



2012

PART-OUT CANDIDATE

AIRCRAFT OUTLOOK

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AFRA ANNUAL MEETING

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Who we are and what we do

- Established since late 1985 in Geneva-Switzerland;
- Initially active in the development of business within Europe for U.S. manufactured products;
- **New orientation towards aviation business in 1991;**
 - Aircraft and engine trading,
 - Consultancy services for start-ups and investors,
 - Aircraft repossessions,
 - Aircraft disassembling and parts remarketing,
 - Operational management of disassembling and parts remarketing.
- **Enjoying AFRA collective experience since 2008;**
 - AFRA member since 2010,
 - Serving on AFRA Board of Directors since 2011.

Aircraft disassembling market classification

RECENT AIRCRAFT	MID-AGE AIRCRAFT	END-OF-LIFE AIRCRAFT
→ Age : 0 - 5 Years	→ Age : 5 - 15 Years	→ Age : 15+ Years
→ Pricing close to pre-financial crisis	→ Prices declining	→ Prices falling rapidly
→ Traditional lessors	→ Few traditional lessors	→ Mostly small lessors but very large lessees (e.g. Delta, American)
→ Large new orders	→ Mainly supplied by portfolio sales from «mega-lessors»	→ Growing opportunities set from increasing aircraft retirements
e.g: A318	e.g. B737-600	e.g. A320, A321, A330, A340, B767

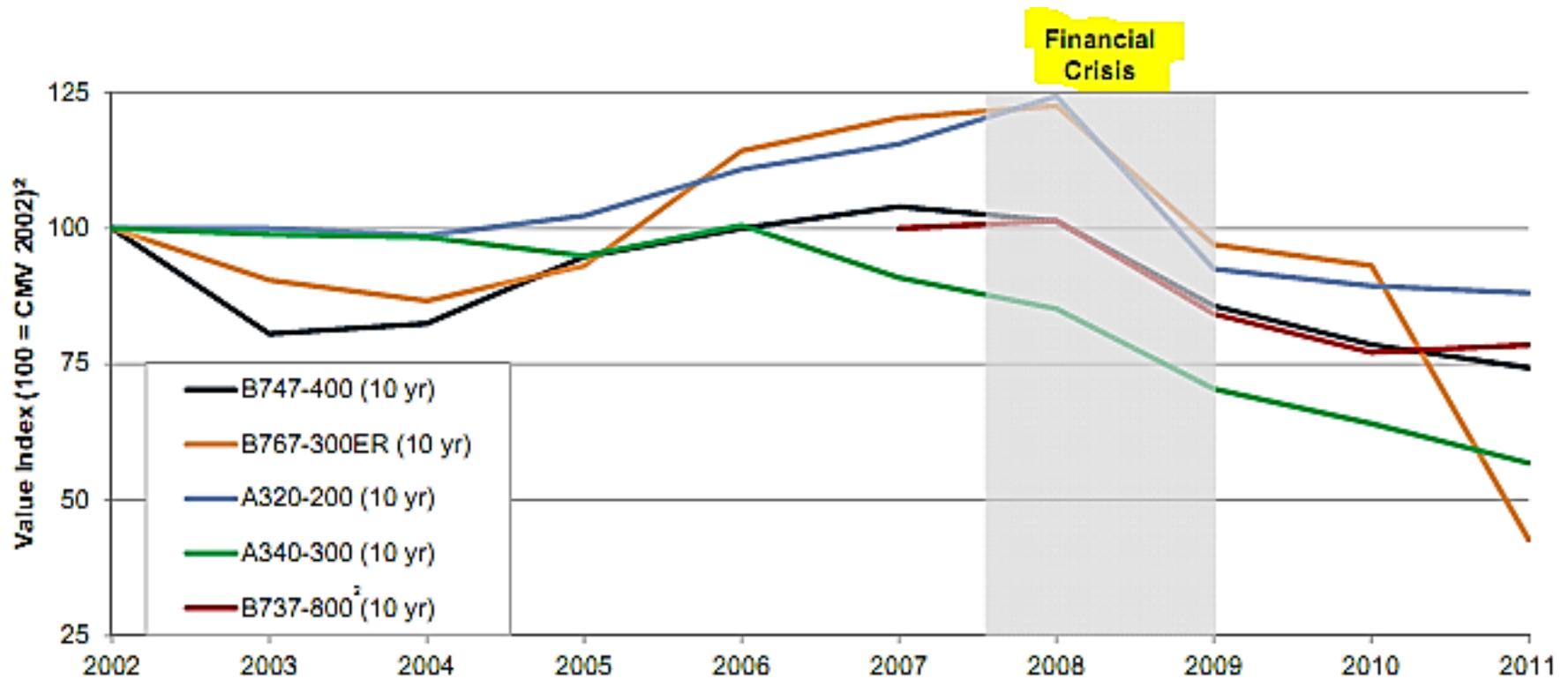
Aircraft life phases targeted for disassembling

	PHASE 1	PHASE 2	PHASE 3	PHASE 4
Aircraft Demand	Strong demand for new deliveries	Demand for new aircraft declining	Out of production for 5-15 years	Out of production for 15+ years
Fleet Maintenance Requirements	Most of the aircraft yet to undergo heavy maintenance or engine overhauls	Most of the aircraft had first heavy maintenance check and engine o/h	Ongoing maintenance requirement for large fleet still in service	Requirements decline as aircraft/engines retired
Used Parts Supply & Demand	Few spares produced or avlb in aftermarket. Components still on warranty	Some repaired spares become available	Airlines sell surplus parts, stable demand for spares to enable cont'd operations	Declining demand, supply increases from retired aircraft
Used Parts Value Implications	Used values increasing gradually in nominal terms Manufacturers typically escalate new prices	Used values beginning to stabilise as alternate sources of used materials become available in the aftermarket	Increased softening of used values as secondary market becomes primary source, replacing the OEM	Core economic value of spares declines – value of serviceable spares related to repair costs
Est. # of Aircraft*	8'500	3'500	5'300	2'250

* Source : Ascend Worldwide Ltd.

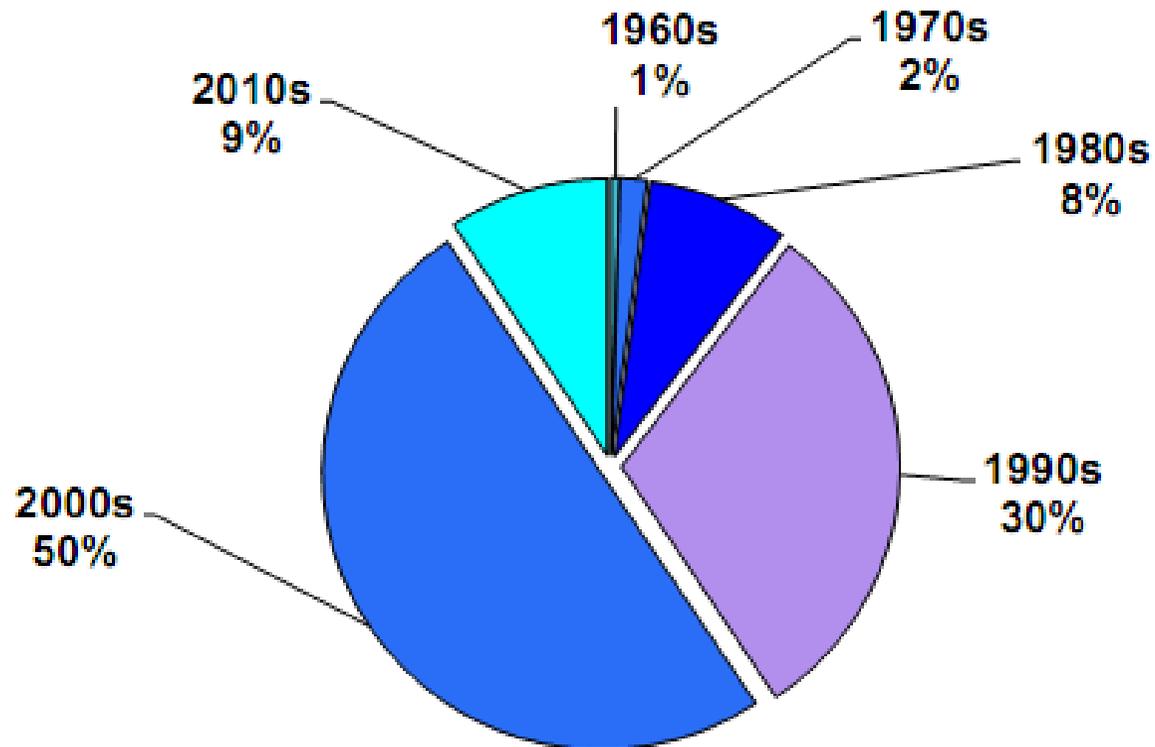
Older aircraft values continue to fall

- Significant decline since the 2007 – 2008 peak;
- Part-outs become economically viable at younger aircraft ages.



Source : Ascend Worldwide Ltd.

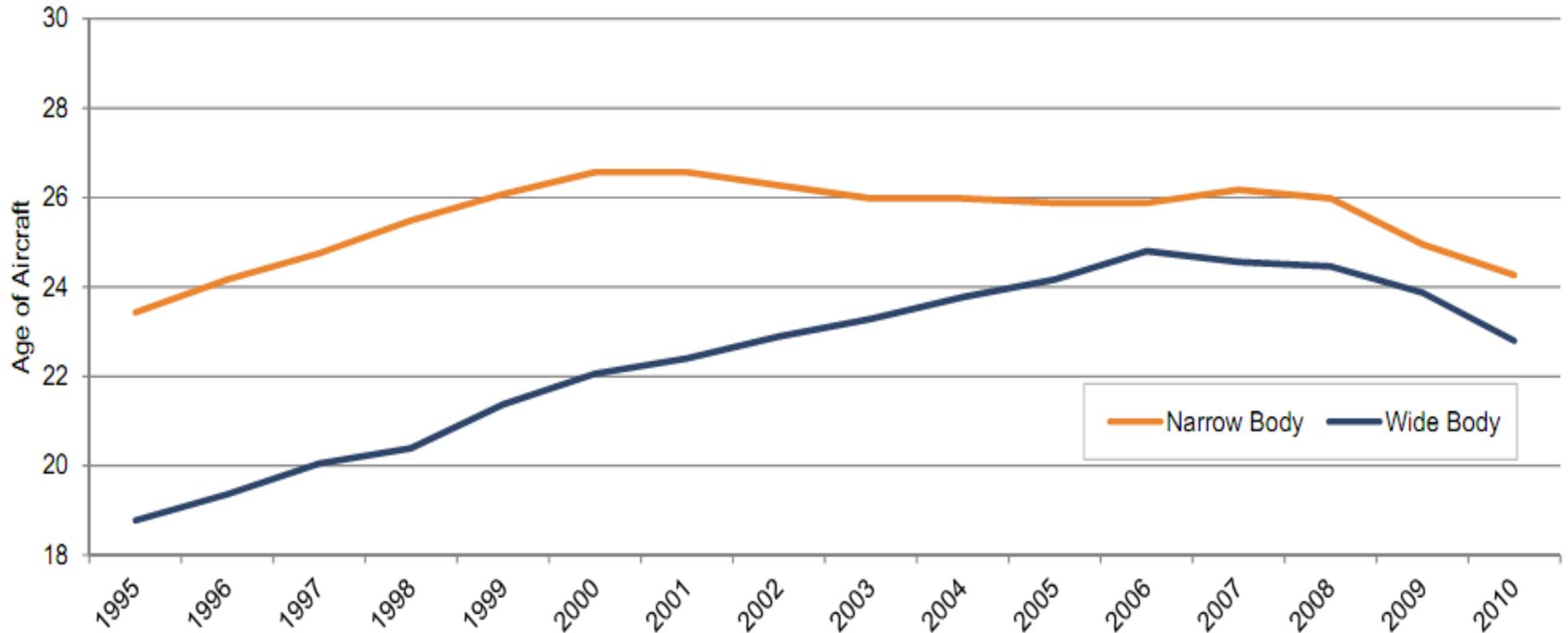
Current in-service jet airliner fleet – by decade of delivery



Source : ATDB

Aircraft retirement ages are declining

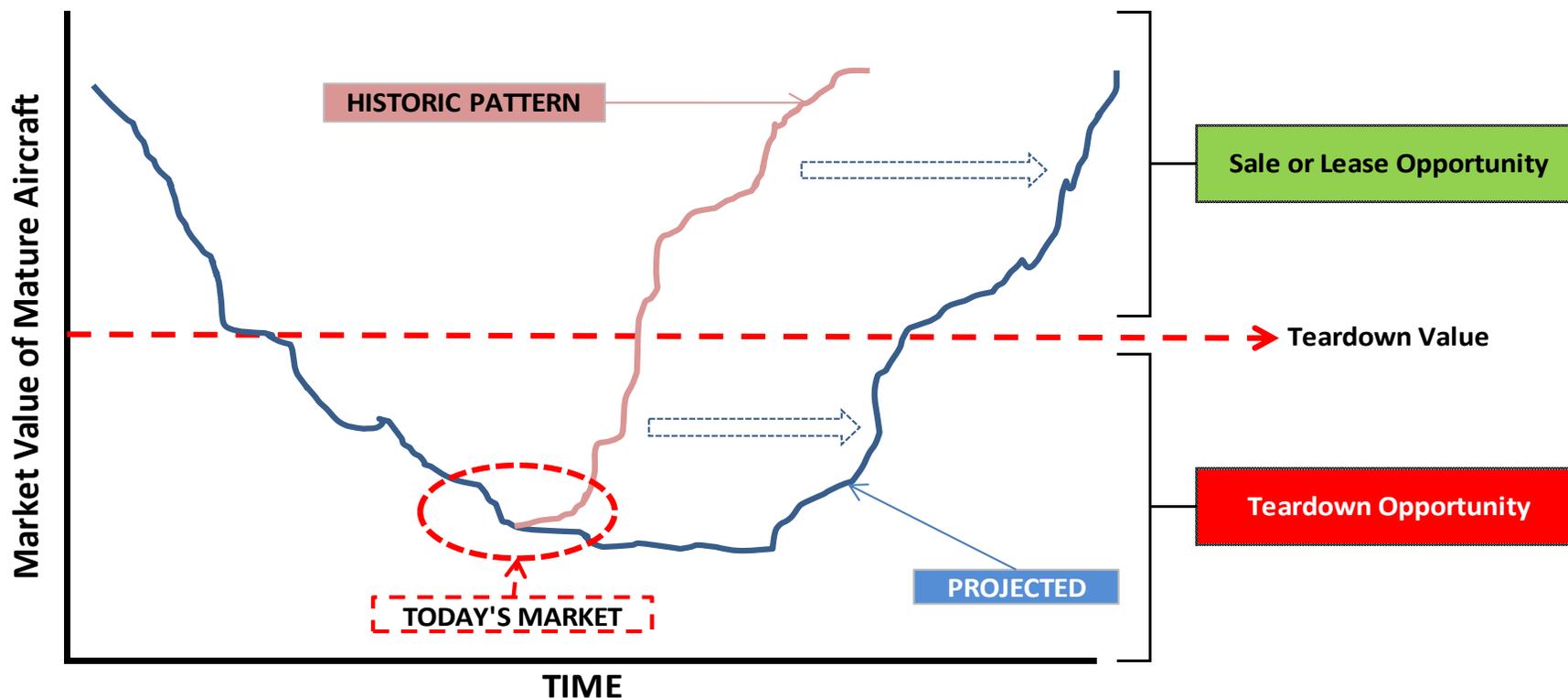
- Approximately 12 % of retirements between 2008 and 2011 were under 20 years old and 35% were under 25 years old
- Modern aircraft are being retired (A318, A320, A321, A330, A340, B737NG, B777)



Source : Ascend Worldwide Ltd.

Low mature aircraft prices drive current opportunities

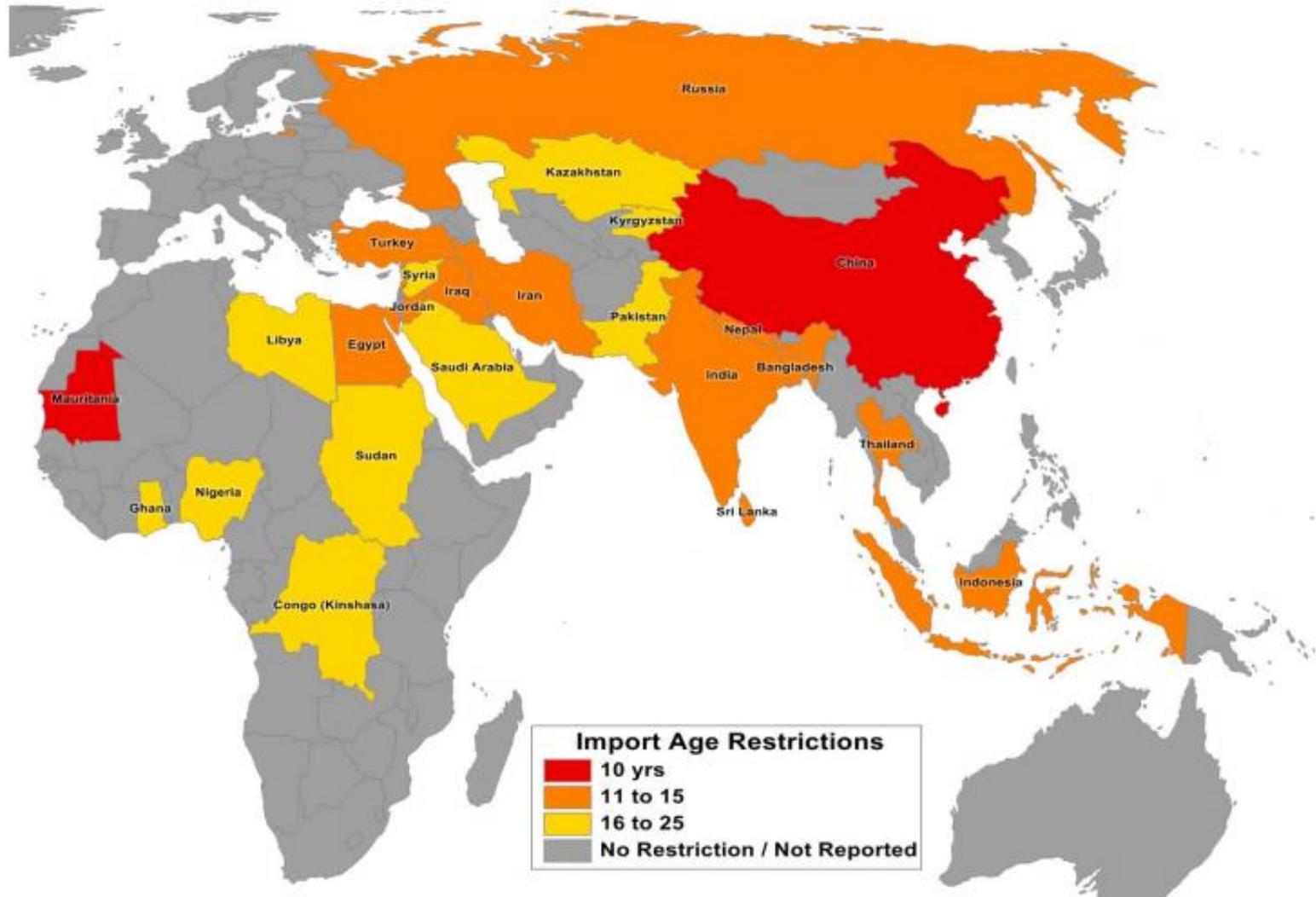
- The cyclical bottom in prices for used aircraft has been extended;
- Several aircraft types, including in-production models, are available for prices approaching salvage value.



Markets for certain aircraft types are upside-down

- High production rate of B737s and A320s combined with depressing demand for used narrowbodies leads to severe drop in lease rates;
- Lease rates on new aircraft are generally based on a 25 year economic life assumption, when 15 years might be more realistic;
- Too low lease rates do not reflect the risk of shorter life cycles;
- Government Export Banks enable Tier III buyers to finance new aircraft at Tier I rates instead of buying used models;
- Age limitations in the once unrestricted jurisdictions.

Aircraft import age restrictions



Source : ATDB.

Used parts maintain value longer than aircraft

- **OEM's continue to increase the prices of new parts (average 9%/year since 2008);**
- **Historically, used parts prices have been correlated to new parts prices, especially for aircraft that are still in production or for recently out-of-production aircraft;**
- **Used parts prices of aircraft targeted for disassembling projects have been generally falling much slower than the value of the associated aircraft.**

Case Study: A320 disassembling

A320 Family Census (JUN15, 2012)

		Built	On order	Active	Stored	Av. Age	RETIRED		Crashed	Museum
							Derelict	Scrapped		
A318	A318-100	60	1	53		6.1 yr	4	3		
A318	A318CJ Elite (ACJ318)	18	2	16	2	3.0 yr				
SUB TOTAL A318 :		78	3	69	2	5.3 yr	4	3		
A319			27			n/a				
A319	A319-100	1'260	162	1'235	20	8.0 yr	3		2	
A319	A319-100 ACJ (ACJ319)	74	16	67	7	6.0 yr				
A319	A319neo		26			n/a				
SUB TOTAL A319 :		1'334	231	1'302	27	7.8 yr	3	3	2	
A320			48			n/a				
A320	A320-100	21		1		25.3 yr		18	2	
A320	A320-200	2'980	1'391	2'761	98	7.7 yr	41	60	19	1
A320	A320-200X (ACJ320)	13		12	1	4.7 yr				
A320	A320neo		950			n/a				
SUB TOTAL A320 :		3'014	2'389	2'774	99	7.7 yr	41	78	21	1
A321			4			n/a				
A321	A321-100	79	6	78		16.2 yr			1	
A321	A321-200	637	452	615	19	6.1 yr	2		1	
A321	A321-200CJ (ACJ321)		1			n/a				
A321	A321neo		55			n/a				
SUB TOTAL A321 :		716	518	693	19	7.2 yr	2		2	
GRAND TOTAL A320 FAMILY		5'142	3'141	4'838	147	7.0 yr	50	84	25	1

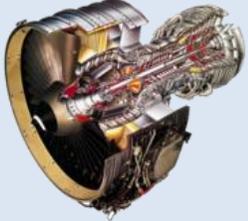
Case study: A320 disassembling, cont'd

Economics of Disassembling A320 Airframes

- Economics generally rely around 70–90% on value realized by remarketing engines;
- Much of the value is calendar-related;
- Limited cross over opportunities onto recent airframes;
- Most than can be made out of a 1989 – 1991 vintage A320's rotables, interior equipment, some flight controls and metal recycling is \$ 1.0 – 1.2 M.

Case Study: A320 disassembling, cont'd

ACTIVE AND PARKED/STORED A320 Family JUN 2012 (1)

	CFMI CFM56-5 		IAE V2500 	
	-5A	-5B	-A1	-A5
GRAND TOTAL ALIVE	466	2'314	76	1'913
ACTIVE	431	2'282	31	1'880
PARKED/STORED	35	32	45	33
DISASSEMBLED (127) (excl. 7 A318 powered by CFM56 5B8/P)	67⁽²⁾	9	44⁽²⁾	7

(1) Excluding A318

(2) All aircraft were pre-1994 vintage

Source : ATDB

Case Study: A320 disassembling, cont'd

Economics of Disassembling A320 Engines

- **Value of the engine depends on the market for individual parts:**
e.g. V2500 –A1: small market (remaining fleet = 72, parked = 42, active = 30)
- **Commonality between engines:**
e.g. V2500 –A1: Few High Value parts can cross over to –A5
- **CFM56-5A : Large number still in operation:**
Re-sale/Lease or teardown for shop visit support: btw 19% (LPT) and 100 % (gearboxes, bearings) commonality

Case Study: A320 disassembling, cont'd

Main Operators of Alive CFM56-5A and IAE V2500-A1 powered A320's - June 2012

CFM56-5A		V2500-A1	
Air Canada	64	Air India	25
Air France	28	Egyptair	8
ANA	21	US Airways	14
Condor Berlin	11	Other Small Operators	29
Delta (ex Northwest)	126		
Lufthansa	55		
Sibir	19		
Tunisair	15		
Vueling	8		
Other Small Operators	119		

Source : ATDB

Thank you!