

New Rate Transparency & Benchmarking Tools a Boon in Volatile Air Cargo Market; Tech Leaders Like DSV and K+N Stand to Gain

Summary

We recently hosted a call with Peyton Burnett and Robert Frei of the TAC Index—the first ever set of air cargo pricing indices for major global trade lanes of sufficient quality and timeliness to be used as the Settlement Price for air cargo contracts. The Indices enable more transparent price discovery, benchmarking tools for various industry participants, and new contractual relationships like Index-linked Agreements or Air Freight Forward Agreements (with the help of companies like F.I.S.), which in turn allow better risk-management in a volatile global air freight environment. Messrs. Burnett and Frei discuss recent IT developments that made this product possible, market forces that shaped its need, and insights from the data itself. Below are our key takeaways and an edited transcription from the call. Stifel has no opinion on, and is not responsible for, the views expressed in the transcript by participants who are not employees of Stifel.

Key Points

- **Only recently have advances in Freight Forwarder IT Capabilities enabled the collection and transmission of data of sufficient quality and regularity to be useful for Settlement Price applications.** The problem was threefold: 1) industry consolidation left many forwarders with disparate systems cobbled together from their constituent target properties, 2) fragmented geographies and decentralized operations led to siloed information, e.g. bifurcated accounting and operational systems, 3) old fashioned attitudes and resistance to technological progress. These problems are being addressed and corrected, but it is still a slow process.
- **Many forwarders are only just upgrading their IT systems, but competitive forces are compelling change. Many legacy players have chosen to outsource their IT systems to companies like CargoWise, and once on-boarded onto updated platforms and systems, it is very easy to automate** the transmission of transactional pricing data to the TAC Index, and thus gain access to rate benchmarking tools and various other KPIs and market intelligence functionality.
- **Pricing Developments:** Over the last 20 years, airfreight rates have been going down annually by about 2.5% on a global level. The downward trend was accelerated by the financial crisis in 2008, but fundamentally, had much to do with the growth of air cargo capacity by carriers adding new aircraft with much larger payloads. In late 2016, the pricing trend snapped sharply in the other direction due to:
 - Overall economic recovery and a need to replenish stock (cyclical)
 - Rapid consolidation and volatility in both pricing and service in the ocean freight industry, especially following the demise of Hanjin (mostly structural, in our view).
 - The rapid proliferation and growth of ecommerce, which soaks up a lot of incremental airfreight capacity (structural).
 - Airlines exercising greater control and discipline with regard to capacity deployment, especially regarding full freighters.
- **Capacity Outlook:** Both Boeing and Airbus are predicting average annual air cargo demand increases of ~4% for each of the next 20 years. Bearing in mind that both companies do like to sell airplanes, these figures are significant, and the number of conversions is expected to exceed deliveries of new freighter aircraft. The market will likely see a lot of A320s, A330s, and 767s being converted, with these aircraft generally being used for ecommerce applications of 6-8 hour max flight time, and newly-built freighters going into long haul service. Main deck freighter-to-passenger mix is likely to remain 50/50 in terms of cargo capacity providers. And deployment of freighters is being led by the U.S., followed by Asia Pacific, and then Europe.
- **Ecommerce remains a primary driver of capacity deployment, affecting many facets of the business:**
 - The types of aircraft brought into service: belly capacity may not serve the appropriate gateways, and intra-continental fulfillment moves favor medium-wide body airframes
 - Flight service intervals: 24-hour replenishment and order cycle for ecommerce and a priority on speed-to-customer
 - The lanes/geographies being served: again, ecommerce fulfillment center footprints may necessitate service to/from non-conventional gateways, and emerging economies with burgeoning middle classes are seeing huge demand—e.g. Malaysia, Indonesia, and India.
- **More capacity updates from the coal face:** a number of 777s are starting to get long in the tooth and are becoming costly to maintain, which is driving a lot of new orders. But supply constraints are unlikely to ease for the next couple of years at least, especially when considering that maintenance facilities are near full utilization, and delivery of new stock takes time.
- **Investment Conclusions:** Generally speaking, we see a structurally tight supply-demand dynamic in airfreight, driven principally by

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secular ecommerce trends and shifting supply chain strategies. Due to shortages in pilots, maintenance personnel, gateway capacity, and the delayed onset of new/converted capacity, that dynamic should persist for some time. We believe the freight forwarders who help shippers to address these structural supply chain issues stand to gain, especially those at the leading edge of innovation, who are able to respond to changes in the market, automate previously manual and cost/labor-intensive processes, and adapt and integrate new tools and technologies will be winners. The most obvious examples of such forwarders, in our view, are DSV A/S (DSV-DK, DKK 553.80, Buy) and Kuehne Nagel (KNIN-CH, CHF 145.50, Hold). Other beneficiaries include Atlas Air Worldwide (AAWW, \$59.52, Buy) and ATSG (ATSG, \$22.60, Buy), covered by our colleague David Ross.

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**pricing as of 10/8/18 close.

Bruce Chan:

Thank you to all of our listeners for joining us today for a call featuring the TAC Index and what I think is a very innovative new set of tools that are enabling greater transparency and benchmarking in the air freight pricing arena. I want to extend a big thank you as well to our speakers—The TAC team is joining us from all around the world. Between us, we have London, Bangkok, and Miami all represented on the call today. Apart from being very international, the TAC team is comprised of a number of very seasoned players in the air cargo industry. Managing director Peyton Burnett has spent over 20 years in the aviation sector, with a particular emphasis on aircraft charter. Robert Frei, who is the business development director, has been in the industry for over 25 years and he has held top positions at some of the world's largest air freight and logistics operators. From FIS, we also have Michael Gaylard, Head of Strategy, and Harriet Heathcote, Air Cargo Business Development Manager on hand. They will be discussing some of the applicability of the TAC indices in the area risk management and air cargo futures.

Peyton and Robert are going to start us off with some background behind the product. They are going to discuss the genesis of the indices, the product development process, and some of the end goals and applicability. They are also going to talk to us about what's happening in the air freight and environment right now, especially with regard to pricing and capacity. As usual, we are going to leave some time at the end for your questions after running through the slide deck. So without further ado, I'll hand the reins over to you, Peyton.

Peyton Burnett:

Hello everybody. I'll kick things off with a little background on myself and then I'll hand it over to Robert to fill his bio out a little bit. My family has been in the aviation and shipping businesses for a long time, so it's been a multigenerational thing for me. I have been very much focused on the airline side—particularly charter—and my experience has included things like being the in-house charter for broker UTI and laterally with Japan Airlines. As you can probably hear from my accent, I'm educated in the UK. I went to Durham University and read engineering. Most of my friends and colleagues went and worked in finance, becoming derivative hedge fund traders and the like. And after spending time with these guys 18 or 20 years ago, I thought I'd see if I could bring any of their concepts over to our antiquated air cargo market. One of the guys said, "if carriers can hedge fuel and currency, why can't you hedge your air cargo rates?" And I said, "I don't know." And so, that was the inception of the TAC Index at that point, or at least the concept behind it.

One of the guys suggested I take a look at the steel index to see if I could apply that methodology onto air cargo. So, I had the message, I was looking for the data, and I initially went to see IATA, who had some datasets that could have potentially been used to generate an index. But there were a couple of issues with the IATA datasets: first, they weren't built to be used in settlement pricing in financial markets, and secondly IATA is an airline association, so they are therefore deemed not to be neutral and therefore have to delay any aggregated published data that is pushed out. It was at that point that they said, "we can't do it, but why don't you have a chat with Robert Frei." Obviously, I knew from his time at Panalpina. He had been looking at this idea from the forwarders' perspective. And that's really how the index came together and how we formed the basis of a forwarder-centric tool for the market.

Robert Frei:

Thanks Peyton, and good morning to everyone. As Peyton mentioned, I have spent over 35 years in the industry and most of that time was with the Panalpina Group. At Panalpina, I was in charge of air freight globally and held that role for 15 years until I left the company in 2011. From my experience, I found that we always basically had three major issues.

One of them was to explain to the management and to prove on a neutral basis that we were procuring as-good or better-than the market. Second, there was always the emotional discussion between procurement and the sales because sales always heard from the market that the rates out there were much better than what we were procuring. And third, leading up to the IPO and talking to all the analysts, we never had a good source of neutral benchmarking information to give everybody a good understanding to realize how big the synergies could potentially be going forward and obviously post IPO when doing some major acquisitions.

As an industry, we tried to establish this kind of transparency through a London-domiciled joint venture company between airlines and forwarders called Global Freight Exchange. At that time, though, we really tried to do too much. We wanted to have an e-booking platform as a capacity management tool and a rate repository. And then came the price-fixing investigations into the airline industry and later on in the freight forwarding industry. We had to sell off the company and it was acquired by Descartes Systems Group, who integrated basically everything that we implemented and invented into today's products. So, this closed the circle, and then Peyton reached out to me and I said, "yeah, okay, let's try this again, but this time, we'll get it right." One of the pre-conditions was obviously that I would leave the industry to be neutral. We then went to the DOJ and the European Competition Commission and presented our case and got the green light to proceed. And that's where we are now. So, Peyton back to you to start with the overview.

Peyton Burnett:

So, moving to the overview in **Exhibit 1**, we start off at Bloomberg. We went live on Bloomberg about a year or so ago and over the course of the year have been gaining traction in the financial community. We've been running data, testing our datasets and staff, and we are quite encouraged by the quality and timeliness of the data. So, basically we're in your playing field. The product itself, as we've touched upon before, is really the first cargo index to be built as a settlement tool, and can also be used as a benchmarking tool for industry players. Predominantly, we're a tool for the forwarders and it just so happens that we offer subscriptions to other users who effectively pay for us to build the service out.

Exhibit 1: TAC Index Overview

Bloomberg. TAC Index is published on Bloomberg (ARCIHNEU Index: Search "TAC Freight") so we are on the financial markets' field of play.

Product. TAC Index has developed the 1st ever air cargo pricing indices for major global trade routes that can be used at the Settlement Price for both physical and paper contracts. These indices will enable air cargo futures to be traded as a risk management tool, and will enable all industry parties to benchmark their air cargo rates against the wider market. This will bring transparency to one of the last major commodities in the world to never have been indexed – a US\$70 billion market carrying 35% of global trade even though it is 1% of trade by volume.

Background. TAC Index is substantially ahead of any competitor in air cargo indexation, is forecast to enable a very large derivative and subscription market, while significant barriers to entry exist for any other potential parties seeking to enter the market.

Team. The management team behind TAC Index comprises highly experienced executives in air cargo, economics, commodity derivatives, quantitative analysis, data aggregation and software engineering.

Air Cargo Market Structure: Top 25 forwarders account for approximately 50% market share by revenue. No one forwarder dominates the market. Top 50 Origin-Destination Pairs (i.e. HKG-ORD) account for approximately 50% market share by revenue. Globally, international freight handled by airports was up 9.9% to about 73 million tonnes. Value of goods shipped daily is US\$18.6B. Growth in E-commerce is increasing demand for air cargo.

Sources: IATA, Boeing, Industry Data

To give you some background, air cargo is a \$70 billion market and makes up 35% of global trade by value, even though it's only 1% of trade by volume. And we currently have no risk management tools in our market (FIS can touch upon that in the Q&A). So, we have been working on this solution for a number of years. We started about seven-and-a-half or eight years ago and we've slowly been chipping away at onboarding the freight forwarders. We only get our datasets from the forwarders. They are respectively in control of the market, so to speak, so that is where we source our datasets.

One of the main reasons that this concept has only just become possible is that the freight forwarders have only recently begun to centralize their IT systems. Now, they can basically press a button and see what their trading position is from, say, Hong Kong to Chicago. So, they might ask themselves, "how do I compare against the market? Oh wait, I can't, because no one produces an index." And they would have been right—no one produced an index, until now: the TAC Index. Moreover, not only can they compare against the market as a whole, they can also compare against their basket of peers and look at an array of various KPIs.

To give you a feel of the playing field and the air cargo market structure, the last thing I'd like to point out is that the top-25 forwarders account for approximately 50% of the market by revenue. But the forwarders in that top stratum are still quite fragmented. So, for example, DHL on the Hong Kong-Amsterdam route might equate to 10%-15% of the market. So, we only have to be 30%, 40%, or 50% representation in terms of the market to be a real significant number for the market. Again, we're looking at the top-50 origin and destination pairs from that Hong Kong-Chicago or Shanghai-Amsterdam type of lane, and that represents 50% of the market by revenue. So, when we publish our indices, we will only be looking to publish those top-50 pairs. And we're hoping to get there by year end.

Generally speaking, cargo is growing. Freight handled by airports was up 9.9%, or about 73 million tonnes. And the real push for air cargo is coming via ecommerce, which has changed the buying cycle to a 24-hour cycle. Increasingly, there is someone at 1:00, 2:00 or 3:00 in the morning deciding to buy a product. They are keying that order in and it then literally gets pushed straight to the factory. And this new crop of ecommerce consumer has been conditioned to get their goods as quickly as possible. So, that's a very broad overview of the product, its genesis, and the industry framework that we're operating in. I'll now hand it back over to Robert to talk more about the *raison d'être* in **Exhibit 2**.

Robert Frei:

So, as explained earlier, the industry obviously is fairly complex and highly-fragmented. The air cargo industry is still probably one of the most regulated industries, which is ostensibly for safety and security, but also advertently or inadvertently shields-off competition and protects national interests. The associations around the industry are not extremely flexible. So, the pricing transparency has not been readily accessible for a number of reasons. One of them has been mentioned by Peyton already: the freight forwarders, partially due to numerous acquisitions over the last couple of years have always had different IT systems, and it was very hard to have the data centrally available. Also, the invoicing procedure between airlines and forwarders are rather complex—they have two week cycles, then there is an opportunity to make corrections and that normally takes about 60 days until IATA has all the numbers together. Finally, there are antitrust reasons. This last factor is why we decided at a very early stage to only accept one source for the data: the freight forwarders. We get that data—transactional data—out of their operational accounting systems.

Exhibit 2: Raison D'être

The air cargo industry is asset intense, highly regulated for a number of reasons and very fragmented.

Pricing transparency historically has not been readily accessible for a number of reasons. Amongst others due to lack of data being centrally available near real time, complex pricing mechanisms between airlines and freight forwarders (partially still in existence), lack of proper forecasting by shippers/consignees, challenge of cost allocation between passenger and cargo to name a few.

In order to address some of the issues the TAC Index was set up to bring transparency to the market by working with a single data source, being the freight forwarders. This to ensure there is consistency and clarity using a simple but acceptable and understandable (also by non-industry experts) formula.

Goal is to allow the air cargo industry to benefit from accepted pricing instruments in other markets e.g. bulk ocean freight, steel, that are currently not available. Floating rate contracts, neither physical nor paper, exist in the market. TAC is working with the industry to change this.

Shippers now depend on time consuming and expensive (for all participants) tender processes for price discovery, which however ends for the shippers on the day the tender is closed. Using TAC Index as the Settlement Price, the accepted industry standard, new contractual relationships e.g. ILA. (index linked Agreements) are being introduced together with the help of companies like F.I.S. providing paper solutions in the form of AFFAs (Air Freight Forward Agreements) is the next logical step to manage risk.

Source: TAC Index

Furthermore, there is a huge challenge in pricing for the airline. If you just take the aircraft, the allocation of the crew cost, fuel costs, and other costs between cargo and passengers is extremely difficult. So, from the airlines' perspective, only until recently did they even know what the overall cost was as far as the cargo section. They were just basically going by revenue only. So, we have actually set out to bring this transparency to the market with one single data source via the freight forwarders, ensuring that there is consistency, clarity, and an understandable and acceptable formula. I'll go into this more in a minute. We really set out to have accepted pricing instruments that are modeled on other markets and that have been in use for many years. Air cargo is really the last industry that has not adopted this methodology, even though they are turning around a lot of money with very slim margins. So, we have set out to change this deficiency, and we seem to be on a good path now.

One of the points I did not mention earlier but that is key is to get independent benchmarking for discussions with the shippers because there is always discussion when prices go up and the forwarders and airlines increase prices. But when prices are going down, you typically don't hear as much from those same shippers. Also, shippers today are using tenders as means of price discovery, but they may be getting 30% or 40% discounts from the first offerings. The day the tender is closed, they lose visibility again because there is no neutral benchmarking. Therefore they have always tried to come in the low seasons, lock in for one or two years, and then hope prices would go up in the meantime. Forwarders and airlines both have been hit badly by these patterns in 2016 and 2017, so there is a willingness now to look at the index-linked agreements that have a guarantee that the principal will pay market price but not too high and not too low. The acceptance is widening. This is the area where we are working with FIS, so Harriet can talk about it a bit later in the Q&A as far as what they are doing.

Exhibit 3: Lane Focus

Goal is to publish the top 50 Origin & Destination pairs by revenue (source: IATA).

There is strong correlation between the index on the lane Hong Kong to London and Hong Kong to Manchester/Leeds thus the TAC Index can be used for a greater number of Origin & destination pairs. Premiums and discounts within contract negotiations can therefore be used as the adjustment mechanism assuming a contract is settled against TAC Index data sets.

Additionally there is also correlation between general cargo rates (the sole focus of the TAC Index) and other products e.g. temperature controlled, perishables, valuables (e.g. bullion).

For the financial sector we are also producing route baskets. The reason for this is that the data pools are much deeper and therefore more liquid. Baskets would be used when settling cleared paper contracts.

Source: TAC Index

Moving on to **Exhibit 3** and our lane focus, our goal is not to cover the entire world. This would not be relevant for what we are doing. We are focusing on the top 50 origin-destination pairs by revenue. Obviously, this changes a little bit all the time depending on the marketplace, but in principal, we have 60% of the market covered here. There is always very strong correlation between parallel markets. For example, we are already publishing Hong Kong to London, and that lane has a strong correlation with Hong Kong to Manchester/Leeds. So, it is easy to make your own calculations if you need to understand what the development was on a specific, but non-covered lane.

Obviously, service levels can still be accounted for. It is just a matter of negotiation, adding discounts or surcharges around the index price. So, there is still a lot of room for service level customization. But we are focusing purely on general cargo rates. The reason is that general cargo still constitutes a majority of transactions and it is relatively simple to build other products and premiums on top of general cargo trends—for example, a premium for temperature control or premiums for perishables. The people who are in this industry normally know whether it is a 10% premium or a \$10 premium, and whatever the difference is and think they can easily work out their pricing range on the basis of the TAC Index. For the financial sector, we have also produced these route baskets because we initially set off on the lowest granularity, which is the origin-destination. We are now building on it and have had request from the financial industry to have more liquidity, which we can achieve by pooling the data. One of the route baskets we are publishing is Hong Kong/China to Europe, which will then be followed by Hong Kong/China to the USA.

The company was set up in 2012 and we have been working with the data provided to us by our initial providers to develop the formulas and algorithms. That has been followed by a lot of testing and verification and probability tests. As you can see in **Exhibit 4**, we are currently publishing from Hong Kong to JFK, Los Angeles, Chicago, Frankfurt, Amsterdam, and London, and then we have origin-to-country and origin-to-region coverage, including Hong Kong to USA, and then Hong Kong to Europe and North America, respectively. North America is defined in accordance with IATA and includes Canada, USA, and Mexico.

We started in Hong Kong because we all have a Hong Kong background. Peyton and I each lived there for a number of years. And Hong Kong today is still the most complex air cargo market in the world. So, if you can prove things work from the Hong Kong market, they should work from any other market as well. We have also started publishing Shanghai to Amsterdam and Shanghai to Europe and then we are also publishing from Frankfurt to Shanghai, China; Frankfurt to Southeast Asia; and Frankfurt to North America. As Peyton already mentioned, the goal is to have our top 50 origin-destination pairs and related route baskets ready by the end of Q4 2018. The ramp up has been slow but now we have gained a lot of momentum, we have signed up a lot of data providers, and we are currently testing the data and hope to have our full route list up and running by year end.

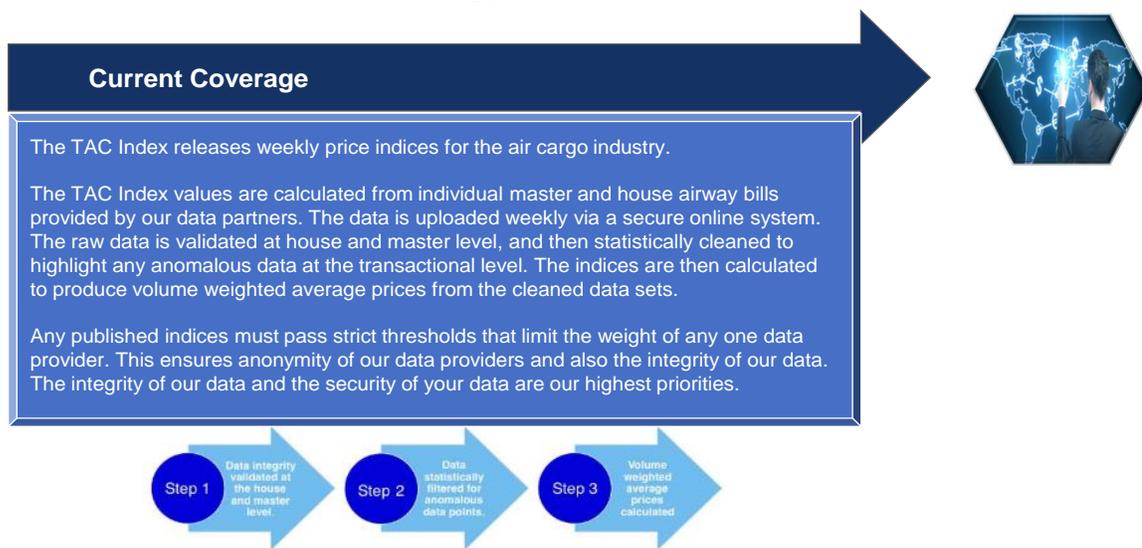
Exhibit 4: Current Coverage



Source: TAC Index

In **Exhibit 5**, we start to get a bit technical, but I think it is important to understand our methodology. We are the only ones who are publishing weekly prices based on transactional data. And we calculate the information from data that we receive both from individual master and house airway bills. This is important to really be able to run all the security checks due to statistical filtering and deliver additional KPIs to the forwarding industry, which nobody else offers. Obviously, everything is done fully-encrypted in a secure environment and therefore confidentiality is 100% guaranteed. So, we have strict thresholds that we need to meet both from antitrust perspective, but also from the financial market requirements. This is one of the reasons why we cannot say which lanes we will be able to publish next. It's not by choice; it's really by number of data providers, distribution, market share, and all these relevant thresholds we need to meet.

Exhibit 5: Data Collection Methodology - Description



Source: TAC Index

Exhibit 6 provides a brief model on how the information flows. We get the data from the data providers by Monday morning at 9:00 am UTC for the previous week. Then we have about three hours to process it and by Monday at 12:00 UTC, we are publishing. So, people are uploading data in a secure, encrypted environment and then we validate all the data. We strip out all the erroneous data and then we run the statistical filtering, taking out all the minimum shipments or the express shipments and all the outliers, high and low. We also consider whether any data providers are dominating the lane and weight them down or balance appropriately so that the numbers are really representative. Then, on the basis of this clean data, the calculation is done. This entire process, including the price calculations, all happens in the backend server. Only the final result is pushed to the front end, so there is not a single piece of raw data in the front end in case we ever get hacked; nobody has access to it and data cannot be reverse engineered. This safeguard is also one of the antitrust requirements. Once cleaned and processed, we sell the product to subscribers—the analysts, airports, shippers, and airlines. The data providers get the product free of charge normally through an API push. So, this data provider upload is generally an automated process and there is no intervention required.

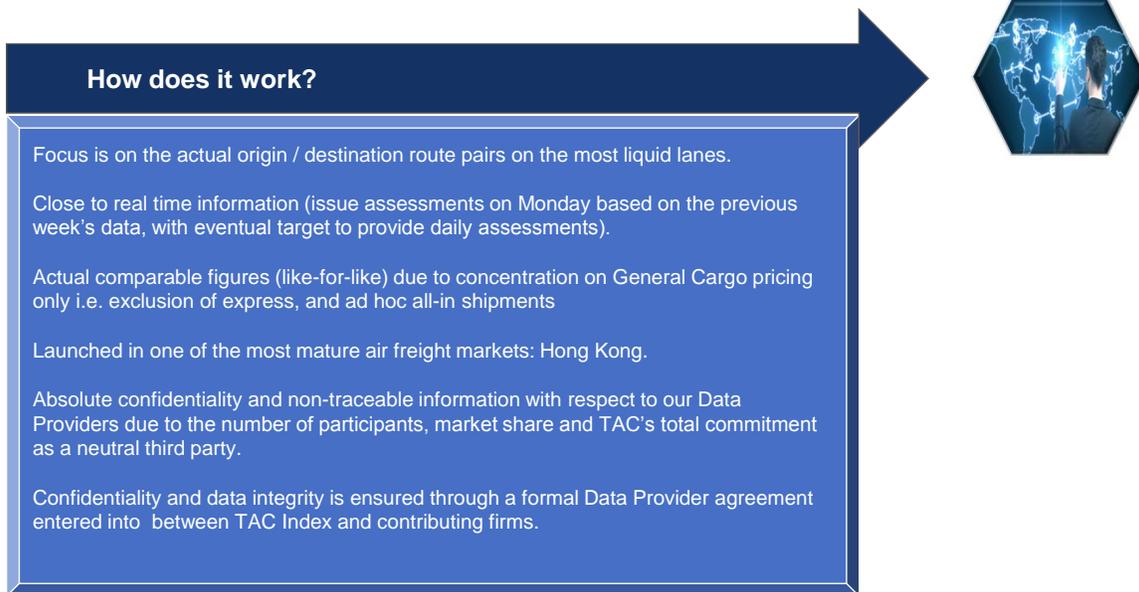
Exhibit 6: Information Flow – All Based on Transactional Data



Source: TAC Index

Some of what we show next in **Exhibit 7** may be repetitive, so I'm going to cover it quite quickly. The focus of the product is on the actual origin/designation route on the most liquid lanes, and we will soon also be able to show the catchment areas. And I think it is important for airports and for freight forwarders to know that, on the basis of our upload times, we are very close to real time. We would actually be ready to process the data on a daily basis, but there are still some restrictions as far as how much time the forwarders need to process the data, so at the moment daily publication is not possible.

Exhibit 7: Product



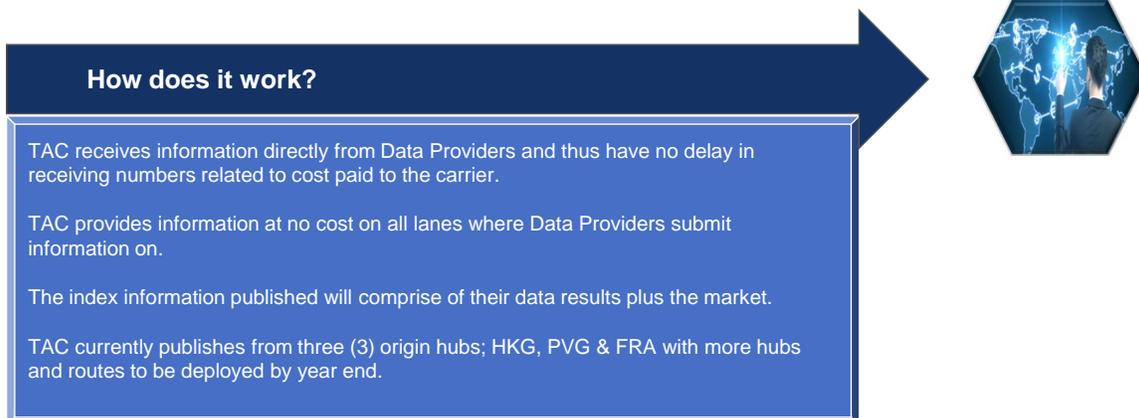
How does it work?

- Focus is on the actual origin / destination route pairs on the most liquid lanes.
- Close to real time information (issue assessments on Monday based on the previous week's data, with eventual target to provide daily assessments).
- Actual comparable figures (like-for-like) due to concentration on General Cargo pricing only i.e. exclusion of express, and ad hoc all-in shipments
- Launched in one of the most mature air freight markets: Hong Kong.
- Absolute confidentiality and non-traceable information with respect to our Data Providers due to the number of participants, market share and TAC's total commitment as a neutral third party.
- Confidentiality and data integrity is ensured through a formal Data Provider agreement entered into between TAC Index and contributing firms.

Source: TAC Index

Due to our concentration on general cargo, we are really looking at like-for-like comparable figures. And as I said, we launched in Hong Kong, give that it is the most mature air freight market. Finally, and important characteristic of the product is that the information is non-traceable and absolutely confidential—we guarantee confidentiality through a formal data provider agreement. We have listed companies and US-based companies that have passed the agreement through their legal department and everything all seems to be working very well. Moving on to **Exhibit 8**, the process is that we get a set of data from the data providers, so we have no delay in getting all the information regarding cost paid to the carrier. And then TAC provides data on all lanes at no cost to the data providers on those lanes where they submit data (as long as they keep providing it).

Exhibit 8: Product (continued...)



How does it work?

- TAC receives information directly from Data Providers and thus have no delay in receiving numbers related to cost paid to the carrier.
- TAC provides information at no cost on all lanes where Data Providers submit information on.
- The index information published will comprise of their data results plus the market.
- TAC currently publishes from three (3) origin hubs; HKG, PVG & FRA with more hubs and routes to be deployed by year end.

Source: TAC Index

Exhibit 9 talks about the actual product. What we publish to subscribers is the so-called Actual Net Price (ANP). For this information, we take the all-in airport-to-airport cost paid to the carrier, which includes the air freight, the fuel, and the security costs, if applicable. This is the combined rate (but it does not include any build or break, or handling, or customs fees) and then we divide it by the total gross weight or actual weight on the master air bill. The reasons why we have chosen this formula is that it eliminates discussion about the aircraft used, about the different density effects of the various product groups, and it's also clear and easy for everybody to understand.

Exhibit 9: Product



Source: TAC Index

For the forwarders, we also provide the Net Achieved Price (NAP), which includes the so-called consolidation benefit. However consolidation is a risk-taking value-added-service by the freight forwarder, so we keep this proprietary. The forwarders also receive some KPIs like relationships between the number of house airway bills to master airway bills, and other metrics that may be relevant for them but would be confusing for the open market. So, this is principally what the product does and what the methodology is.

Exhibit 10: Pricing Developments

Pricing in air cargo did have a downward trend up to 2016 by about 2.5% annually since mid-90s. This was accelerated by the downturn of the overall economy starting in 2008.

Another reason was the overall growth of air cargo capacity by carriers adding new aircraft which do have in addition bigger freight capacity in their bellies (e.g. B777 can carry up to 20 tons over a flight time of 12 hours compared to the A380 which only carries about 5 tons of freight).

In 2016 the situation has changed dramatically for the following reasons:

- Demand growth triggered by the recovery of the overall economy and need for stock replenishment.
- Crisis and resulting uncertainty in ocean freight with the bankruptcy of Hanjin.
- Demand growth as result of increased e-commerce.
- Better control over capacity deployment by carriers; in particular full freighter capacity.

Source: TAC Index

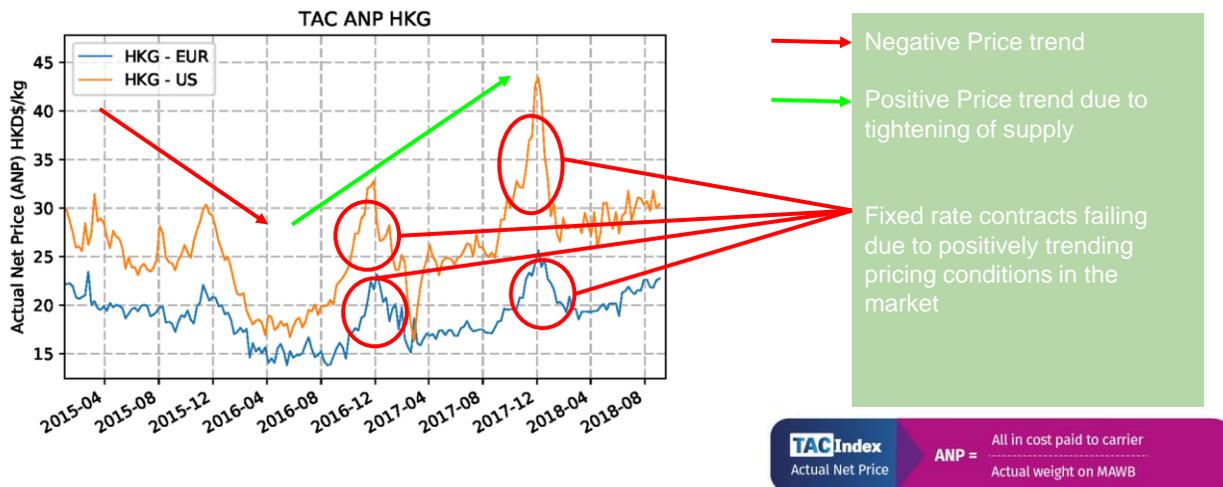
Now, in **Exhibit 10**, we will discuss some of the pricing developments and why the timing is very good to launch such an index and to distribute it more widely. Over the last 20 years, airfreight rates have been going down annually by about 2.5% on a global level. Obviously, this downward trend was accelerated by the downturn of the economy as a result of the financial crisis in 2008. Another reason was the overall growth of air cargo capacity by carriers adding new aircraft with much higher capacity. The example I use is the Boeing 777, which can carry up to 20 tons over a flight time of 12 hours. When you think about British Airways flying five times a day from London to New York, they can carry about the equivalent of one full 747 freighter. And obviously, you still had many of the existing main deck freighters still out there.

But the situation changed dramatically in 2016, and most people were caught by surprise. Several factors drove the inflection. First, the overall economy started to recover and everybody had to replenish stock. Second, many shippers had been moving from air cargo to ocean freight, but volatility and uncertainty driven, among other factors, by the bankruptcy of Hanjin got people very scared, and supply chains shifted back to airfreight. Third, ecommerce has increased dramatically and it uses a lot of incremental capacity. And finally, the last point, the airlines have now much better control over capacity deployment, especially when it comes to full freighters. They release capacity now only when certain revenue is guaranteed.

Peyton Burnett:

In **Exhibit 11**, we take a look at some of the recent data. What’s going on here is a downward trend coming into 2016 and remains somewhat depressed before rising steeply again at the end of the year. And that’s really where I feel it with my charter business as well. So, what happened is a lot of the forwarders in 2016 were probably all on spot pricing and not expecting the market to shoot up so much. So they got a shock there. And then you can see in 2017, I think they thought they were getting smarter and locked in year-round rates. But then again, this is what happens when the market structure was starting to fail, and so far, you can fix in maybe a six-month or year-round contract, but there is a clause in the contract where an airline can say right I am not stopping that schedule with one or two months’ notice. And what was happening in 2017 is that they were breaking those contracts and then redeploying the same aircraft on the same routes but at a premium, as a charter. So, obviously, that annoyed everyone in the market. One of the things that we are looking to do by producing the index is to allow forwarders and shippers and airlines to actually create tracker contracts.

Exhibit 11: Charts – TAC Chart HKG-US & HKG-EU



Source: TAC Index; Historical Data Sets from 01.JAN.2015

This takes us into **Exhibit 12** where you see that we can start to introduce paper instruments to lock-in pricing and create physical hedges. This exhibit shows a chart that FIS currently produce on a weekly basis, and it is based on our China-Europe basket. We only just got going with this basket quite recently. The idea is that as we deploy new baskets on the main, major, liquid trade lanes—China-Europe, China-USA, Transatlantic both ways, et cetera...there are probably five or seven in total—we would have FIS then produce the forward curve like the one that is shown here. And remember that FIS must be a neutral third party to avoid any idea of signaling. The idea here is to try and really push the market forward, because we only trade maybe six months or a year into the future. Past that, people don't quite know what's going on. So, what we are trying to do is to introduce new ideas and shape how people think about the market and push the market forward while also managing all this whilst doing so.

Exhibit 12: Charts – FIS Forward Curve China-to-Europe TAC Basket (Source: FIS)

03/09/2018

	3 rd Sept	Change	MTD
China - EU (USD/KG)	2.87	+0.06	2.83

Forward Curve - indicative update				
CHINA - EUROPE ROUTE BASKET - USD/KG				
	BID	ASK	VALUE	CHANGE
Sep	3.25	3.35	3.20	0.10
Oct	3.50	3.70	3.60	0.05
Nov	3.70	3.80	3.75	0.00
Q4 18	3.60	3.80	3.70	0.00
Q1 19	3.20	3.40	3.30	0.00
Cal - 19	3.40	3.60	3.50	0.00
Cal - 20	3.85	4.05	3.95	0.00



Commentary: This week sees yet another rise in air freight prices as we enter the beginning of the peak season. Freight Forwarders are already reporting constraints on capacity availability and their desire to lock in volumes as soon as possible. As Apple today announced it will be holding a press conference on 12th September capacity will be even further stretched if new phones are indeed due to hit the shops in Q4. Using Index Linked Contracts and Air Freight Forward Agreements, FIS can help air cargo airlines, freight forwarders and end users to better forward plan their freight and rate exposure.

TAC Index

ANP =

All in cost paid to carrier
 Actual weight on MAWB

Source: FIS

Robert Frei:

We will take a look at capacity developments in the marketplace here in **Exhibit 13**. If you look at the statistics from Airbus and Boeing, you should always bear in mind that they like to sell airplanes. That aside, they are both predicting about 4% annual growth for the next 20 years. Interestingly enough, the number of conversions versus newly-built freighters is much higher, so they reckon there will be a lot of A320s, A330s, and 767s that will be converted. These airplanes are normally used for ecommerce business with up to six or eight hours of flight time. The newly built freighters are then the bigger ones—the 777s or the 747s. But, looking at the overall developments, it is predicted that the split between full freighter airplanes and passenger planes is going to remain 50/50 in terms of capacity providers. The deployment of freighters is mainly to the USA, followed by Asia Pacific, and then Europe. Obviously, one of the main drivers contributing to this deployment is ecommerce. And ecommerce also has an impact on the geographical demand. There are a lot of emerging economies where a middle class is being established, and they have huge demand. We can see that already when we look at Malaysia, as well as Indonesia and India. The requirements in terms of capacity there are huge.

Exhibit 13: Capacity Developments

Both Boeing and Airbus are predicting an annual increase in air cargo just over 4% for the next 20 years.

The number of conversions vs. newly built freighters is about 153%.

With the introduction of new passenger planes and the respective conversions the split between belly and full freighter capacity is predicted to remain at around 50:50.

Deployment of freighters (new/converted) mainly to USA followed by APAC and Europe.

One of the main drivers currently is e-commerce which will also impact the geographical demand, especially in emerging economies where the establishment of a middle class and general increased buying power can be observed, in particular India and South East Asia.

Source: Boeing and Airbus Air Cargo Forecasts

I'll now turn quickly to **Exhibits 14-16**. We have covered a lot of the points in these next few slides, but I would like to summarize the key features of the product again. TAC Index is the only weekly publication based on transactional data. All the others work off declaratory data. We are 100% forwarder-centric. Others have mixed baskets getting information from airlines, shippers, as well as forwarders. The product is free of charge to the providers, and all the developments in terms of new KPIs are driven by the data providers. So, we listen to them and provide to the market what is needed. Ultimately, the goal here is to have a settlement price for air cargo contracts, both physical and paper, and therefore we are fully compliant with all the bodies that are ruling and regulating this world.

Exhibit 14: Product – Road Map Through Year-End 2018 (1)

Technical Development Road Map - Short Term <2 Months

1. Update system to accept shipment volume.
2. Add AWB versioning - next couple of weeks.
3. Release PVG-US with one week delay.
4. Work on improving filters to allow releasing PVG data with no delay.
5. Update system to allow flexible origins (Country, City) rather than just Airport origin.
6. Look at country outbound (US, UK, CN).

Road Map



Source: TAC Index

Exhibit 15: Product – Road Map Through Year-End 2018 (2)

General Development Road Map - Mid-Term <6 Months

1. Offer sub sector indices for direct / indirect routing.
1. Add more KPIs:
 - Y-O-Y comparison in addition 52 week average
 - Average weight per consolidation
 - Average weight per HAWB per consolidation
 - Ratio of HAWB per consolidation (MAWB)
 - Add capacity available on the respective O&D pair on weekly basis
2. Top 50 OD Pairs by revenue published.
3. Top 5-7 Route Baskets with associated FIS Forward Curves published.
4. Launch of Index Linked Agreements (ILAs) & Air Freight Forward Agreements (AFFAs) by air cargo community (forwarders, carriers, shippers).
5. Reuters and Bloomberg to publish fuel surcharge values.
6. In discussions with exchanges regarding clearing paper contracts. Working towards IOSCO certification.

Road Map



Source: TAC Index

Exhibit 16: Product – Road Map Through Year-End 2018 (3)

Weekly Publication based on transactional data

Forwarder Centric Tool (only forwarders are accepted as data providers and have access to premium features)

Free of charge for data providers

Development Features (new KPIs) driven by Data Providers

Built to be used as the Settlement Price for Air Cargo contracts (Physical & Paper contracts) and are correspondingly compliant

Main Features



Source: TAC Index

Peyton Burnett:

Thanks a lot Robert. Just to conclude, and maybe offer a little bit more on the capacity development side of things. These are just bits and bobs that might be of interest to you and sort of chatter of the coal face. A lot of these 777s are starting to get long in the tooth and are now becoming costly with regard to maintenance and so that's why you are seeing some new orders of those coming in. You are also getting this supply constraint in the market still, and it's probably not going to ease for the next couple of years at least, whereby the actual maintenance facilities are all near full utilization. And then lastly there is quite a lot of military equipment being pushed around, which is taking some of the capacity out of the commercial market. So I'll just finish off with that and hand it over for the Q&A.

Questions & Answer

Bruce Chan:

All right great. Well thank you to you both for the great presentation. It was certainly very informative as far as understanding what the TAC Index does, why it's needed, and some of the contextual dynamics that were facing in the marketplace right now. Peyton, you mentioned that only recently have developments in IT really enabled a product like the TAC Index to exist and proliferate. Obviously, there are some freight forwarders out there that are further ahead in the IT development game, and some that are further behind. Do you think the biggest barrier to further adoption among the forwarders is still related to IT capabilities? Or are there other barriers and pushbacks that you are getting from them?

Peyton Burnett:

Yeah, I mean it's essentially two fold. One is IT capabilities. And a lot of forwarders are still only upgrading their IT systems now. So, whilst they may have signed up now, they actually can't provide us with data until the middle or end of 2019. But at least we know they've signed up. Historically, there was no real need to publish this data quickly. But now their competitors are doing it. And a lot of these legacy guys have essentially chosen to outsource their IT systems to companies like CargoWise, and there are three or four other competitors to CargoWise that do that. But once these legacy forwarders are on-boarded onto those systems, it's then very easy for them to produce the necessary data templates in a timely and automated manner. So, once they are essentially linked into our system, there is no further work required by the forwarder. And so it's all automated and they like that. But obviously, they don't want to give us the data beforehand, because it is a very manual process. I'll also add that in the past, a lot of the forwarders tended to separate the finance and operational systems, so even now that they have combined their two data sets, in some cases, they can still only give us historical data for maybe a year and two, and the other data sets are too rough for us to use—they're not clean enough.

And then on the other side we've gone through the pain and it's much easier to bring people over seeing that we're publishing now. So, initially we had worries about antitrust issues because we had big problems in our market in the 2000s. But because we follow the correct protocols, and particularly because we anticipated the index could be used for the financial markets, the regulators are all on board, and we have proven that this concept works. Now, it is really just a question of whether the market feels that these datasets that we are providing are of value. Obviously, we get our data from the forwarders so they are the most important people to us. What I can say is that everyone that is working with the datasets is extremely happy with the quality and timeliness and tends to expand from there.

And I just want to touch upon some of the other users. From the shippers, in a downward-trending market, it doesn't matter because they can just lock in the flat rate for a year and get that price. But now, with rates that are going upward, what happens when the markets break down like they did in Q4 and the counterparty says, "oh, you are now going to pay another 30%"? That is obviously not a nice place to be. I think on the airline side, they have had legacy datasets, but they've never had sets that are originally sourced from the forwarders. And again, the timeliness of the data is key. Because there is now a general push for what people feel is a fair contract, I think there is more willingness to enter into a basket agreement, whether that is from the forwarder to an airline, or, with a slightly different contract, between the forwarder and a shipper. At the end of the day, there are still a few pockets of resistance who just don't want to give us their data because they think they are performing better than the market. Or maybe they drive their data decisions by other means.

Bruce Chan:

And just a quick follow up: obviously there has been a lot of talk recently about this crop of digital disruptors in a number of the freight intermediary industries—especially freight forwarding. Do you think an environment with greater pricing transparency makes it easier for those disruptors to compete? Or perhaps it doesn't matter because transparency is inevitable and the TAC Index, whether it exists or not, doesn't really affect the competitive outcome? Can you talk a little bit about that? Is there reluctance on the part of some of the incumbents to offer up their data because they believe that keeping it opaque is a barrier to new competitive entrants?

Peyton Burnett:

Perhaps I'll start with this and then hand over to Robert. Generally speaking, what we're looking to produce is something where the industry users look at our prices and say, "that's a fair representation of the market," whether they are buyers or sellers of the market. And there is an average price for an average service. And the thing is, if you are going into a mature market like Hong Kong, they essentially already have a grey market there where you could ask any of the forwarders or any of the airlines what the price is today and they can quote you an amount in Hong Kong Dollars a kilo for Hong Kong-Amsterdam. So, that pricing transparency is in the market, it's just that what we are trying to do is expand it out. And I think one of the things that helps with is allowing the head offices of the forwarders to get a better perspective of what's happening in the market. They are not just reliant on hearsay from the local station managers.

Robert Frei:

I think there are three points that are really important. This whole rate discussion between airlines and forwarders or between forwarders and shippers is always extremely emotional. And what we are really doing here is taking the emotion out of these discussions. Number two, what we are achieving with this is that the forwarders and the shippers who are buying the services at the end of the day can clearly distinguish between service levels and also value-added-services provided by the forwarders and keep these prices more or less stable even though air freight rates are fluctuating. They are the biggest part of the door-to-door cost, obviously, and before, there has always been discussion that the whole end to end price is moving up and down. With this new tool that we are introducing, the value-added-services can be decoupled. Third is obviously the big issue about the tenders.

I mentioned that the shippers are doing this manually, which is extremely time intensive and costly. If we have FFAs in place, basically this whole tender situation can be abolished. So, from that perspective, people who embrace transparency and who are convinced that their customer service, value-added service, and their solutions are good enough to be able to compete—they embrace it. The ones who just live old school and the non-educated shippers, they obviously don't like it too much. But I think it's pretty obvious who is going to make the waves here.

Speaker #1:

Hi guys I work in North American Ground Freight on a similar index that is also on an O-D level, just in a different shipping industry. I'm really curious how you guys are thinking about a couple of things on your roadmap. You mentioned service sub-sector indexes for direct and indirect routing and you referenced baskets a lot. I'm just curious to hear how you guys are thinking about that and developing that within the TAC Index. Great call and good job, I appreciate it.

Robert Frei:

Okay, let me quickly answer the technical part on how we differentiate between direct and indirect. This is fairly easy and it can be done by a number of flight numbers on the master airway bill. If you have a direct flight on Hong Kong-Amsterdam or Hong Kong-London you have only one flight number. If it goes via Seoul, for example, you have two flight numbers, and we have found a technical way to easily identify this. But the point really is we need to crawl the universe—I always say we need to grow the cake, because if you slice it too thin, all you are left with is crumbs and then the quality is not where it needs to be. So, once we have grown the cake we can really cut it in all different shapes and sizes.

Peyton Burnett:

Yeah, then maybe on the financial side, this could be an opportunity for either Michael or Harriet to come in.

Harriet Heathcote:

From our side, from the financial side—I'm not quite sure whether you're asking how it's been on the trading side?

Speaker #1:

I'm specifically asking about your concept about route baskets: how you develop and how you use them and what factors you use to determine what a basket is and where you use it.

Peyton Burnett:

I see, okay I'll take that one then. What we do is just the nature of how the forwarders generally supply the data to us. They tend to give us everything from a country origin. So, from China for example, the dominant airport there is the PVG Shanghai. And so for our Europe basket, we have a 50/50 set weighting split from Shanghai to everywhere in Europe, and Hong Kong to everywhere in Europe. And that essentially covers nearly 70% to 80% of that trade lane. So that's really how we publish our basket. We are talking with the exchanges at the moment to make sure that we're compliant and what we are trying to do with these baskets is it's create as deep datasets as possible so that when we do look to deploy hedging instruments in the markets, they will really be just done off these very broad trade lanes because they are all very closely correlated. So, if you do Hong Kong and Shanghai to Europe, the volatility will closely correlate to Hong Kong-Amsterdam or Shenzhen-Gothenburg. It will still move up and down in a similar manner. Maybe Harriet can describe a little bit about how FIS generates the forward curve and what that represents.

Harriet Heathcote: Okay. Perfect. So, the forward curve for anyone who is familiar with any kind of forecast is the forecast of where we believe freight rates are to be at a certain time, whether it's next month or whether it's next year. That is shown on that curve. And the curve is actually made up of a combination of different factors: some of it is from the index, some of it is from the color that we get from the markets from people who look to trade it or will be looking to trade it. So, we ultimately—and it's a good check point for us because we look at the index—we then talk to people who are in the market—buyers and sellers on both sides. If they are saying, “well actually, yes the index is absolutely spot on,” that's what you would call the midpoint or the value and then you can look at both sides as the ability to buy and sell to trade over the index. So, this forward curve itself is a forecast, which is usually built off historical data of the TAC index and then on the projection using the market color and other inputs for the feature.

Bruce Chan: So, maybe this is a question for Harriet, but Peyton and Robert, feel free to chime in. As you look at the data right now and as you look at the forward curve, is there anything that that's telling us about how this peak season is looking relative to historical norms, if there is such thing as historical norms anymore?

Harriet Heathcote: So, I suppose yes, absolutely. It's based on historical data and trends, but at the same time it's an estimate and it's an educated estimate. So, it is very much projection. So, that's really unhelpful answer I know but it's a forward curve that FIS has produced based on our market knowledge and the rest of the index and everything that we can get our hands on. It's also dependent on us speaking to market leaders or market makers and everybody who is in the industry to tell us where they are and if we're on point and where they see it because of course, if you are talking to an ecommerce shipper they might foresee a big seasonal upswing this peak season, whereas if you talk to a more conventional retail shipper—certainly in the UK coming into Europe—the retail shops are taking a big hit due to web online shipping. So, if you are talking to a traditional retail shipper, they might not see the same spike that an ecommerce or a digital shipper might. So yes it absolutely follows the trend and it should show the historical trend but not as a rule, it's very much dependent on talking to everybody.

Peyton Burnett: So, just some quick background—we do actually have a preliminary China-US basket that we will be deploying soon. I think, generally, people are waiting to see what will happen with the tariffs and how a lot of these manufacturers respond. I do a lot of work with Japan Airlines and Japanese manufactures, so they have got or are getting all their contingency plans in place. Many of them are planning to shift a big chunk of their production—something like 30% for the auto guys—quickly to Southeast Asia, Korea, and Japan, which will likely cause a boom or a real tightening in capacity from those markets. But at the moment, everyone is still somewhat in a holding pattern waiting to see which way they are going to go.

Bruce Chan: Okay. So, what I'm hearing is that maybe we haven't seen that in the data yet, but if it does happen, we should see it relatively quickly?

Peyton Burnett: Yeah, so the idea is that you can actually use our data extensionally to see what is happening and be able to tell which way the market is breaking.

Bruce Chan:

Okay. Well, we are already over time here so I'll let everybody get along with their day—especially for our team over in Asia and Europe where it's getting late. Once again, I want to extend a big thank you to the TAC team and FIS team for joining us today. If you have any questions feel free to reach out to me here at Stifel at chanb@stifel.com. I'll be more than happy to put you in touch with Peyton and Robert. Thank you to all of our listeners, thank you to our speakers, and I hope you all have a great weekend.

END

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