Drone Insurance. The Aviation Market’s Perspective

Mike Falcone

CAS Annual Meeting, Orlando 2016

Global Aerospace Begins

1924

Spirit of St. Louis

1927

First Transatlantic flight by unmanned aircraft

1998

Dedicated Over 90 Years!

TODAY

October | 2016
Agenda

- What is the Aviation Insurance Market?
- Some issues we have encountered with Drone Insurance
- How do we see the Drone Market Evolving
- How do we see Insurance of the Drone Market evolving
- Operating regulations in some other key jurisdictions (time permitting)
Size of the Aviation Market

We estimate the size of the Aviation Market as about $4.65bn.

Aviation Market Premiums
Crude Estimate

- Airlines: 38%
- Products: 19%
- GA: 28%
- Space: 15%
Market Characteristics | Airline

Market:
- Low barrier to entry
- Verticalized pricing (Leaders obtain preferential treatment)
- Highly volatile
- “Short-tail” claims exposure
- 4 Sub segments

Buyer Characteristics:
- Relatively price sensitive
- Well informed/sophisticated buyers (major carriers)
Market Characteristics | Aerospace

Market:
- High barrier to entry
- Some verticalized pricing
- “Long-tail” claims exposure
- 6 sub-classes

Buyer Characteristics:
- Less price sensitive (Major manufacturers)
- Very good security a requirement
- Well informed/sophisticated buyers (major risks).
Market Characteristics | General Aviation

Market:
- High barriers to entry – distribution network
- Price sensitive buyers
- “Short-tail” claims exposures
- Risks placed regionally
- Divided into 5 sub-classes

Buyer Characteristics:
- Price sensitive
- Mixed buyer profiles
Putting things into perspective...

... The Airline/Aerospace sector represents around 0.3%* of total non life premiums

*Based on OECD estimate of worldwide non life direct premium
The merger of two markets

“Its only a drone”
Global Aerospace | A True Worldwide Leader

- Global Leads 20% of the World’s Airlines
- Insuring Airline Risk in Over 80 Countries Worldwide
- Global Leads 50% of the World’s Aerospace Manufacturers
- Decades of Protection and Service for Fortune Companies
- Respected and Trusted by the Industry
2015/6 applications, Global US

Part 107 of Federal Aviation Regulations enacted August 29th

October 5th, 2015 – Skypan Inc. fined $1.9m by FAA
How do we see the UAS Business Model Evolving

- **Segment that will be the Sophisticated Users**
  - Drone Service Operators
  - Larger entities that will manage their own fleets
  - High limits
  - Structured SOP’s
  - Extensive Training and Control

- **Segment for the less sophisticated users**
  - Small Commercial
  - Aerial Photography
What have been the main challenges?

- Volume
- New technology, unknown risk
- Under-developed regulation, eager users
- Lack of flight management / standards
- Claims
  - Repairs
  - OEM support
What has Global and the wider insurance market done to address these challenges?

- Adopted technology to help with the volume (Verifly)
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What has Global and the wider insurance market done to address these challenges?

- Adopted technology to help with the volume (Verifly)
- Explored distribution channels (Zurich)
- Worked with OEMs and other stakeholders to understand the risks
- Taken a risk based approach in the absence of regulation
- Partnered with training companies
- Developed relationships with repair stations
Design Approvals

- Aircraft Certification Software
- Chief Scientific and Technical Advisors (CSTA)
- Engines and Propellers (Including Auxiliary Power Units)
- FAA and Industry Guide to Product Certification (PDF)
- Field Approval
- Human Factors in Aviation Safety (AVS)
- National Automated Conformity Inspection Process (NACIP)
- Original Design Approval Process
- Parts Manufacturer Approval (PMA)
- Search Technical Standard Orders (TSO)
- Technical Standard Orders (TSO)
- Technical Training Program
- Approval of Safety Enhancing Non-Required Equipment under 14 CFR 21.8(d)
Risk Management

### SOP

#### Use of SOP

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**Legend:**
- **Green:** SOP in place, no change needed.
- **Yellow:** SOP in place, review needed.
- **Red:** SOP in place, documentation change needed.
- **Gray:** SOP in place, no change needed.

**Launch and Recovery:**

- Ensure the flight is within the manufacturer’s recommended limits.
- Have observed no lost link events during previous flights.
- No alcohol, prescription drugs in the past 12 hours.
- Proper rest, no alcohol, prescription drugs in the past 12 hours.
- Launch and recovery equipment not required.
- Full manual (inexperienced operator, less than 200 FC*) or switching to shared frequency, ISM band, or self-scan frequency.

**Navigation:**

- Flat terrain, clear of obstacles, towers, structures and or spectators.
- Able to keep crew and equipment between 51 and 79 degrees F, have environmental conditioning equipment.

**Visibility:**

- Visibility of less than 500', UAS does not have aircraft lighting or brightly colored panels that are visible at half of a mile.
- No alcohol, prescription drugs in the past 12 hours.
- No outside pressure.

**Temperature:**

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**Verification:**

- All or almost all items in this column the risk score is low, proceed with caution.
- Any in this column represents a high risk! You must change the plan! Do not proceed unless you have developed contingencies and risk mitigation plans.
- Very sick, eyes watering, flu.

**Conclusion:**

- High Risk
- Moderate Risk
- Low Risk

**Navigation:**

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Claims
Advantages of the Aviation Insurance Market

- See this risk as a natural extension to what we do
- Limits
- Coverage for Vehicles, Payload, etc.
- Ability to differentiate between types of operators and vehicles
Regulations around the world –
general observations

- The rapid growth of the commercial drone surprised regulators
- The operator and the flight profile is being certified and regulated, not the drone itself
- Distinction is drawn between recreational and commercial use
- Commercial demand is outpacing regulatory action
- There are few standards, making it confusing for operators
- *The European Aviation Safety Agency (EASA) only regulates drones over 150kg, the others are left to individual countries*
- Nothing addresses BVLOS yet
- Some insurance minima but not common
The future……

Unmanned Aircraft Systems (UAS) Integration in the National Airspace System (NAS) Project

➢ BVLOS
➢ Full integration

LEGEND
- Sense and Avoid (SAA/DAA Technologies)
- Air Traffic Services
- Control and Nonpayload Communications (CNPC) Network
- Legacy Command and Control (C2) Links

ACRONYMS
- ADS-B: Automatic Dependent Surveillance—Broadcast
- DAA: Detect and Avoid
- TCAS-II: Traffic Alert and Collision Avoidance System
- TRACON: Terminal Radar Approach Control Facility

Small UAS (sUAS) Mission Support Technologies

UAS vehicle autonomy

UAS Restricted-Use Certification

Precision agriculture

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Small UAS (sUAS) Mission Support Technologies

UAS vehicle autonomy

UAS Restricted-Use Certification

Precision agriculture
Any drone weighing under 2kg for hobby use doesn’t require an operator to be certified. Drones over 2kg or any unit used for commercial purposes requires the operator be licensed. Australia has had regulations in place since 2002 and has just updated them in 2016.
A Special Flight Operations Certificate is required for any drone weighing over 35kg or for any drone used for commercial purposes. New regulations are being drawn up that would allow for more permissive use of drones under 25kg.
The Civil Aviation Administration of China regulates use of drones under 150kg. Drones are put into 7 categories but all must be registered with the CAAC.
New rules came into effect in January 2016 which split drones use into three categories – hobby, experimental and commercial. Within those rules there are weight restrictions and requirements for knowledge and training, based partly on use cases and population density.
Beyond Visual Line of Sight (BVLOS) flights are permitted for certain commercial use. Operators are required to be licensed. The weight limit is 25kg and other restrictions apply based on population density and particular hazards.
Drones weighing up to 30kg can be operated with some restrictions including no overflight gatherings of people and always within VLOS. Permits can be obtained for operations beyond those limits.
New rules planned for late 2016/ early 2017 – EU wide regulations that would regulate all UAS operations. Insurance regulations in accordance with EC785 Search for: “EASA Unmanned Aircraft Operations”
Drones weighing under 20kg are subject to rules relating to population density and other restrictions. Those over 20kg are subject to all articles of the Air Navigation Order and require certification, licensing and a permit to fly. The UK has been chosen by some drone companies as a test site given its relatively accessible regulatory environment.
Part 107 of the Federal Aviation Regulations enacted in August 2016 governing VLOS, daytime operations of drones weighing under 55lbs (25kg) for all non-recreational use. Additional rules apply including a requirement for all operators to pass a knowledge test.
Questions?