

Very Light Jets



Very Light Jets (VLJs) are the sports cars of aviation. One aircraft even has an interior by BMW. These “flying Ferrari’s” are big on wow power and short on space for things like passengers, baggage, and bath rooms.

Dot-Coms with Wings: A Fun and Exciting Opportunity to Lose Money

By Vaughn Cordle, CEO, *Airline Forecasts, LLC*

The Very light jet (VLJ) is a small jet that has a maximum takeoff weight of less than 10,000 pounds. It can be flown by one pilot and can operate into airports with runways that are less than 3,000 feet long. The new VLJs have been made possible in large measure by the small, lightweight, and energy-efficient turboprop jet engines recently developed by Williams International, Pratt & Whitney Canada, and GE Aircraft Engines. Honda and GE have formed a new company, GE Honda Aero Engines LLC, to produce and sell the new VLJ power plants.

Unanswered questions include how VLJs will fit into crowded airspace near major airports, how expensive will it be for pilots and operators to obtain insurance, and how will training be addressed for pilots who are accustomed to propeller craft?

The VLJ hype machinery is starting to rev up and will be coming on strong over the next few years. Investment bankers will be coming to a town near you very soon with an exciting money making proposition that will be hard to resist.

Even Wal-Mart is getting in on this action with their plans to sell the new and exciting small jet at select superstores to upgrade their image and attract upscale customers. Initially, the Eclipse aircraft is expected to be featured, although other models, such as Cessna's Mustang, the Adam A700, and the Spectrum 33, likely will be added.

To Date, No VLJ Has Received Certification

While manufacturers are exceptionally optimistic, no VLJ has received certification from either the FAA or the European Aviation Safety Agency (EASA). Nor has the Center for Aerospace Technology

(CTA), the Brazilian counterpart to the FAA, certified the Vantage jet or Embraer's Phenom100.

Market Demand Remains Speculative

Market demand for VLJs is speculative at this point, and business aviation and owner-operators may be slow to buy the new models, which basically are smaller versions of more luxurious business jets. One analyst believes that few commercial airline customers will want to move up to the higher costs of VLJ air taxis, while well-heeled charter and fractional jet users will not want to use the smaller and less comfortable aircraft.

Richard Aboulafia, the respected Teal Group analyst, makes two solid points in his March essay on the demand for VLJs:

1. FAA's forecast for 5,000 VLJs by 2017 is based upon its need to secure additional financing.
2. Eclipse Aviation's hope for 750 "comfortable" annual aircraft orders would equal or exceed the total output of all US bizjet manufacturers combined.

Eclipse claims to be able to break even with 500 orders per year. Richard goes on to say that without air taxis, the best case scenario for Eclipse is much lower production rates than anticipated with higher prices and serious write-offs all around as a result. The worst case scenario: A dot.com, with wings.

Fifteen Percent of US Flights Could be Carrying Only Three Percent of Passengers

The FAA has said that "industry experts suggest the market for new microjets could add 500 aircraft a year to the active fleet

by 2010." The agency's forecast "assumes that microjets will begin to enter the active fleet in 2006 (100 aircraft) and grow by 400 to 500 aircraft a year after that, reaching 4,950 aircraft by 2017." NASA projects 400 aircraft a year. Within eight years, 15 percent of the flights in US skies could be air-taxi jets, but carrying only two to three percent of the passengers.

VLJs Are Sexy and Everyone Wants One

VLJs are sexy, and everyone wants one, including yours truly. Heck, based on bragging rights alone, "I own a jet" is worth a lot to those with big egos and big bank accounts. Unfortunately, many of us jet owner wannabes have big egos, but small bank accounts. New entrepreneurs smell opportunity, of course, and are jumping into the game with both feet and their own money.

Naturally, they would like to use other people's money to start new businesses that can make them both rich and famous. Owning their own private jet is a big driver for many getting into the game. Owning a whole fleet is even better, and an initial public offering (IPO) is the exit strategy for both the founders and the initial investors.

Beware of Entrepreneurs Wearing Rose-Colored Glasses and Bearing IPOs

An IPO is the means to becoming rich and perhaps even famous for the new breed of entrepreneurs who believe they have a unique business plan or some competitive or comparative advantage. An IPO is necessary if an entrepreneur is to raise the kind of capital required to get off the ground and hire the talent needed to make the business fly.

It also is necessary to attract the big Wall Street firms that can sell the securities to retail and institutional investors. The IPO is the big payoff because a dollar of revenue for a private company is only worth one dollar, but for a fast growing small company that is going public, that dollar of revenue could be worth five dollars or more. A dollar of *earnings* could be worth thirty dollars or more.

Eclipse CEO Vern Raburn may be the most ambitious of all with his plan to produce as many as 800 Eclipse 500s per year. Vern may be one of the greatest salesmen on earth. He got into the business because of his love of flying; his wealth comes from his past employment with Microsoft. He has assembled an impressive management team and a Board of Directors, and raised several hundred million to start Eclipse.

The Eclipse 500 is an impressive and innovative aircraft. The company claims to have 2,350 orders, of which two-thirds or 1,500 orders are from air taxi companies. Eclipse's order book includes 1,592 firm orders with 765 options, all secured with nonrefundable deposits. In my view, most of the air taxi orders will never materialize. Most will not be able to raise the capital to get off the ground, at least to the degree currently envisioned.

Air Taxi Operators Are Ordering VLJs

DayJet, Pogo, Linear Air, and a UK Company called JetSet Air Ltd. are four air taxi operators that intend to use VLJ's to offer flights at rates cheaper than traditional charters and without airline-affected time delays. VLJ's can create short turn-around times, thanks to advanced engines and avionics technologies that make them cheaper to acquire as well as to operate. If these upstart operators can secure financing, they plan to operate approximately 800 VLJ aircraft by 2009. This is highly unlikely in my view.

CEOs of DayJet, and Linear are getting into the VLJ business because of their love of flying and their love of the new VLJ technology. Owner operators, for the most part, are buying the aircraft for the same reason. The real demand will come from

operators who need to replace aging turbo prop aircraft. However, high fuel costs make the turbo prop more attractive.

DAYJET: DayJet is headed by Edward Iacobucci, a long time veteran of the technology industry. DayJet intends to sell by the seat, but give discounts based on how much schedule flexibility the customer can offer. Average one-way fares would be around \$800, which is based on three of the four passenger seats being sold, on average, per revenue flight. DayJet wants each to fly four to five stages a day.

At this point, DayJet appears to be the most ambitious, the best-funded, and the farthest along with its market analysis and development of IT tools. As part of its computer modeling, DayJet used "agent-based" software to create nine "species" of customers with annual incomes of \$70,000-300,000 and then watched how they behaved. The simulation was similar to the popular computer game, Sim City.

DayJet was smart to hire Don Osmundson as VP of Flight Operations. He has lots of experience managing commuter operations and pilots. In terms of raising money, DayJet is ahead of the game, since the company has Raymond James working on their behalf. The financial projections are pie-in-the-sky in my opinion, but they may not make a difference in terms of raising a certain level of capital, especially with the right marketing efforts by Raymond James and DayJet. I would be very surprised if they raised the capital necessary to fund a 300 plus aircraft fleet by the end of 2008.

DayJet's investment banker has a successful track record of raising money for start-ups. However, in our view, DayJet is a highly risky investment because the aircraft they have selected is untested, as are their business concepts of "per seat," "on-demand," and "no schedules." The largest risk for investors is that the company is selling equity in a business based on the concept of operating over 300 small corporate jets in a high utilization manner by 2009.

In my opinion, it is highly unlikely that DayJet can achieve their targeted load factors when attempting to sell individual seats on many small aircraft. I believe the

VLJ market will be "by the plane" rather than "by the seat" for many years to come.

No matter how good DayJet's optimization software is, there are only so many people willing to pay high fares for short flights out of their individual pockets, which is the way "by the seat" is going to have to work. There are however, many upscale individuals and lots of companies who will opt for a less expensive "by the plane" product.

POGO: Pogo has Bob Crandall, the former CEO of American Airlines. Pogo will be more like a traditional charter, charging perhaps \$1,800-2,000 per hour for the aircraft or \$5-6 per mile, but also offering to find other customers to share the aircraft--and the cost.

Pogo is taking a much more cautious view of the market. Crandall says that he sees the VLJ as nothing more than a better tool to provide charter services, which currently are very expensive. Pogo envisions a "branded charter concept" which will expand private aviation by offering lower prices (possible because VLJ's are smaller and less expensive the light jets and because short haul jets can be used more intensively than those that operate across longer distances) while making it easier for the occasional user to contact, book, and use private aviation.

This approach may work if the VLJ manufacturers produce aircraft that are substantially less expensive to own and operate than light jets, and if demand is strong enough to allow Pogo is able to sustain high utilization, but is subject to the risk that owner-operators of existing aircraft or VLJ's are willing to offer their aircraft at prices only slightly above variable costs in order to cover some portion of their ownership costs. The Pogo concept, and management team, makes it – in my view – the most likely success story in what I see as a less than promising field.

However, Pogo is in a holding pattern, as it waits for VLJs to get FAA certificates. The upstart is focused on Southern New England, Southern California, and Florida as possible regions to start up operations. Pogo is hoping to begin flying "sometime in 2008."

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LINEAR AIR: Linear Air is headed by William Herp, a Harvard MBA and commercial-rated pilot who believes that because he commenced operation utilizing eight-seat Cessna Caravan aircraft, the company is now able to work out many of the issues and begin building a customer base with aircraft that have similar operating costs to VLJs.

Unlike DayJet, Linear Air will not eschew big cities; it already operates from Teterboro to Nantucket and Martha's Vineyard. Linear Air will be switching to the Eclipse 500 to boost its expansion from the Boston and New York City areas to other US markets. The company plans to have over 280 VLJs by the end of 2008. This is a highly unlikely in my view and the company currently loses money with the Caravans.

JETSET AIR: JetSet Air is a start-up business that is planning to introduce the mass air-taxi concept to Europe and will be operating this and scheduled shuttle services from the UK to popular European destinations.

The Fractional Jet Model – Even Warren Buffet Loses Money with NetJets

The extraordinary service level promises made by NetJets have prevented them from operating profitably, by forcing too many spares and charter substitutions into the system. They make all their money on aircraft brokerage, which basically comes out of the hide of those who buy the fractional shares.

Warren Buffet's Berkshire Hathaway has \$84 billion in equity and \$55 billion in insurance "float" that effectively means his companies, like NetJet, have access to cost free capital. There will be a lot of small players getting into the VLJ air taxi business because they perceive it to be a "new and exciting" business segment. There is nothing new about branding charter services and nothing unique about on-demand air taxis that use small corporate jets or turbo props. NetJets has over 500 aircraft and no one can compete with a company backed by Warren Buffet and his zero cost of capital.

The reason so many of these taxi companies stay in business is because the fixed base operations (FBOs) are owned and operated by oil companies or other groups that sell some sort of supply or service. The suppliers "fund" the operations by extending credit or leases, which is how the air taxi operators are primarily financed.

NetJets fly aircraft 1,200 hours a year, but only around 900 or so with passengers. Many of the flights are empty relocation flights and this drives up the costs. Bottom line: NetJets loses money but most likely makes money buying and selling aircraft.

Executive Jet Management (EJM), a NetJets company, is hoping to succeed in offering a scheduled air service using a fleet of business aircraft. Executive Jet Management last month filed an application with the DOT that would allow the charter and aircraft management company to provide scheduled air service connecting the Chicago, Los Angeles and New York metropolitan areas. EJM expects to operate as a scheduled service and will use aircraft from its fleet of 79 business jets.

In my view, EJM has the scale and scope economies that can take advantage of the benefits of utilizing VLJ aircraft. This is where the bad VLJ economics makes the most sense.

Upstart VLJ Business Plans May Overstate Utilization, Understate Depreciation, and Ignore User Fees

Many of the VLJ air taxi upstarts we have examined have business plans that overstate aircraft utilization, understate depreciation, and do not account for the new and higher ATC user fees that are coming in 2007. A more realistic and lower utilization rate, say four to six hours a day, will result in higher unit labor and asset costs. And it will result in high prices for the customer.

Most corporate aircraft fly 400 hours a year, not over 2,000. A General Aviation Manufacturers Association official laughed at the suggestion that VLJs will be logging 2,000 flight hours a year. He was skeptical that airplanes costing \$1 million to \$2 million apiece would be able to stand up to the wear and tear of 2,000 flight hours per year on a regular basis. It would appear that most VLJs will not be able to handle the 9- to 13- hour a day utilization that a Boeing, Airbus, or regional jet aircraft is designed to handle.

On the other side of the coin, it is hard to believe that VLJs can fly the 2,000 hours or more annually that the airtaxi start-ups envision. That total is far more than the 400 hours most business jets are flown each year now. Embraer and Cessna may

have the best VLJ aircraft for the job, but they cost almost twice as much as the Eclipse 500. The assumption is that they are much more durable than the less expensive aircraft.

In my view, Embraer's \$2.85 million Phenom 100 is the right aircraft for heavy air taxi service. Embraer says the Phenom 100 it is good for 35,000 cycles.

Passengers will prefer the larger cabin and having a lavatory. DayJet and Linear are going for the early bird advantage with the Eclipse 500. Cessna's \$2.275 million Mustang and Embraer's Phenom 100 may make the better choice for the air taxi and charter operators. Owner-operators will prefer the lower priced Eclipse and will not fly that many hours per year.

Eclipse may be first out of the gate with the VLJ, but VLJ air taxi upstarts could lose the war with the wrong aircraft and a manufacturer that may end up in bankruptcy if expected orders do not materialize and other VLJ manufacturers are successful in getting off the ground. It could be that after five years of heavy use the, relatively speaking, "fragile" Eclipse 500 won't be worth much, and air taxi operators will want to dump the aircraft.

VLJ residual values will plunge with heavy use and no lessor will want to get involved with aircraft that do not maintain some level of value over time. Operators will need the financing benefits that lessors can provide and Embraer and Cessna have long histories of producing quality aircraft that have quantifiable residual values.

If many of Eclipse's 2,350 orders do not materialize, the equity that many of the upstarts are counting on to help finance their operations and growth also will not materialize. Launch customers were able to buy the aircraft below \$1 million and the current price is around \$1.5m.

In my view, the "per seat" and "on demand" VLJ concept is a money losing concept. The utilization will not reach the levels required to make this type of high cost operation work. Moreover, the segment may be too small to take to a national level. There will be too many

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owner-operators entering the business who will attempt to cover part of their ownership costs by leasing out their aircraft. This strong desire to offset ownership costs will result in too much capacity, and no one will earn their cost of capital.

High utilization may not be possible, in part, because of Air Traffic Control (ATC) airspace and airport constraints. Las Vegas is a good example. The airport is already constrained, and is going to give priority to a large jet over a VLJ with two people. In terms of selling gas and providing services, VLJs likely will be treated as second class citizens, and ATC delays will reduce one of the primary reasons to use the aircraft.

Problems With the VLJ Air Taxi Business Model

Even the secondary airports are covered by ATC, and VLJs will be held on the ground if the airspace is congested, which it will be if a secondary airport is anywhere near a major airport. A recent FAA list of most delayed airports highlighted long delays at many of the airports that corporations like to use. In my view, the VLJ air taxi service is a bad business model for several reasons:

1. It is very difficult to achieve high utilization.
2. Too many owner-operators will be leasing their aircraft in charter service.
3. VLJ operating costs are much too high, especially when using two pilots.
4. Fares will be too high to attract the volumes required to gain scale economies.
5. Price elasticity of demand is high above a certain price level.

It is hard to build a case that VLJ demand will be as high as the promoters of the new jets and air taxi services are

claiming. The owner-operator of the new jets eventually will get hit hard with ATC user fees. Also jet fuel is running over \$4 per gallon in the Northeast, and the IRS is about to change the rules in a way that would encourage private owners to maintain their old depreciated aircraft longer.

When Vern Raburn started Eclipse Aviation eight years ago, jet fuel was under \$1. Lots of VLJs will be sold, but not enough to keep so many manufacturers alive. Deep-pocketed Cessna and Embraer will, in my view, end up dominating any VLJ air taxi business that develops. Honda is a company to watch and its new GE partnership to produce a small jet engine should get everyone's attention.

SATSair – a Successful On Demand Air Taxi Service

It is interesting to note that SATSair based in Greenville, SC, which uses single engine Cirrus SR22 (prop) airplanes, may be the only successful operator offering "on demand" air taxi service. SATSair, operated by Rhino Aviation, is the first to offer the innovative air taxi concept based on extensive research and strategic relationships with NASA and the FAA. The company operates in 19 states and hopes to be nationwide soon.

SATSair is a wholly owned subsidiary of Cirrus and currently operates 13 aircraft. Clearly Cirrus is in the business of selling aircraft and the air taxi concept may be the ticket to higher sales. This highlights the tendency for suppliers to finance aircraft operators. SATSair offers:

1. Luxurious interiors.
2. Four seats.
3. Parachute built into the airframe to bring down the whole aircraft safely in case of problems.
4. Nine-state coverage area between Georgia and Pennsylvania.

5. A price of \$395 per flying hour (extra charges for destinations outside service area).
6. Coverage of 220 miles in one hour.

New VLJ Air Taxi Operators Will Use Two Pilots

Unfortunately, single engine aircraft flown by one pilot do not meet the safety requirements that most corporations and businessmen require. This is why the new VLJ air taxi operators will be using two pilots, which significantly drive up the cost of operating a four-passenger jet. Captains for the new upstarts will be paid between \$45 and \$75 thousand per year; copilots between \$25 and \$40 thousand. A typical airline captain is paid \$128 to \$250 thousand per year.

Potential Impact of ATA User Fee Proposal on VLJs

No air taxi company utilizing VLJs will ever get off the ground if the ATA user fee proposal is adopted by the FAA – something we think is highly unlikely. Our best guess is that the FAA will adopt a NavCanada type plan, which is more progressive and significantly less expensive for small jet air taxi operators. ATA's proposal is too aggressive in terms of shifting FAA costs to small aircraft operators.

General aviation interests have a powerful voice in Washington, and we believe they will prevail in opposing the ATA's user fee proposal. Some form of user fee scheme will prevail, and it will materially increase VLJ operator costs, which will in turn result in less growth for the proposed air taxi services. It's only the corporate-owned jets that pay a pittance (the GA fuel tax) for using the costly ATC system. The good news is that fractional and air taxis might well pay less under a Nav Canada type fee system.

What is the Demand for VLJs over the Next 10 Years?

My best guess is that perhaps 300 of the VLJs will be sold annually for the next 10 years. This volume does not support the number of VLJ manufacturers that are

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entering the space. In the long run, the deep-pocketed established manufacturers will be the winners, and no operator will want to take a risk betting on an upstart manufacturer that may be bankrupt in a few years.

VLJs primarily will be used by owner-operators who will want to lease to cover part of their ownership costs. This arrangement will result in too many VLJs chasing too few passengers in the charter business. Middlemen will act as brokers, and aircraft management firms will facilitate the use of the aircraft.

Very few owner-operators will be able to earn their cost of capital. The good news is that more VLJs will be sold than would be practical if return on capital were the only measure of value. Pride in ownership and ego will play a major role in terms of how many units are sold. High fuel costs and new ATC user fees will dampen demand.

Also, let us not forget the real reason many are getting into the game – the IPO. There is indeed a need for short hop VLJ charters, but I am finding it increasingly difficult to make the case for investing in the on-demand air taxi business model. I simply do not buy into the “disruptive technology” and paradigm shift” arguments that manufacturers and air taxi upstarts are promoting in an effort to raise capital. Too much capital is sloshing around the system, and more than likely, many of these risky projects will actually get off the ground. It will be the retail investor who ends up getting burned.

Like the dot.com bubble that finally burst, the VLJ hype will result in lots of investors falling in love with the technology and “on-demand” concept. Few will really understand the business fundamentals and most will lose money in this investment space.

A successful IPO or two will enrich a lucky few. Jet-powered air taxi services simply extend the scope and range of air taxi services that have been around for many years. Personal convenience is the big seller, but costs have to be low enough for the manufacturer and operator to gain the economies of scale required to survive for the long run. The air taxi business, like the charter and airline business, is fundamentally a wealth-destroying business. VLJs simply will make it more fun and exciting to lose money. And let's not forget about the bragging rights. ✈

About Vaughn Cordle, CFA: Vaughn Cordle, CEO and chief analyst of Airline Forecasts, LLC, is an airline analyst and consultant to various hedge funds, government agencies, corporations, and consulting groups. Vaughn has over 25 years of experience in the airline industry, and is a senior B777 captain for a major airline and a member of the NY Airline and Securities Analysts Society. He is ATP rated in the LR-J, CE500, A320, B727, B737, B747-4, B757, B767, and B777 aircraft, and holds 33 world and national speed records.

Airline Forecasts, LLC recently completed a study on VLJ demand. For information, email vaughn@airlineforecasts.com.

About Airline Forecasts, LLC: Airline Forecasts specializes in transportation research and education, focus on the future in order to answer the question “What happens next?” The firm examines the critical forces and factors that drive an airline's growth, earnings, and market value, and analyzes airline performance, identify and assess industry trends, and build operating, financial, and valuation models.