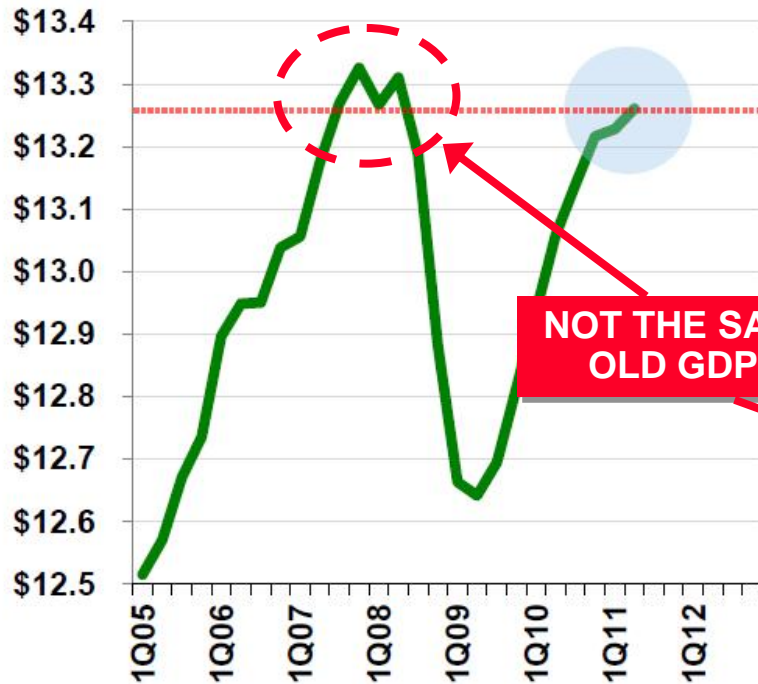
**RECENT REVISIONS TO THE U.S. GDP DATA SHOW A DEEPER RECESSION AND A LESS ROBUST RECOVERY**

# U.S. Economic Headwinds Are Disconcerting

## Stubbornly High Unemployment Coupled With Anemic GDP Growth

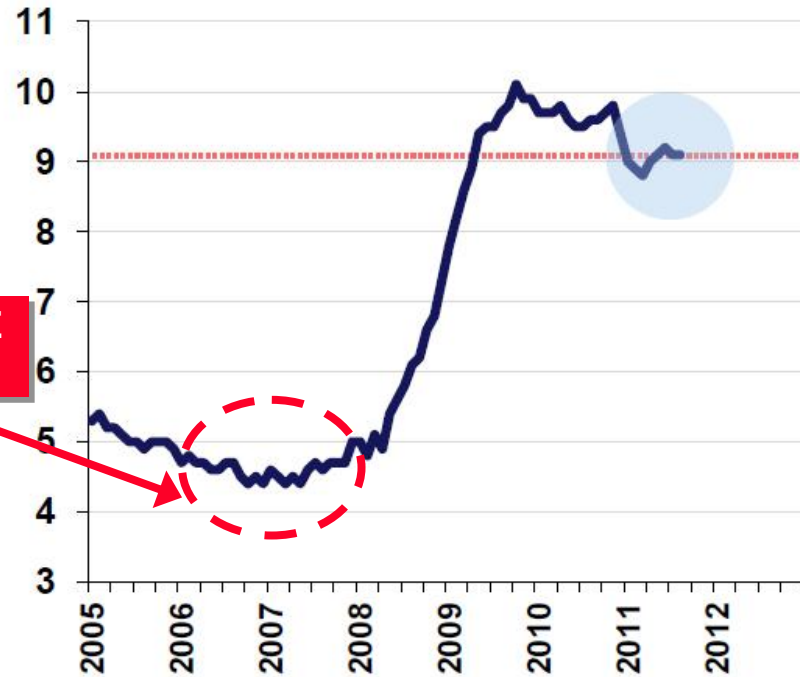
### Real U.S. GDP\*

Trillions of Chained 2005 Dollars, SAAR



### U.S. Unemployment Rate (9.1% in August)

Percent



**NOT THE SAME  
OLD GDP?**

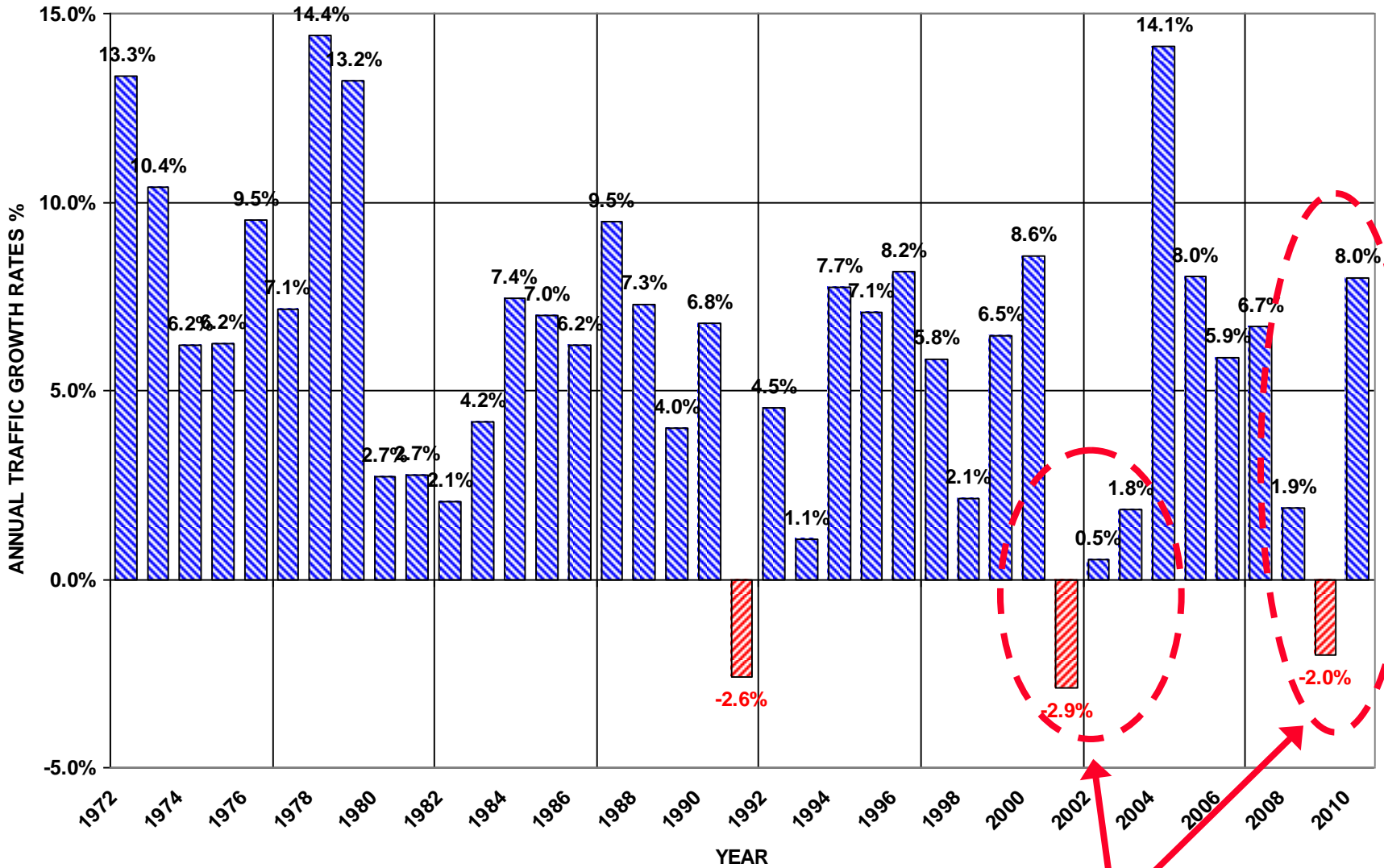
**GDP LEVELS ARE BACK TO THE PRIOR PRE-RECESSION PEAK  
BUT HIGH UNEMPLOYMENT PERSISTS.**

\* Output  
Source

# COMMERCIAL TRANSPORT AIRCRAFT BOEING / AIRBUS PROGRAMS

# AIRLINE TRAFFIC

# WORLD SCHEDULED TRAFFIC GROWTH (RPMS) 1972 - 2010



**WORLD AIRLINE TRAFFIC HAS BOUNCED BACK FASTER IN THIS LAST CYCLE.**

## ICAO SCHEDULED PASSENGER TRAFFIC FORECAST FOR 2011-2013

(Passenger-kilometres performed are expressed in billions and growth in per cent)

REGION	ACTUAL			FORECAST		
	2000	2010	Average Annual Growth 2000-2010	2011 Growth	2012 Growth	2013 Growth
Africa	66	123	6.4	5.4	8.0	8.3
Asia/Pacific	736	1293	5.8	7.9	8.8	8.7
Europe	804	1317	5.1	3.3	3.8	3.9
Middle East	94	345	13.9	14.4	14.0	13.5
North America	1176	1412	1.8	2.4	3.4	2.9
Latin America/Caribbean	142	198	3.4	6.9	7.3	6.8
<b>WORLD</b>	<b>3017</b>	<b>4687</b>	<b>4.5</b>	<b>5.3</b>	<b>6.2</b>	<b>6.1</b>

\* A passenger-kilometre is performed when a passenger is carried one kilometre.

**ICAO RELEASED THEIR WORLD AIRLINE TRAFFIC FORECAST IN JULY 2011. THE NUMBERS LOOK HIGH TO ME GIVEN THE CURRENT GLOBAL ENVIRONMENT.**

# AIRLINE PROFITS

**U. S. MAJOR AIRLINES  
RELATIVE PROFIT PERFORMANCE**

**PRELIMINARY 2ND QUARTER - 2011**

<u>CARRIER</u>	<u>OPERATING PROFIT (\$M)</u>
UNITED / CONT.	\$808
DELTA	\$615
SOUTHWEST	\$205
US AIRWAYS GROUP	\$177
ALASKA	\$111
JETBLUE	\$86
<b>AMERICAN</b>	<b>(\$78)</b>
<b>TOTAL</b>	<b>\$1,924</b>

**NOT A BAD 2ND QUARTER  
GIVEN THE ENVIRONMENT**

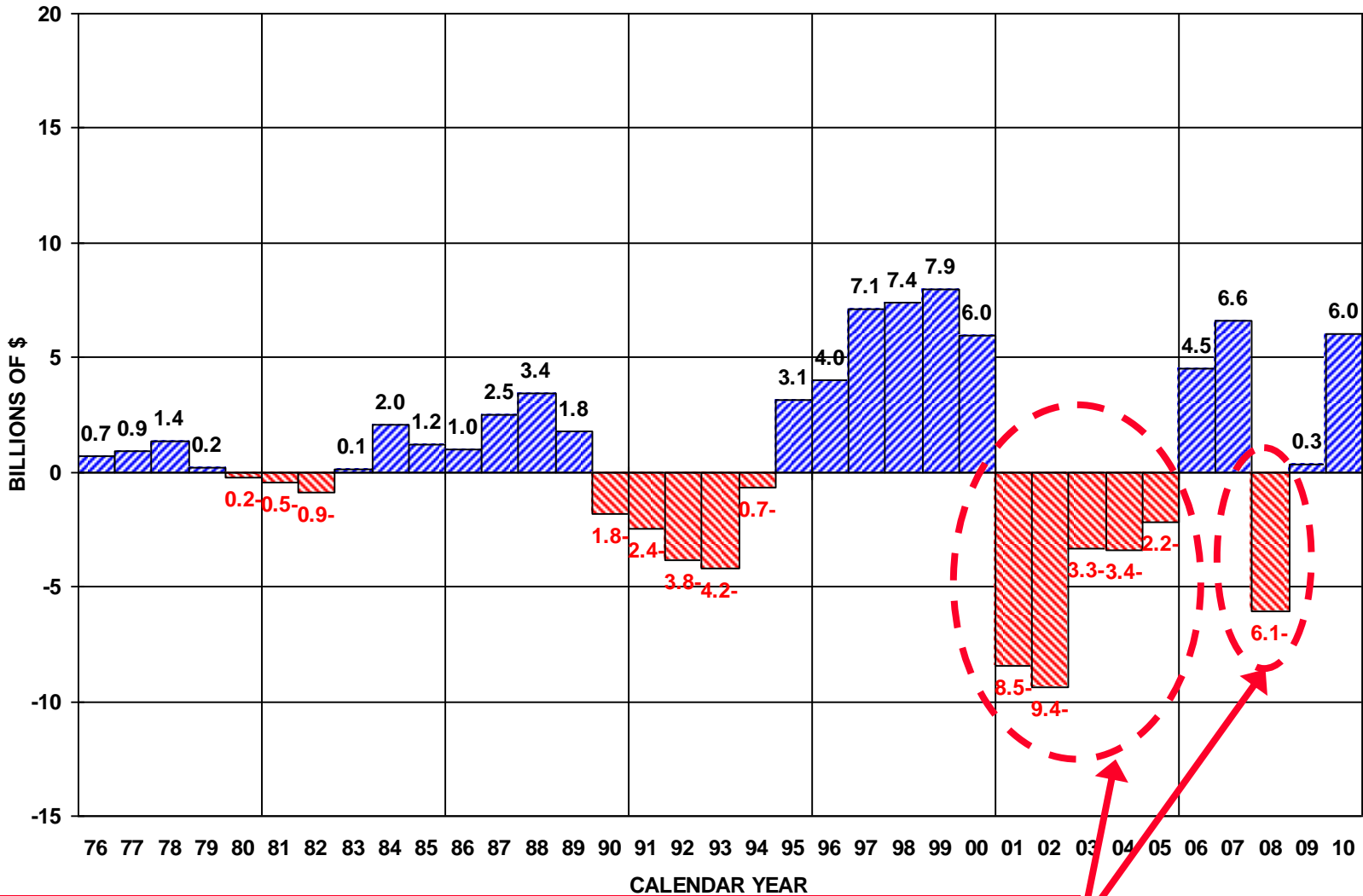
**PRELIMINARY 6 MONTHS - 2011**

<u>CARRIER</u>	<u>OPERATING PROFIT (\$M)</u>
UNITED / CONT.	\$847
DELTA	\$541
SOUTHWEST	\$282
ALASKA	\$158
US AIRWAYS GROUP	\$147
JETBLUE	\$131
<b>AMERICAN</b>	<b>(\$344)</b>
<b>TOTAL</b>	<b>\$1,761</b>

**AA STILL HAVING LABOR ISSUES**

SOURCE : Airline Monitor

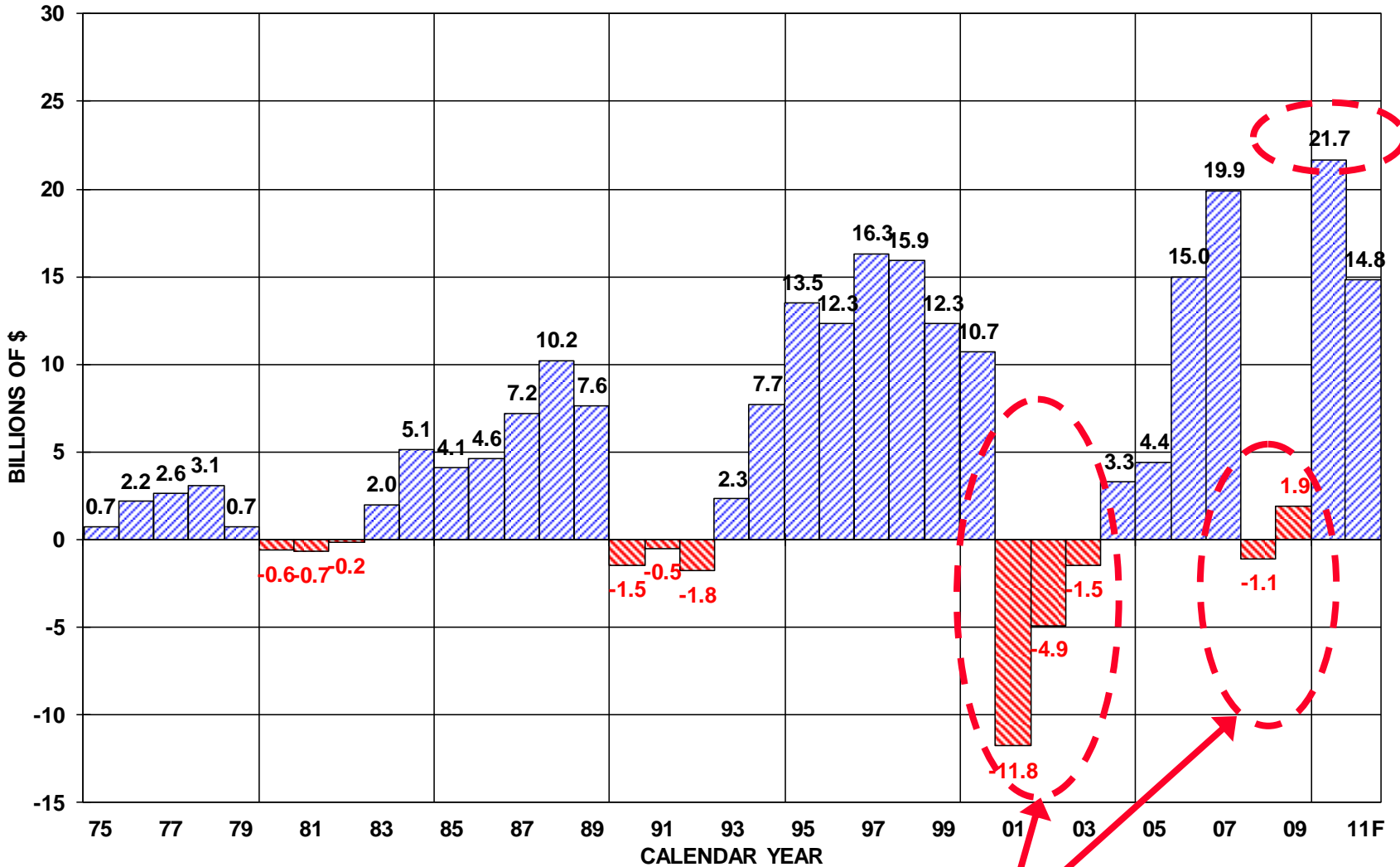
# U.S. AIRLINES (ATA LESS CARGO CARRIERS) - OPERATING PROFIT / LOSS



**U.S. OPERATING PROFIT DECLINE WAS NOT AS BAD AS THE PRIOR CYCLE.**

SOURCE : Airline Published Reports

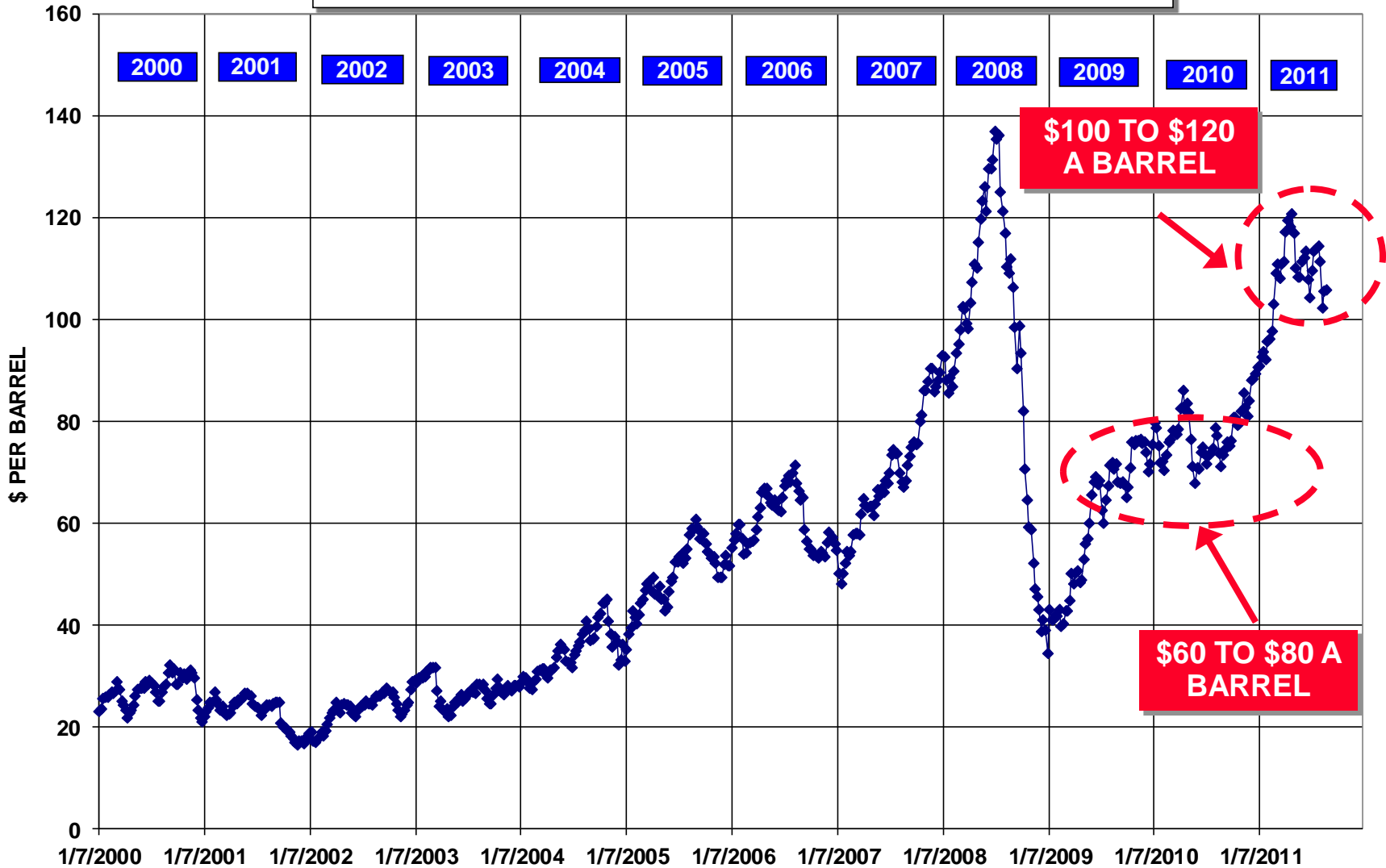
# ICAO WORLD SCHEDULED AIRLINES OPERATING PROFIT / LOSS



**FROM AN OPERATING PROFIT PERSPECTIVE IT WAS NOT AS BAD AS THE PRIOR CYCLE.**

SOURCE : ICAO / IATA F

# WORLD CRUDE OIL PRICES (SPOT PRICES WEIGHTED BY EXPORT VOLUME)



**WORLD OIL PRICES ARE TRADING AT VERY HIGH NUMBERS IN 2011.**

# ATA Jet-Fuel Cost and Consumption Report

U.S. Majors, Nationals & Large Regionals — All Services

AIR TRAF

July 2011	GALLONS	% Change YOY	EXPENSES	cpg	Change YOY	
					cpg	%
<u>System</u>						
January	1,405,807,429	3.8	\$ 3,665,763,330	260.8	40.8	18.5
February	1,276,943,798	4.6	\$ 3,519,430,334	275.6	59.2	27.4
March	1,515,460,280	5.7	\$ 4,231,645,995	279.2	58.9	26.7
April	1,477,332,055	6.5	\$ 4,394,678,387	297.5	67.2	29.2
May	1,504,863,641	2.4	\$ 4,562,571,969	303.2	70.1	30.1
June	1,554,053,228	3.2	\$ 4,543,617,624	292.4	70.3	31.6
July	1,621,137,868	2.4	\$ 4,758,113,972	293.5	72.1	32.6
August						
September						
October						
November						
December						
YTD	10,355,598,299	4.0	\$ 29,675,821,611	286.6	63.1	28.2
12ME Jul-2011	17,684,715,201	4.6	\$ 46,204,571,942	261.3	45.2	20.9

**2011 PROVING TO BE ANOTHER  
PUNISHING YEAR FOR FUEL EXPENSE.**

# NEW AIRCRAFT ORDERS / BACKLOG

## COMMERCIAL TRANSPORT DELIVERIES / ORDERS / BACKLOG

### STATUS - THROUGH 2Q OF 2011

<u>AIRCRAFT TYPE</u>	<u>PROGRAM</u>	<u>DELIVERIES</u>	<u>ORDERS</u>	<u>BACKLOG</u>
	<u>TOTAL</u>			
A318/319/320/321*	4728	198	706	2834
A330	796	46	53	344
A340	375	0	0	4
A350	0	0	6	567
A380	<u>51</u>	<u>10</u>	<u>12</u>	<u>185</u>
SUBTOTAL AIRBUS	5950	254	<u>777</u>	3934
737-600/700/800/900**	3687	180	141	2109
747-8	0	0	4	111
767	1003	9	13	54
777	942	32	72	291
787	<u>0</u>	<u>0</u>	<u>0</u>	<u>827</u>
SUBTOTAL BOEING	5632	221	<u>230</u>	3392
<u>OTHER MFGS OF TRANSPORT A/C</u>				
C SERIES	0	0	33	123
CRJ 1000	12	9	0	37
E195	75	11	0	30
C919	0	0	0	55
MS-21	<u>0</u>	<u>0</u>	<u>0</u>	<u>190</u>
SUPERJET 100	<u>0</u>	<u>1</u>	<u>15</u>	<u>170</u>
SUBTOTAL OTHER MFGS.	87	21	48	605
TOTAL - AIRBUS / BOEING	11582	475	<u>1007</u>	7326
OTHER MFGS OF TRANSPORT A/C	87	21	48	605
REGIONAL JETS (35+PAX)***	<u>3154</u>	<u>48</u>	<u>39</u>	<u>565</u>
TOTAL 35+ PAX JETS	14823	544	1094	8496

**AIRBUS HAD 700+ ORDERS FOR THE NEO AT THE PARIS AIRSHOW.**

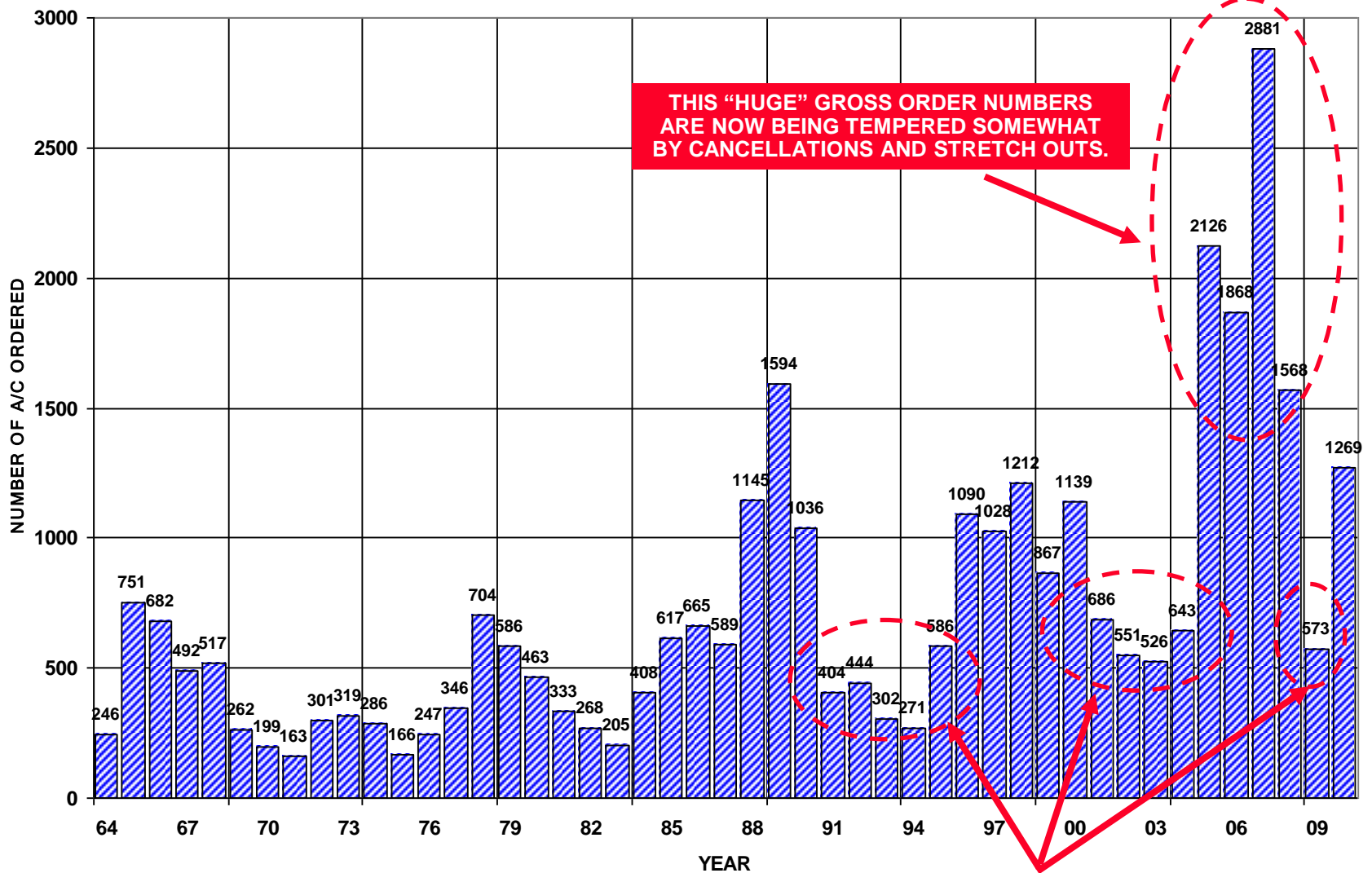
**THERE ARE STILL A SURPRISING NUMBER OF ORDERS BEING CANCELLED DURING THE CURRENT 2011 ORDER "REVIVAL".**

**AS OF THE END OF MAY 2011:  
AIRBUS – 176 GROSS ORDERS WITH 79 CANCELLED ORDERS  
BOEING – 182 GROSS ORDERS WITH 49 CANCELLATIONS**

\*excludes 4 corporate aircraft deliveries  
 \*\*excludes 1 corporate aircraft deliveries  
 \*\*\*excludes 7 corporate aircraft deliveries

DATA SOURCE: Speednews

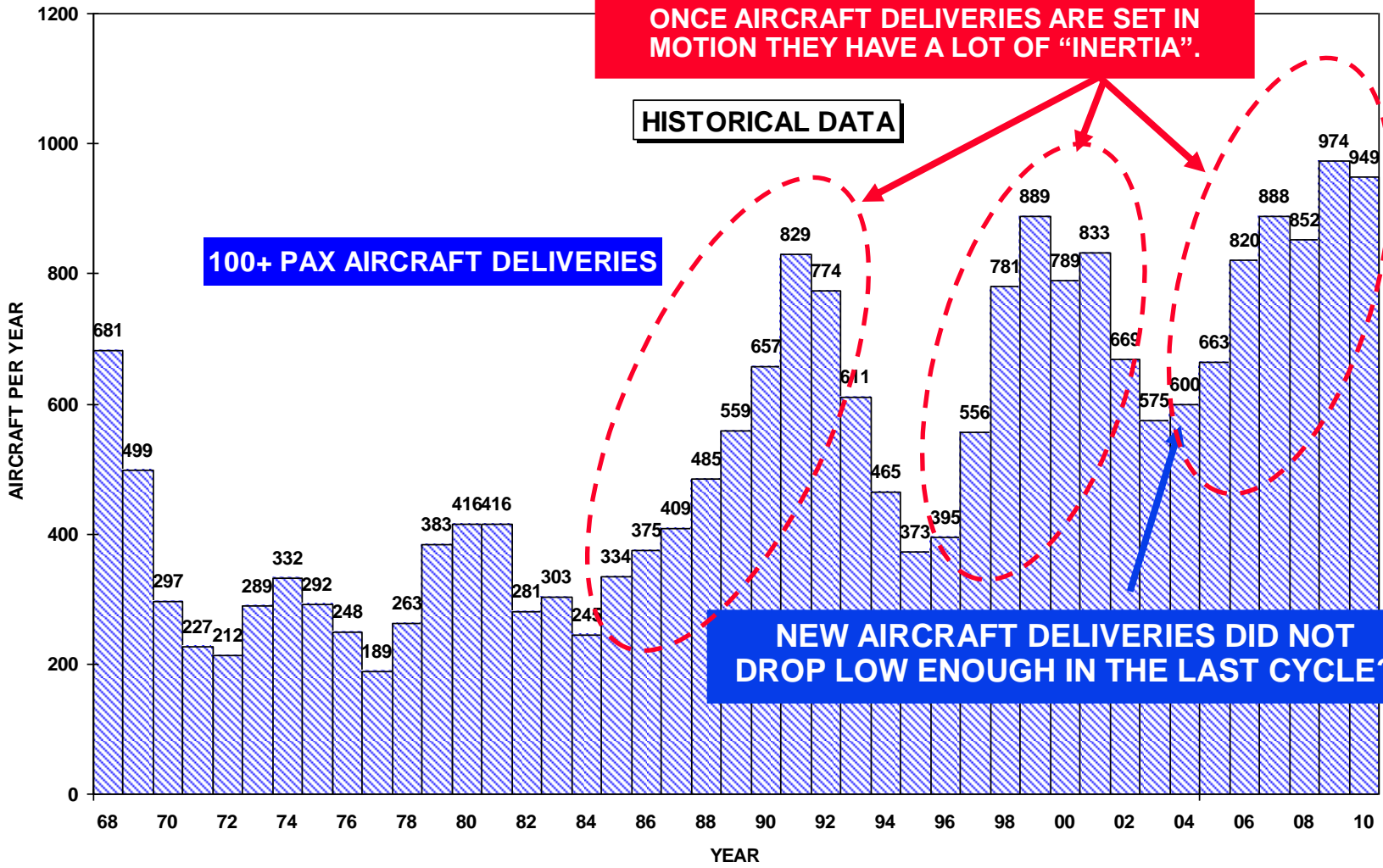
## "FIRM" A/C ORDERS (GROSS) - WORLDWIDE COMMERCIAL TURBOFAN TRANSPORT A/C (100+ SEAT A/C)



THIS "HUGE" GROSS ORDER NUMBERS  
ARE NOW BEING TEMPERED SOMEWHAT  
BY CANCELLATIONS AND STRETCH OUTS.

ORDERS HAVE BOUNCED BACK QUICKLY IN THIS CYCLE.

# COMMERCIAL TURBOFAN/JET TRANSPORT AIRCRAFT MARKET



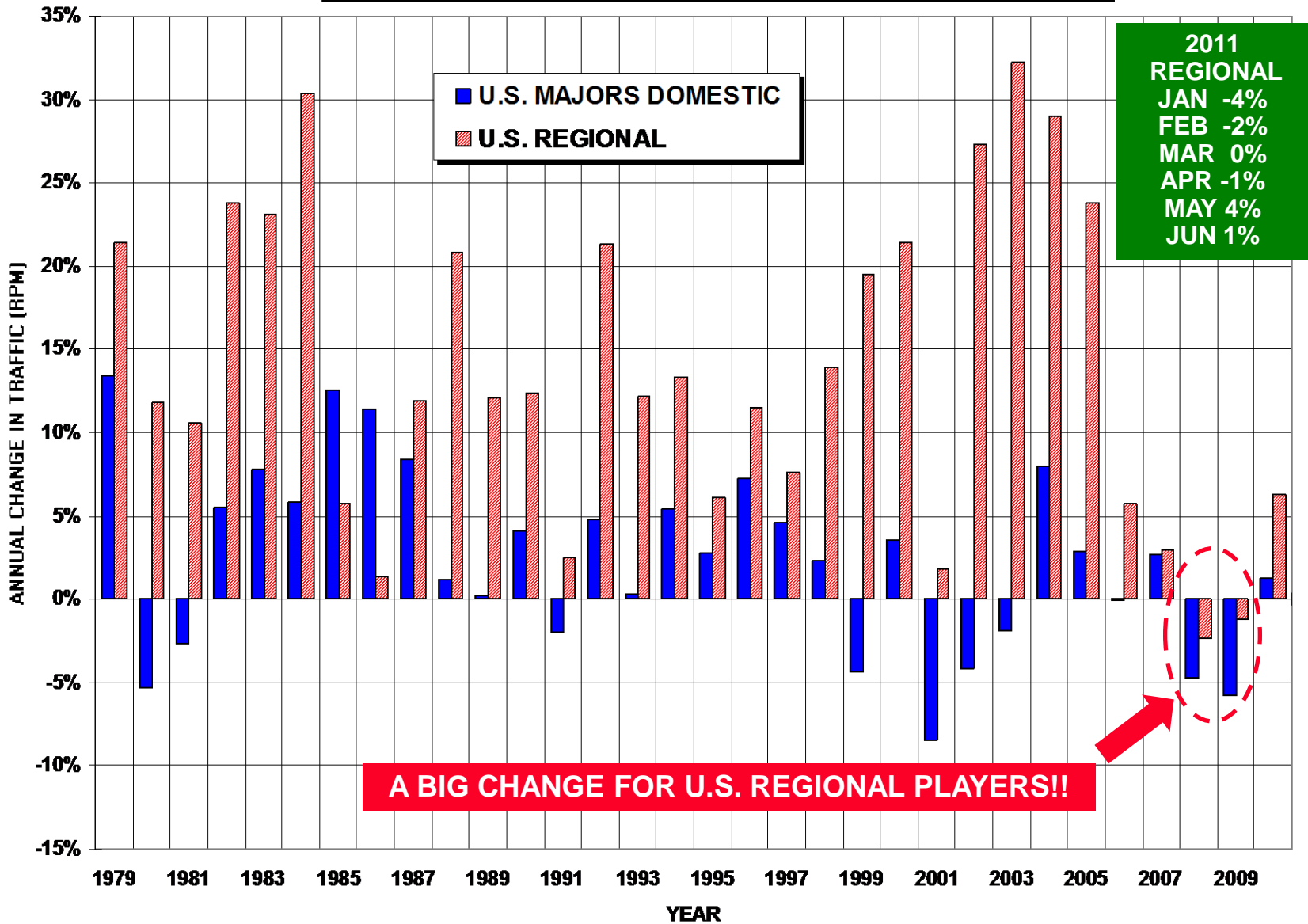
DATA SOURCE: JET INFORMATION SERVICES / WALSH AVIATION FORECASTS

## SUMMARY – COMMERCIAL TRANSPORT AIRCRAFT – 2Q2011

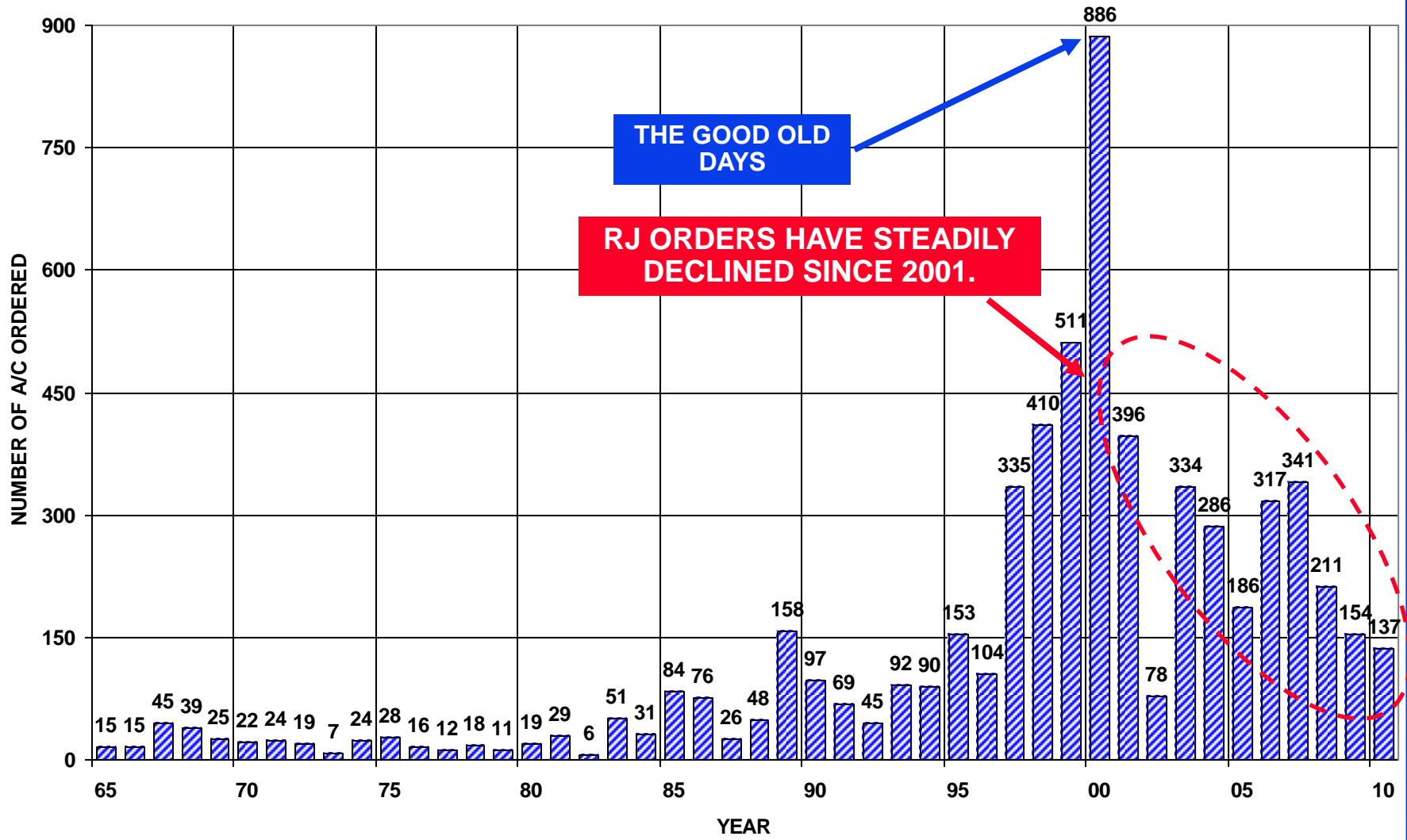
- Global economic growth projections are taking some hits as the European sector's financial issues remain un-resolved and the U.S. election campaigns focus on lack of meaningful economic growth in the Obama administration. The Asian region appears to be the only bright spot holding it all together at the moment.
- Airline traffic has held up remarkably well for the first 6 months of 2011 given the environment. That may be changing as the \$100 - \$120 oil continues to drive fare prices up.
- Aircraft orders for 2011 are back into the “overheated” market look in spite of concerns about the economy, traffic, oil prices, etc.
- Boeing is actively studying a 777-8X/9X with a smaller GE90 engine and a larger composite wing for the 300 to 400 seat market.
- Boeing and Airbus are now contemplating narrow body production rates in the 40 plus (each) range. The only way this market makes sense is if there is a massive replacement market underway that is not showing up in the scrapped a/c count.
- After all the earlier procrastination (and 700 plus NEO orders) Boeing jumps on board with a “me to” re-engined 737 Max aircraft. The recent delay in the acceptance of 747-8F deliveries by Cargolux is a further embarrassment (not to mention the cash flow) for Boeing.
- I still think production rates will continue to increase through 2014.

**REGIONAL AIRCRAFT**  
**BOMBARDIER / EMBRAER PROGRAMS**  
**(WITH MORE ON THE WAY)**

# U.S. AIRLINE DOMESTIC TRAFFIC GROWTH HISTORY

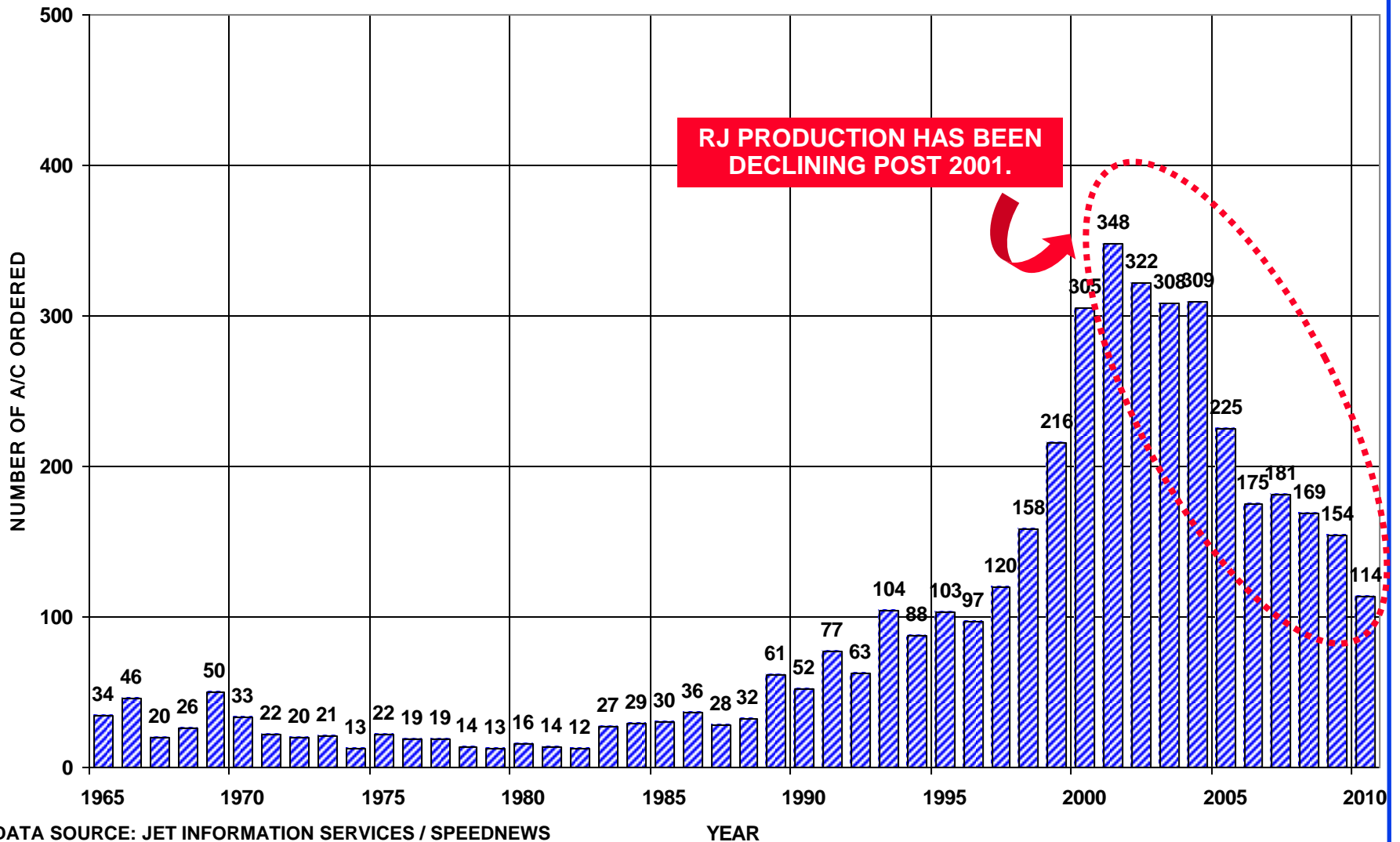


**"FIRM" AIRCRAFT ORDERS (GROSS) - WORLDWIDE  
REGIONAL JET A/C (35-100 SEAT A/C) - FOR REGIONAL AIRLINES**



DATA SOURCE: JET INFORMATION SERVICES / WALSH AVIATION FORECASTS

## WORLDWIDE REGIONAL JET A/C DELIVERIES (35-100 SEAT A/C)



DATA SOURCE: JET INFORMATION SERVICES / SPEEDNEWS  
EXCLUDES BUSINESS JET APPLICATIONS OF RJ A/C DESIGNS

## STATUS - THROUGH 2Q OF 2011

<u>AIRCRAFT TYPE</u>	<u>DELIVERIES</u>	<u>ORDERS</u>	<u>BACKLOG</u>
<b><u>BOMBARDIER*</u></b>			
CRJ700	8	0	14
CRJ705/900	10	0	15
CRJ1000	<u>9</u>	<u>0</u>	<u>37</u>
SUBTOTAL	18	0	29
<b><u>EMBRAER**</u></b>			
ERJ135/140/145	0	0	0
EMBRAER 170	0	0	8
EMBRAER 175	2	0	53
EMBRAER 190	<u>28</u>	<u>39</u>	<u>170</u>
SUBTOTAL	30	39	231
<b><u>OTHER MFGS.</u></b>			
ARJ21	0	0	240
MRJ	<u>0</u>	<u>0</u>	<u>65</u>
SUBTOTAL	0	0	305
TOTAL RJ	48	39	565

\* Excludes 2 corporate/shuttle aircraft deliveries

\*\* Excludes 5 corporate/military aircraft deliveries

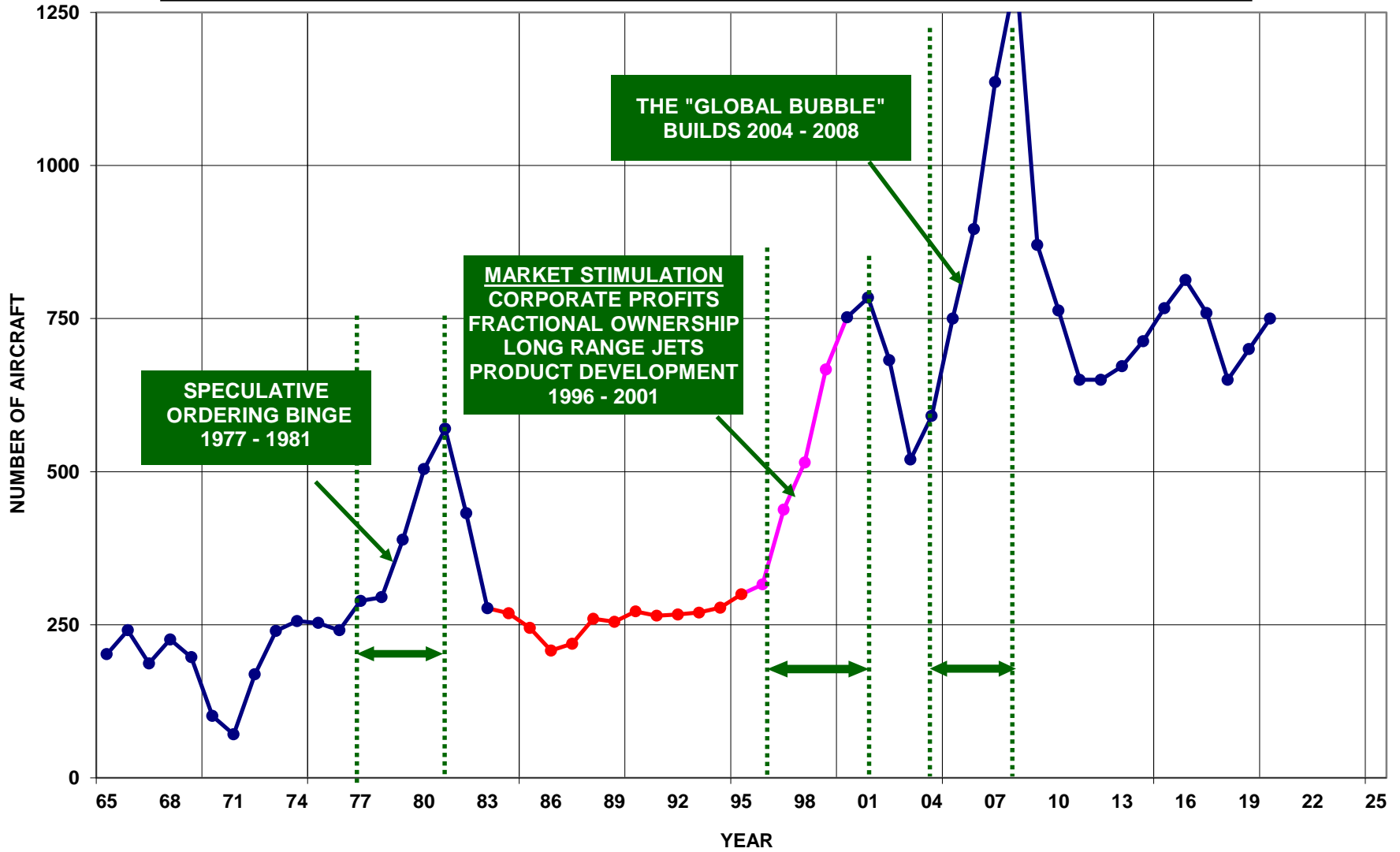
**WILL STRUGGLE TO BREAK  
100 A/C FOR THE YEAR.**

# SUMMARY REGIONAL AIRCRAFT MARKET 2Q2011

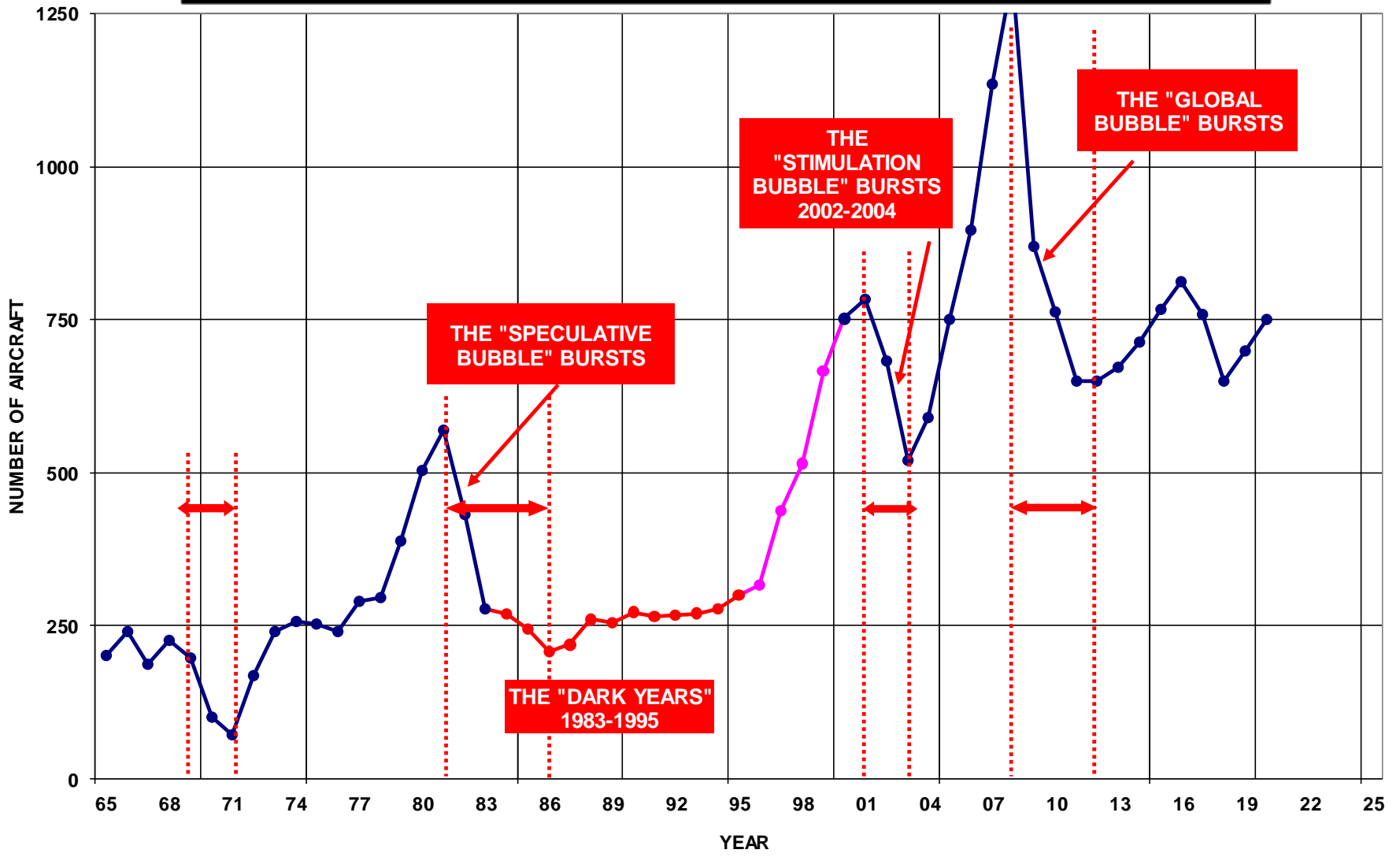
- U.S. regional traffic growth is still struggling as high fuel prices make flying small planes short distances a losing proposition. This market sector has nowhere to go (except into parked storage) at the moment.
- Embraer and Bombardier both have 100 plus regional jets “parked” and that number will grow further in 2011.
- American Airlines is going forward with its plan to spin off its regional American Eagle operation as a stand alone company. Current American shareholders will receive shares of stock in the new entity. This could prove to be an embarrassing event as the marketplace decides what regional flying is really worth.
- Aggregate regional jet deliveries could be under 100 a/c total for 2011.
- I am not optimistic on this segment of the market – have not been for some period of time. I originally thought turboprops would have more of a sustained bounce? (I think I have been using this last bullet for 5 plus years?)

# BUSINESS JET AIRCRAFT

# WORLDWIDE BUSINESS JET AIRCRAFT DELIVERIES - 10 YEAR FORECAST



# WORLDWIDE BUSINESS JET AIRCRAFT DELIVERIES - 10 YEAR FORECAST



**BUSINESS JET DELIVERIES\* AS OF JUNE 30, 2011**

<u>Aircraft Type</u>	<u>Q1</u>	<u>Q2</u>	<u>Q3</u>	<u>Q4</u>	<u>2010</u> YTD
<b><u>Bombardier</u></b>					
Learjet 40XR/45XR	10	3			13
Learjet 60XR	3	3			6
Challenger 300	9	4			13
Challenger 605	9	7			16
Global 5000/Express/XRS	<u>10</u>	<u>9</u>			<u>19</u>
Total Bombardier	41	26	0	0	67
<b><u>Cessna Aircraft</u></b>					
510 Citation Mustang	11	12			23
525 CJ1	0	1			1
525A/B CJ2/CJ3/CJ4	13	14			27
560 Citation Encore	0	0			0
560XL Citation XLS/XLS+	4	7			11
680 Sovereign	2	4			6
750 Citation X	<u>1</u>	<u>0</u>			<u>1</u>
Total Cessna	31	38	0	0	69
<b><u>Dassault</u></b>					
Falcon 2000LX	2	3			5
Falcon 900LX/EX EASy	1	1			2
Falcon 7X	<u>6</u>	<u>6</u>			<u>12</u>
Total Dassault	9	10	0	0	19
<b><u>Embraer</u></b>					
Phenom 100	2	10			12
Phenom 300	<u>4</u>	<u>10</u>			<u>14</u>
Total Embraer	6	20	0	0	26

DATA SOURCE: Gama and Company reports

<u>Aircraft Type</u>	<u>Q1</u>	<u>Q2</u>	<u>Q3</u>	<u>Q4</u>	<u>2010</u> YTD
<b><u>Gulfstream</u></b>					
Gulfstream 150/200	4	3			7
Gulfstream 350/450/500/550	<u>20</u>	<u>20</u>			<u>40</u>
Total Gulfstream	24	23	0	0	47
<b><u>Hawker Beechcraft Corp</u></b>					
Premier IA	2	3			5
Hawker 400XP	1	0			1
Hawker 750	2	2			4
Hawker 800 / 850XP	1	0			1
Hawker 900XP	2	4			6
Hawker 4000	<u>3</u>	<u>1</u>			<u>4</u>
Total Hawker Beechcraft	11	10	0	0	21
<b><u>VIP Aircraft</u></b>					
ACJ318 Elite	0	0			0
ACJ319	3	1			4
ACJ320 Prestige	0	0			0
BBJ	0	1			1
BBJ 2	0	0			0
BBJ 3	0	0			0
Embraer Legacy Executive	2	3			5
Embraer Lineage 1000	0	0			0
Embraer Shutles	0	0			0
CRJ CL 850/870/890	<u>1</u>	<u>1</u>			<u>2</u>
Total VIP	6	6	0	0	12
<b>2011 Grand Total</b>	<b>128</b>	<b>133</b>	<b>0</b>	<b>0</b>	<b>261</b>
<b>2010 Grand Total</b>	<b>164</b>	<b>191</b>	<b>136</b>	<b>272</b>	<b>763</b>
<b>2009 Grand Total</b>	<b>191</b>	<b>223</b>	<b>202</b>	<b>253</b>	<b>870</b>
<b>2008 Grand Total</b>	<b>301</b>	<b>372</b>	<b>330</b>	<b>324</b>	<b>1327</b>

**THERE WERE 261 BIZJET DELIVERIES THROUGH 2Q 2011. ESTIMATE 650 A/C FOR THE FULL YEAR 2011.**

# SUMMARY – COMMERCIAL AVIATION MARKETS

## Commercial Transport Aircraft Market (B&A)

- Aircraft deliveries stayed strong throughout the global recession of 2008/2009. Scheduled to move up from deliveries of 1000/a/c per year to 1400+ a/c per year by 2014.
- Airline traffic and profits declined in their typical cyclical pattern but the aircraft orders and deliveries keep coming.
- Disproportionately high oil prices have “twisted the market” to generate a disproportionately high demand for the latest new aircraft deliveries versus current aircraft fleets.
- This market is “booming” and could stress the global supply chain to meet it’s demands.

## Regional Jet Transport Aircraft Market (B&E)

- Aircraft deliveries and orders have steadily declined since 2002 and will struggle to stay at 100 to 125 a/c deliveries per year.
- This market is “down and dirty” and will stay that way for the near term with a significant drop in fuel prices needed to revitalize the market.

## Business Jet Aircraft Market

- Aircraft deliveries dropped by 50% as a result of the global recession of 2008/2009. Larger aircraft did better than the medium and small jets.
- This market is “down and hopeful” but at the moment is at the 520 level. I am skeptical that it will return to its prior 1000+ aircraft delivery levels in the near term.