

Distinct Differences in Pre and Post COVID Aircraft ABS Characteristics

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Aircraft asset-backed securities (ABS) and their portfolio securitisation have regathered steam lately since 2020 in parallel with the credit environment. There are differences between pre- and post-COVID ABS portfolios. Aircraft ABS started in 1992 with ALPS-92, which launched the asset class, but it began to gain a larger presence after the financial crisis around 2013 culminating in large incremental increments of growth up until the end of 2019 with issuances holding nearly \$9 billion worth of assets. Unfortunately, the momentum was interrupted by the exogenous demand shock of COVID. This demand shock has had a significant influence on the trends

and characteristics of the post-COVID 2020-2021 ABS portfolios, especially compared to previous pre-COVID portfolios, starting with AASET 2020-1 issued March 4, 2020, with a value of over \$400 million.

Due to COVID, aircraft ABS structures have come under extreme pressure due to a decreasing number of flights and passengers. This had led airlines to park and store aircraft, leading to the lateness or absence of payments to their financiers and lessors, which have all caused pressure on aircraft values both with and without leases attached. While the value effects have been uneven, the value of aircraft without lease have decreased more significantly than those with leases, airlines were more focused

on sale-and-leasebacks to alleviate cash positions than to increase fleets by leasing in more aircraft. These events have even led to numerous Chapter 11, bankruptcies, and reorganisations events. At the worst of the crisis, the aircraft ABS aircraft storage was at 55% while the lateness of rental revenues was 80%. These pressures have cut values typically in the range of 10%-35% according to Asia Aviation Valuation Advisors.

At the same time, however, ABS's credit enhancements have allowed the asset class to stay relevant. The tranche tiers and yield spreads, compared to continued printing of US dollars have attracted interest from investors and allowed ABS portfolios to bounce back



very quickly from the initial shock and stay on track. Cheap US dollars have resulted in continued low USD interest rates which have created buoyant equity and credit investments. This has caused investors to search for incremental yields with few alternatives, thus supporting the ABS market. So far even with the 70 airline reorganisations and failures in 2020, no ABS has involuntarily broken. This is not the case with EETCs with LATAM 2015-1 being liquidated (which resulted in haircuts even for the senior and lower tranches) and the other Norwegian 2016-1 in the winddown process both resulting from airline bankruptcy processes. Whilst ABS structures have been able to postpone, reschedule, or borrow additional funds

under their rights to preserve the structures and give the status quo to the investors, I would be concerned with the level of debt especially on mid to end-of-life assets. Is there enough time remaining on these assets to repay the sums borrowed?

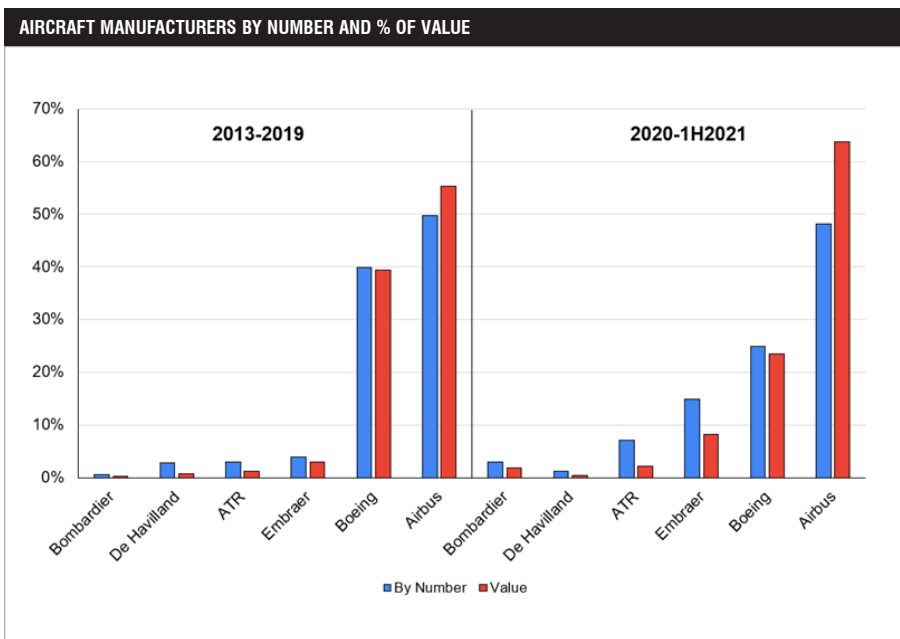
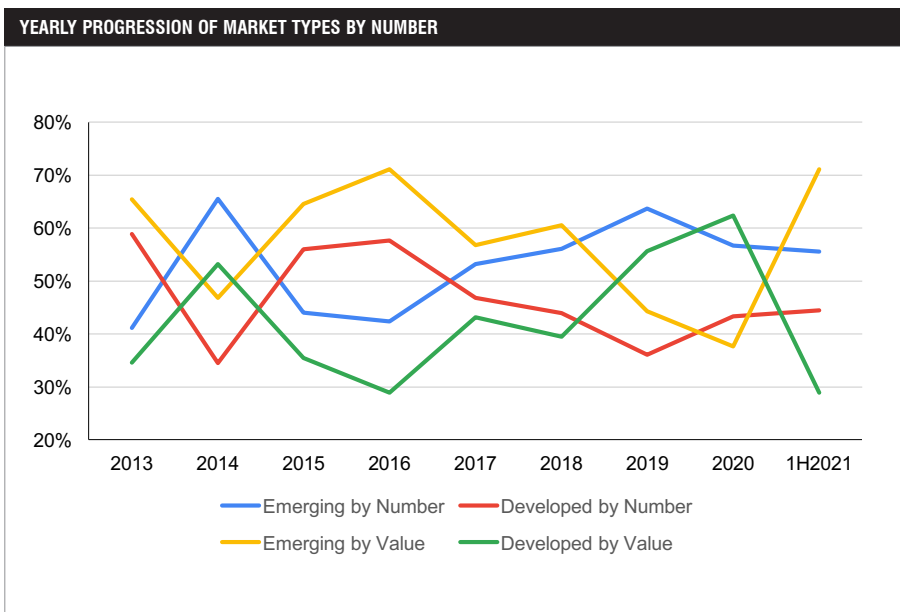
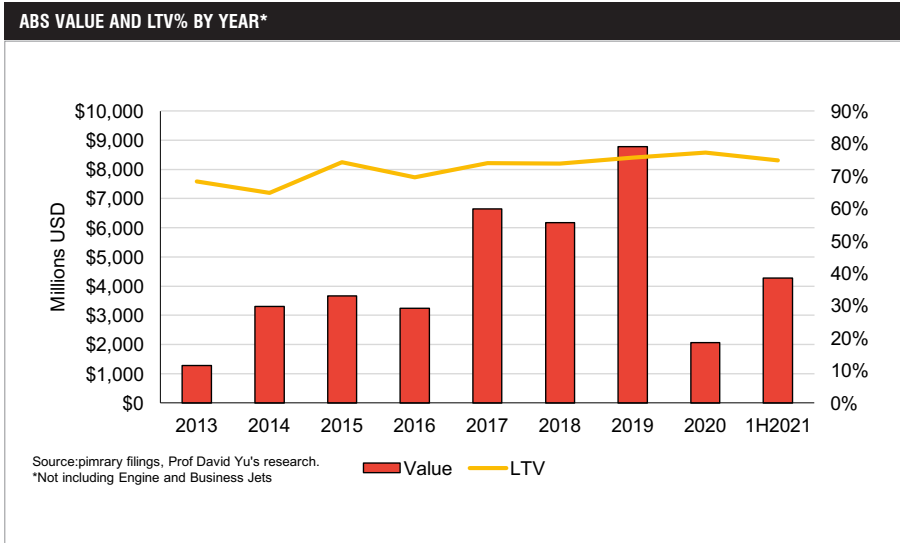
After the financial crisis, our recent study looked at the pre-COVID time between 2013 and 2019 inclusively, where 66 portfolios were issued of which four were engines, three business jets, one cargo, and the rest commercial aircraft. Post-COVID so far has 14 portfolios issued of which four are engine, two are business jets, and eight are commercial aircraft. Post-COVID exhibited the following characteristics compared to pre-COVID: slightly increased leverage

(LTV) from previous pre-COVID highs of 75.6% to 76.9%. For instance, from 2013-2019 the average yearly issued value of commercial aircraft portfolios is \$5.1 billion, so far, with the average of 2020 and 2021 at only \$3.4 billion, with 2020 only having a portfolio value of \$2.58 billion. This is to be expected as the total number of commercial aircraft portfolios issued so far during 2020 and 2021 are 8, less than half of just 2019 alone. The current run rate for 2021 prorated to the full year would represent seven issuances for \$4.5 billion volume issued. In addition, there are more diversified aircraft types post-COVID. Pre-COVID aircraft structures were around 75% narrowbody, however, post-COVID has around 63% narrowbodies

and a greater percentage of regional jets and turboprops, making it slightly more rounded. One observation is that regional jets have done better in terms of a quicker bounce-back in utilisation compared to bigger aircraft and this might be reflective in the newer portfolios issuances.

Domestically-focused airlines that can create significant volumes due to the domestic land geographies have done better in terms of recovery than internationally and transit-focused airlines given restrictions in international flights. This led to a more well-balanced mix in post-COVID portfolios compared to pre-COVID. Manufacturer types are as concentrated with Airbus and Boeing aircraft, though Airbus aircraft slightly increased concentration. There is a slight difference of percentage between these two manufacturers in the 2013-2019 data, with Airbus aircraft representing nearly half of all the aircraft with 49.7% while Boeing representing 40.0%. In 2020, all leased aircraft were only manufactured by either Airbus (56.7%) or Boeing (43.3%). Airbus and Boeing dominate 2020-2021 making up 63.8% and 23.5% by deal value, respectively.

In terms of other characteristics, emerging markets overall market share decreased slightly, and conversely developed markets overall market share increased slightly. From 2013-2019 with emerging/developed markets at 55.1% and 44.9%, respectively, whereas in 2020-2021 the split was emerging/developed markets at 53.8% and 46.2%, respectively. Though COVID affected developed and emerging markets alike, a flight to quality to developed markets is likely in times of exogenous demand shock, explaining the minor preferences towards them. When looking at jurisdictions, it is just as diverse as pre-COVID levels with higher concentration in traditional aviation active countries. Unsurprisingly, the aircraft age profile is very similar and even slightly younger with an average of 9.5 years and aircraft exhibited a longer lease term remaining of seven years remaining. During the post-COVID generation, this trend seems more logical as aircraft with short lease term remaining would be less attractive to investors and secure during this tumultuous period.



HHI HERFINDAHL HIRSCHMAN INDEX

Finally, pre-COVID portfolios contained more fuel-efficient portfolios at the time of issuance when compared to post-COVID, however, post-COVID issuances are undergoing a positive trend in this area. Looking at the pre-COVID time, the average yearly percentage of fuel-efficient aircraft in issued ABS is around 42% with the post-COVID average at 12%, but 2021 has a 21.7% composition of fuel-efficient, ESG friendly, aircraft. The increased importance of ESG for financiers has seen recent ABS issuances with the more modern kits and this trend is expected to increase further.

Each ABS standalone are structured to include diversification metrics and is rated for such characteristics. If an investor approach this segment from an index portfolio perspective rather than individualistically or two-block periods, the analysis reveals that the underlying assets in the different aircraft securitization portfolios are not as diverse. There are assets with repeating characteristics and are concentrated in the same regions. Regions such as Asia/Pacific, Europe, and North America, tend to hold the highest percentages, with Asia/Pacific averaging 24.6% per year by number, Europe 24.7%, and North America 21.1%. This means that on average almost three-fourths of all the aircraft per year are in Asia/Pacific, Europe, and North America, while the other fourth is spread amongst South and Central America, CIS, Africa, and the Middle East.

The Herfindahl–Hirschman Index (HHI) was also used to track the portfolio concentration characteristics.

Generally, the HHI concentration for aircraft and regions shows little change after the addition of extra incremental portfolios. The characteristic that does seem to show larger movements is aircraft type. 2014-2019 has large shifts in HHI, however, these shifts are not only decreasing, but they are also a mix of increases and decreases in the concentration. This may indicate how certain investors may increase their portfolio concentration in aircraft type if they began investing in years 2017 or 2018.

Reexamining pre-COVID and post-COVID, it goes without saying that the important difference between the two segments is the COVID impact on exogenous demand with a recovery that has been varied and uneven. Likewise, geographic regions have recovered differently but the geographical mix has been unchanged. In geographical terms, Asia, although getting the brunt of COVID before the rest of the world, has been able to recover quicker. The main economies of China, the US, and

Europe are the directional pieces of how the recovery will develop. There have been hiccups lately with the propagation of the highly infectious delta and lambda variants.

Overall, even with hints of start and sputtered optimism in terms of the resurgence of the ESG characteristics, it is highly unlikely that portfolios will slowly realign with their pre-COVID counterparts as the competitiveness of the industry continues to retrench. As the markets continue to evolve, investors will demand more ESG heavy metrics such as e.g. younger, fuel-efficient, modern aircraft among lessee's sustainability credentials. Also, investors will find ways to get additional diversification such as direct investments in lessors, portfolios, PE, and directly in the aircraft metal itself. These characteristics lack a high, promising, diversity that investors seek when investing in the ABS asset class, so the future is in the hands of issuers to adjust and create portfolios with greater diversity.

AUTHOR

*David Yu is an investor turned full time finance professor at New York University Shanghai, where he teaches and focuses on cross-border investing and financing along with a specialty in real assets and aviation. He is also Chairman of Asia Aviation Valuation Advisors (AAVA) and China Aviation Valuation Advisors (CAVA) and the only Senior ISTAT Certified Appraiser based in N. Asia. He is the author of "Aircraft Valuation: Airplane Investments As An Asset Class" and his research website is www.davidyuda.com

