



February 13, 2017

RBC Flight Deck

RBC Fare Survey pointing to positive fare growth to start 2017

RBC Fare Survey pointing to positive fare growth QTD. Both Air Canada and WestJet are seeing positive fare growth in the first six weeks of Q1/17 (as per the RBC Fare Survey). We clearly saw a fare price lift in early January from WestJet, which was followed by more modest fare price increases by Air Canada. This is reflective of the commentary from WestJet on the Q4/16 conference call, noting that they had implemented a couple of fare increases more recently to help offset higher jet fuel prices. For WestJet, the RBC Fare Survey is pointing to fare price growth at +2.8% quarter-to-date. After adjusting down by 50bp to account for stage length changes, it implies a yield of +2.3% Y/Y, which compares to our current Q1/17 yield estimate at +2.5%. For Air Canada, the RBC Fare Survey is pointing towards positive fare growth of +0.7% Y/Y quarter-to-date. After adjusting by 350bp to account for stage length changes, it points towards a yield decline of 2.8%, which compares to our current Q1/17 yield estimate at 2%.

Ringier reviews for the CSeries. Airlinest recently had their resident pilot expert take the CSeries on a full test run. Overall, the pilot was highly impressed by the CSeries from a flying perspective, calling the CSeries the new icon in its class. Further noting that he was impressed with the aircraft's handling ease, responsiveness and performance reserves. Passengers seem to like the CSeries as well - now that the plane has been in commercial service for several months. Flyers seem to like the on-board experience, praising its large cabin windows, high humidity and low noise levels (the engines on the CSeries are up to 20 decibels quieter than on comparable planes). With the ringier reviews, we will be looking for another ramp in CSeries sales, in particular as Bombardier heads into the Paris Air Show in mid-June.

In This Edition...

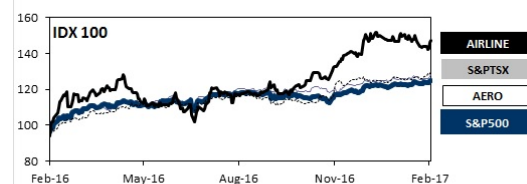
- **RBC Fare Tracker (p. 2):** Seeing positive fare growth, as per the RBC Fare Survey.
- **The Load Factor (p. 3):** Traffic demand remains robust.
- **The Bombardier New Order Heat Map (p. 4):** Looking for sales momentum as the CSeries flies revenue generating routes.

RBC Dominion Securities Inc.
Walter Spracklin, CFA
 (Analyst)
 (416) 842-7877
 walter.spracklin@rbccm.com
Derek Spronck (Analyst)
 (416) 842-7833
 derek.spronck@rbccm.com

Steve Arthur, CFA (Analyst)
 (416) 842-7844
 steve.arthur@rbccm.com
Niki Shi (Associate)
 (416) 842-5338
 niki.shi@rbccm.com



INDEX	1-M (%)	YTD (%)	1-YR (%)	TREND
S&PTSX	2.0	2.9	29.1	Δ
S&P 500	2.1	3.5	25.1	Δ
AMEX Airline	(2.1)	(0.1)	44.7	▼
AMEX Aerospace	3.1	5.2	30.7	Δ



COMMODITIES	1-M (%)	YTD (%)	1-YR (%)	TREND
WTI	4.2	(1.5)	38.9	Δ
Jet Fuel	8.6	2.6	70.7	Δ
CAD/USD	(1.1)	(2.6)	(6.0)	▼

AEROSPACE				
Bombardier	4.0	18.4	229.5	Δ
Boeing	4.5	6.8	42.9	Δ
EADS	(1.2)	2.5	23.0	▼
Embraer	13.2	21.2	(18.9)	Δ
General Dynamics	4.6	6.8	38.6	Δ
Textron	(2.1)	0.7	52.8	▼
United Technologies	(0.2)	1.3	27.7	▼

N.A. MAINLINE				
Air Canada	0.0	(0.6)	82.7	Δ
AMR	(4.2)	(0.5)	25.1	▼
Delta	(3.3)	0.1	13.8	▼
United	(1.4)	(0.4)	52.2	▼

N.A. REGIONAL				
Alaska	5.8	9.7	45.6	Δ
Allegiant	(3.8)	2.9	13.0	▼
Chorus Aviation	(2.7)	(0.8)	39.0	▼
JetBlue	(12.0)	(11.7)	(1.6)	▼
SkyWest	(0.8)	(0.5)	145.3	▼
Southwest	6.6	9.8	53.9	Δ
WestJet	(3.9)	(3.7)	45.4	▼

INTL. AIRLINES				
Lufthansa	8.1	2.7	0.2	Δ
Air France/KLM	1.0	(2.0)	(28.3)	Δ
BA/Iberia	1.7	10.5	(2.8)	Δ
Cathay Pacific	0.0	(5.5)	115.6	Δ
Air China	10.1	14.9	26.4	Δ
China Eastern	15.4	18.0	24.7	Δ
China Southern	5.9	14.9	10.5	Δ
Singapore Airlines	0.0	1.8	(10.6)	Δ
Qantas	(0.6)	1.5	(11.7)	▼

Source: Bloomberg

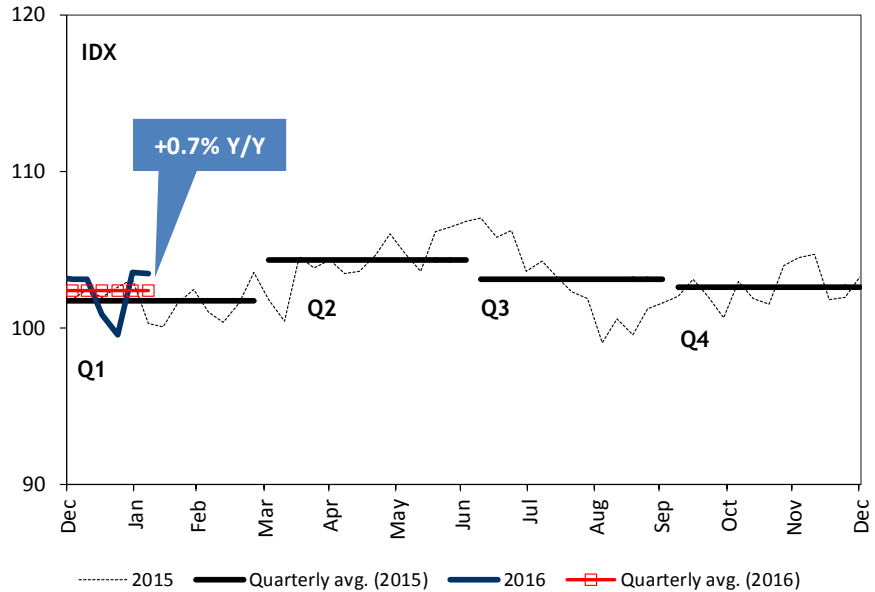


RBC Fare Survey

We present below the results of our RBC Fare Tracker. This proprietary algorithm provides investors a unique snapshot of Air Canada and WestJet’s ticket pricing strategies ... and a window into yield growth trends *before* they are announced.

Air Canada

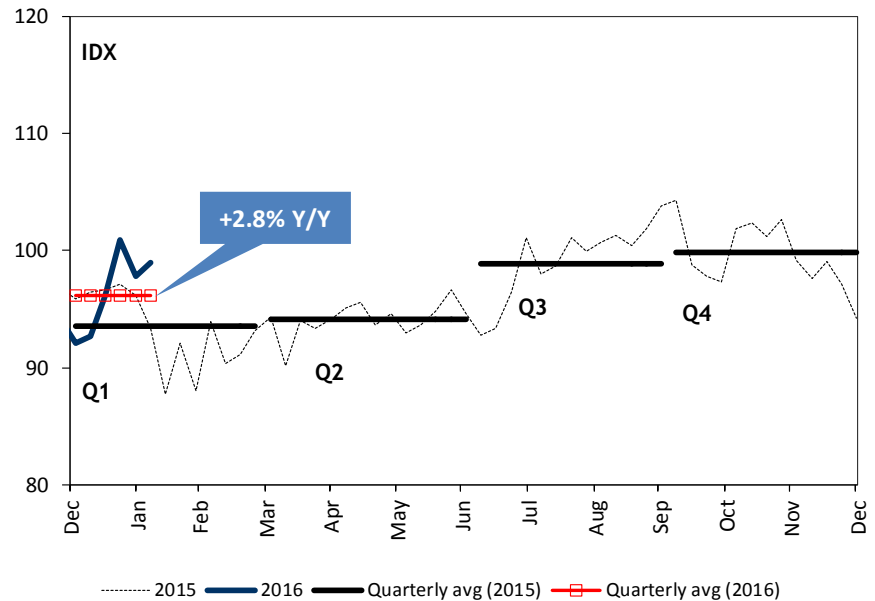
Air Canada is beginning to see positive fare growth Y/Y in the early parts of 2017, as compiled by the RBC Fare Survey. The RBC Fare Survey is pointing towards positive fare growth of +0.7% Y/Y quarter-to-date. After adjusting by 350bp to account for stage length changes, it points towards a yield decline of -2.8%, which compares to our current Q1/17 yield estimate at -2%.



Source: RBC Capital Markets estimates, Company websites

WestJet

We note that the RBC Fare Survey did pick-up a nice lift in fares in January – which points to management’s comments on the Q4/16 conference call that they had implemented a couple of fare increases to help offset higher jet fuel prices. The RBC Fare Survey is pointing to fare price growth at +2.8% quarter-to-date for WestJet. After adjusting down by 50bp to account for stage length changes, it implies a yield of +2.3% Y/Y, as compared to our current Q1/17 yield estimate at +2.5%.



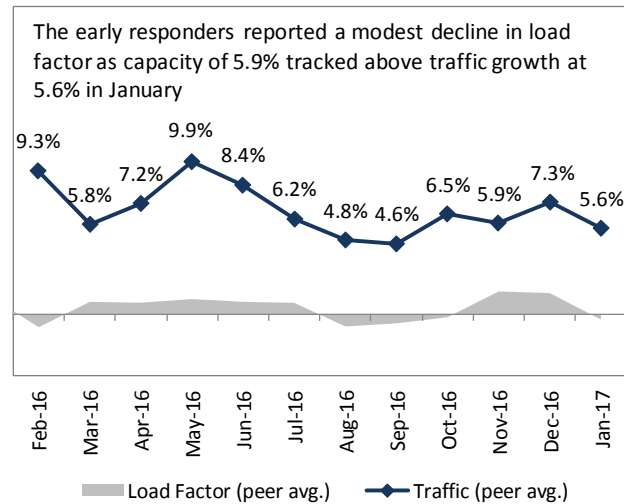
Source: RBC Capital Markets estimates, Company websites



The Load Factor

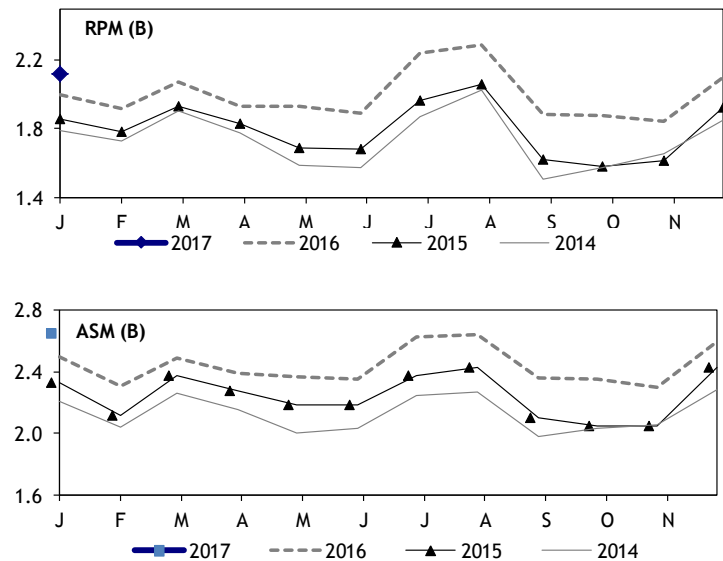
Industry trends

Air Canada no longer provides monthly traffic stats, and as such, we continue to use industry peer data. Our sample includes Delta, IAG, Ryanair, easyJet, Alaska, Norwegian, WestJet, and SouthWest. On average, the early responders reported a modest decline in load factor as capacity of 5.9% tracked above traffic growth at 5.6% in January.



WestJet

WestJet reported traffic growth in January at 6.2% Y/Y (vs. our 5.5%), on capacity growth at 6.3% (vs. our 6%). And while plane utilization slipped slightly and broke WestJet's trend of ten months of consecutive load factor expansion, the reported load factor at 80% still remains very healthy. Management on the Q4/16 call this week did also indicate that they have been able to push through two fare price increases recently, helping to offset higher jet fuel prices. We will be looking at how fares are tracking in light of the 7.5% to 8.5% domestic capacity addition management has earmarked for 2017.











	January		
	2017	2016	Δ
RPMs (B)	2.122	1.998	+6.2%
ASMs (B)	2.653	2.495	+6.3%
Load Factor	80.0%	80.1%	-0.1 pts

Source: RBC Capital Markets estimates, Company websites

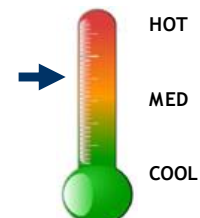
The Bombardier New Order Map

We outline order campaigns in which we believe Bombardier Aerospace (BA) is participating. The bigger the heat, the bigger the potential impact on the BBD shares, in our view.

CUSTOMER	TYPE	SIZE / VALUE	TIMING / COMMENTS	HEAT
Multiple airlines	Commercial: CSeries	Potentially 50+ (~\$3.4B)	With eight airlines with Cseries' order commitments (at 200+ aircraft), BBD could announce several conversions to firm orders.	
Chinese Airlines	Commercial: CSeries	+20 potential order size (+\$1.4B)	BBD flew in the CS300 to Air Show China last month, which generated good interest. With two conditional orders, which includes CDB Leasing (five CS100s and ten CS300s) and Zhejiang Loong Airlines (LOI signed for 20 CS100s) we continue to look for these orders to convert, and potentially new ones in the region.	
Latin American Airlines	Commercial: CSeries	Uncertain	Bombardier is set to take the CSeries on a Latin American tour later this year. The plane is set to stop in every country from Mexico to Argentina – according to Bombardier executives.	
JetBlue	Commercial: CSeries	Uncertain	Following the Delta win, JetBlue has resumed talks with Bombardier. The CSeries may substitute E-190s for short-haul, high-frequency routes out of Boston.	
AtlasJet	Commercial: CSeries	LOI signed for 10 CS300 + 5 options	The LOI was signed November 2011. We expect this order to firm once in-flight data is compiled.	
SpiceJet	Regional: Q400	Up to 50	The carrier is looking to buy 50 additional regional jets and is in talks with Bombardier, ATR and Embraer about placing a large aircraft.	
CityJet	Commercial: CSeries	Uncertain	CityJet chose to take 15 Superjets over 12-year leases. A CSeries order is still possible, but timing has likely been pushed out.	
Delta Air Lines	Regional: CRJ900	Potentially 50+ (~\$2.3B)	Recent Union negotiations failed to secure scope-clause changes for 100-seat jets to be flown by regional airliners. Next opportunity will be in 2018.	

OVERALL HEAT GAUGE

We are maintaining the heat at more elevated levels. With the CSeries now on revenue generating flights, and as performance and dispatch reliability numbers come in, we believe there will be renewed interest in the CSeries. Bombardier management showed renewed vigor on the potential sales ramp following the Air Canada and Delta orders – highlighting interest from Chinese airlines, lessors, and low cost carriers.





Air Buzz

As part of RBC Flight Deck, we highlight news with implications relevant to the Canadian aerospace industry, in particular as related to Bombardier and CAE.

Bombardier

Narrow-bodies

- **Passengers like flying on planes not made by Boeing or Airbus.** According to the Economist, after struggling with production delays and budget overruns, the CSeries is now enjoying a smooth entry into service. Airlines like the plane for its reliability and fuel efficiency. Passengers seem to like the on-board experience, praising its large cabin windows, high humidity and low noise levels (the engines on the CSeries are up to 20 decibels quieter than on comparable planes). The 3-2 seat layout means that only one in every five passengers must endure a middle seat, compared with a third on most 737s and A320s. Plus, Air Baltic and Swiss are compensating those sandwiched between two passengers by adding half an inch (1cm) to the already-ample standard seat width (lifting it from 18.5 inches to 19 inches). (Source: Economist, February 7)
- **And so do pilots...** AirInsight recently had their resident pilot expert take the CSeries on a full test run. Overall, the pilot was highly impressed by the CSeries from a flying perspective. Key observations were as follows:
 - The C Series cockpit layout sets high standards for ergonomics, situational awareness and low workload.
 - Pre-flight checklists are comparatively short. The cockpit is designed for electronic checklist use, to prevent pilots from skipping over or forgetting to return to deferred items.
 - Starting the engines simply requires turning on the run switches one at a time. The aircraft automatically reconfigures bleed air, air-conditioning, electrical and fuel systems for the start and then again when it is complete.
 - Roll response was crisp, but well damped, a tribute to the fly-by-wire control system. It was apparent the aircraft has comparatively little drag
 - The semi-active sidesticks are a leap forward in situational awareness. The speed-stable control law also helps keep flight crews in the loop, providing a natural feel.

Regional Jet

- **CS100 too large for Wideroe.** According to Flight Global, Norwegian regional carrier Wideroe opted for the Embraer 190-E2 after concluding that the Bombardier CS100 would have been too large. The carrier says it considered the CS100 and says the aircraft “does meet our technical and operative requirements”. “However, the size of the aircraft is slightly too big for our market needs,” the airline states. Wideroe is taking three initial Embraer 190-E2 aircraft, fitted with 114 seats. It says the E2 family, with a capacity of 90-138 seats, “fits our market strategy better” than the CS100. (Source: Flight Global, January 17)

Business Aviation

- **Flat is better than down.** After a disappointing 2016, Gulfstream expects deliveries of outfitted business jets to increase slightly in 2017 as the entry-into-service of the G500 replaces the venerable G450 in the market. Gulfstream also has been encouraged by signals suggesting a sales rebound began to gather momentum in the second half of 2016, (Source: Flight Global, January 27)



CAE

Civil

- **Textron Aviation announced significant growth of Cessna Pilot Center Network.** Textron Aviation Inc. has announced its Cessna Pilot Center (CPC) network added 24 new partners in 2016, including five international flight schools in Argentina, Canada, Colombia, Germany and Poland. The CPC network now includes a total of 163 flight schools, with plans for further growth and expansion. (Textron Aviation, Jan 18, 2017)
- **Discussions around lower commercial flight-hour requirement:** Air Force chief of staff notes that adjusting the federal regulation that requires 1,500 flight hours for commercial airline pilots will help mitigate the existing pilot shortage. Non-military training hours were raised from 250 to 1,500 after the 2009 crash of Colgan Air Flight in Buffalo NY. There have been discussions between the Air Force and major airlines on how the two sectors can work together to alleviate pilot shortages; key topics include amending the 1,500-hour flight hour rule, better scheduling reserve requirements, and integration of new training technologies. (Stars and Stripes, Feb 7, 2017)

Military

- **Military Simulation Training Market projected to grow at ~3% through 2026E, to US\$17.7bn by 2026.** Orbis research published its forecasts for the Global Military Simulation and Virtual training market in January 2017. Findings suggest that the Military S&T market is currently valued at US\$13.3bn, and is projected to grow at a CAGR of 2.9% through the 2016-2026E period, to US\$17.7bn by 2026. Current data suggests flight simulators will account for 59% of the global military simulation market, followed by maritime and combat simulators with shares of 21% and 20%, respectively. The sector is dominated with spending in North America, accounting for 36.4% of the market, followed by Europe and Asia Pacific, with 25.4% and 25.2%, respectively. In FQ2/17, CAE reported ~40% of revenues in the military segment, and ~50% of revenues in North America. (Orbis Research, CAE, Jan 27, 2017)
- **Doss Aviation receives \$290MM training contract with US DoD.** Doss Aviation receives a \$290MM 10-year contract to perform undergraduate pilot training services for the US Air Force. The contract includes ground and flight training for pilots, combat systems officers, remotely piloted aircraft pilots, and international military students. The training program will be performed in Pueblo, Colo., and is expected to be completed by January 2027. (Doss Aviation, Jan 17, 2017)



The Landing Strip

Aero India 2017

When: February 14-18

Where: Bengaluru, India

What: Aero India is a biennial air show and aviation exhibition held in Bengaluru, India at the Yelahanka Air Force Station. It is organized by Defence Exhibition Organization of the Ministry of Defence. It is the second largest air show in the world after the Paris Air Show.

The Buzz: The 11th edition of the Aero India will see participation from a total of 549 companies (270 Indian and 279 Foreign), 72 participating aircraft, and witness participation from 51 different countries. In recent years, the Aero India has emerged as one of the world's most important and largest military aviation exhibitions. The Mikoyan MiG-35 and F-16IN Super Viper were unveiled for the first time at the 6th and 7th editions of Aero India respectively.



Appendix 1: Airline Comparables

Symbol	Price	EV/EBITDAR				EV/Sales				EBITDAR Margin				2018 FCF yield	Net Debt to EBITDAR		
		2015	2016E	2017E	2018E	2015	2016E	2017E	2018E	2015	2016E	2017E	2018E				
Discount Airlines																	
WestJet	WJA-CA	C\$	\$22.18	4.5x	4.6x	5.0x	4.7x	1.1x	1.1x	1.0x	1.0x	25%	24%	21%	21%	6.0%	1.9x
Southwest	LUV-US	US\$	\$54.71	6.8x	6.5x	6.5x	5.8x	1.8x	1.8x	1.7x	1.6x	27%	27%	26%	27%	7.2%	0.7x
JetBlue	JBLU-US	US\$	\$19.80	5.2x	4.6x	5.1x	4.9x	1.5x	1.4x	1.3x	1.2x	28%	31%	25%	24%	9.7%	2.5x
Discount Average				5.5x	5.3x	5.6x	5.2x	1.5x	1.4x	1.3x	1.3x	27%	27%	24%	24%	7.6%	1.6x
Mainline Airlines																	
Air Canada	AC-CA	C\$	\$13.59	4.3x	4.0x	4.3x	3.8x	0.8x	0.7x	0.7x	0.7x	18%	19%	16%	17%	18.8%	2.6x
Delta Air Lines	DAL-US	US\$	\$49.26	4.9x	4.8x	5.0x	4.8x	1.0x	1.1x	1.0x	1.0x	21%	22%	21%	21%	10.0%	0.6x
United Continental	UAL-US	US\$	\$72.60	4.3x	4.1x	4.9x	4.5x	0.9x	0.9x	0.9x	0.9x	21%	23%	19%	20%	9.3%	1.4x
American Airlines	AAL-US	US\$	\$46.45	5.0x	5.0x	5.8x	5.5x	1.1x	1.1x	1.1x	1.1x	22%	23%	19%	19%	9.9%	2.3x
Mainline Average				4.6x	4.5x	5.0x	4.5x	1.0x	1.0x	0.9x	0.9x	21%	22%	19%	19%	12.0%	1.4x
Regional Airlines																	
Chorus Aviation	CHR-CA	C\$	\$7.17	7.1x	6.7x	6.4x	5.9x	1.4x	1.7x	1.7x	1.6x	20%	26%	27%	28%	14.6%	4.7x
SkyWest Inc.	SKYW-US	US\$	\$36.25	5.6x	5.8x	5.7x	5.9x	2.0x	2.0x	1.9x	1.9x	36%	34%	34%	33%	13.7%	4.4x
Regional Average				6.3x	6.3x	6.0x	5.9x	1.7x	1.8x	1.8x	1.8x	28%	30%	31%	30%	14.2%	4.5x
Airline Average				5.3x	5.1x	5.4x	5.1x	1.3x	1.3x	1.3x	1.2x	24%	25%	23%	23%	11.0%	2.3x

Sources: Company reports, FactSet, and RBC Capital Markets estimates for Air Canada, Chorus Aviation, and WestJet. Priced at the close of February 10, 2017



Appendix 2: Aerospace Comparables

Company	Exch: Ticker	10-Feb Price	CY EPS ⁽¹⁾				CY PER				CY EV/EBITDA ⁽¹⁾				Mkt Cap B	
			2015	2016E	2017E	2018E	2015	2016E	2017E	2018E	2015	2016E	2017E	2018E		
Aerospace																
Boeing**	NYSE:BA	US\$	\$166.23	\$7.72	\$7.10	\$9.21	\$10.12	20.5x	22.3x	17.2x	15.6x	10.5x	12.9x	9.4x	9.0x	\$101.8
Embraer*	NYSE: ERJ	US\$	\$23.33	\$1.48	\$2.36	\$1.83	\$2.10	14.6x	9.2x	11.9x	10.3x	6.8x	6.4x	6.0x	5.4x	\$4.3
General Dynamics**	NYSE: GD	US\$	\$184.40	\$9.08	\$9.79	\$10.05	\$10.68	19.4x	18.0x	17.5x	16.5x	11.8x	11.5x	11.4x	11.1x	\$55.8
Textron	NYSE: TXT	US\$	\$48.90	\$2.50	\$2.70	\$2.91	\$3.25	19.6x	18.1x	16.8x	15.1x	10.6x	10.6x	9.9x	8.9x	\$13.2
Average								18.5x	16.9x	15.8x	14.4x	9.9x	10.4x	9.2x	8.6x	
Transportation & Conglomerates																
Siemens	XE: SIE	EUR	119.65	6.17	6.93	7.91	8.43	19.4x	17.3x	15.1x	14.2x	13.5x	11.9x	10.5x	9.9x	\$101.7
General Electric	NYSE: GE	US\$	\$29.72	\$1.31	\$1.49	\$1.63	\$1.91	22.7x	19.9x	18.2x	15.6x	15.4x	16.9x	14.9x	13.8x	\$262.9
United Technologies	NYSE: UTX	US\$	\$111.05	\$6.30	\$6.61	\$6.54	\$7.03	17.6x	16.8x	17.0x	15.8x	9.6x	10.0x	10.1x	9.5x	\$89.5
Average								19.9x	18.0x	16.8x	15.2x	12.8x	12.9x	11.9x	11.1x	
Aerospace Multiples								18.5x	16.9x	15.8x	14.4x	9.9x	10.4x	9.2x	8.6x	
Transportation Multiples (ex. GE, UTX)								19.4x	17.3x	15.1x	14.2x	13.5x	11.9x	10.5x	9.9x	
Average								19.0x	17.1x	15.5x	14.3x	11.7x	11.2x	9.9x	9.3x	
Bombardier	TSX: BBD.B	C\$	\$2.57	\$0.16	-\$0.10	-\$0.01	\$0.08	12.0x	nmf	nmf	23.2x	12.4x	16.0x	12.5x	9.0x	\$5.7

* Covered by RBC Dominion Securities, Industrials analyst Derek Spronck

** Covered by RBC Capital Markets, Aerospace and Defense analyst Matthew McConnell

(1) Peer group consensus EPS and EBITDA estimates sourced from FactSet

Sources: Company reports, FactSet, and RBC Capital Markets estimates. Priced at the close of February 10, 2017



Companies mentioned

Air Canada (TSX: AC CN; C\$13.59; Top Pick; Speculative Risk)
 Bombardier Inc. (TSX: BBD.B.TO; C\$2.57; Outperform; Speculative Risk)
 CAE Inc. (TSX: CAE.TO; C\$18.76; Sector Perform)
 Chorus Aviation Inc. (TSX: CHR.TO; C\$7.17; Outperform)
 Embraer S.A. (NYSE: ERJ; \$23.33; Sector Perform)
 WestJet Airlines Ltd. (TSX: WJA.TO; C\$22.18; Sector Perform)

Required disclosures

Non-U.S. analyst disclosure

Walter Spracklin, Derek Spronck, Steve Arthur and Niki Shi (i) are not registered/qualified as research analysts with the NYSE and/or FINRA and (ii) may not be associated persons of the RBC Capital Markets, LLC and therefore may not be subject to FINRA Rule 2241 restrictions on communications with a subject company, public appearances and trading securities held by a research analyst account.

Conflicts disclosures

This product constitutes a compendium report (covers six or more subject companies). As such, RBC Capital Markets chooses to provide specific disclosures for the subject companies by reference. To access conflict of interest and other disclosures for the subject companies, clients should refer to <https://www.rbccm.com/GLDisclosure/PublicWeb/DisclosureLookup.aspx?entityId=1>. These disclosures are also available by sending a written request to RBC Capital Markets Research Publishing, P.O. Box 50, 200 Bay Street, Royal Bank Plaza, 29th Floor, South Tower, Toronto, Ontario M5J 2W7 or an email to rbcsight@rbccm.com.

The analyst(s) responsible for preparing this research report received compensation that is based upon various factors, including total revenues of the member companies of RBC Capital Markets and its affiliates, a portion of which are or have been generated by investment banking activities of the member companies of RBC Capital Markets and its affiliates.

Distribution of ratings

For the purpose of ratings distributions, regulatory rules require member firms to assign ratings to one of three rating categories - Buy, Hold/Neutral, or Sell - regardless of a firm's own rating categories. Although RBC Capital Markets' ratings of Top Pick(TP)/Outperform (O), Sector Perform (SP), and Underperform (U) most closely correspond to Buy, Hold/Neutral and Sell, respectively, the meanings are not the same because our ratings are determined on a relative basis (as described above).

Distribution of ratings RBC Capital Markets, Equity Research As of 31-Dec-2016				
Rating	Count	Percent	Investment Banking Serv./Past 12 Mos.	
			Count	Percent
BUY [Top Pick & Outperform]	834	52.32	279	33.45
HOLD [Sector Perform]	657	41.22	132	20.09
SELL [Underperform]	103	6.46	9	8.74

Conflicts policy

RBC Capital Markets Policy for Managing Conflicts of Interest in Relation to Investment Research is available from us on request. To access our current policy, clients should refer to <https://www.rbccm.com/global/file-414164.pdf> or send a request to RBC Capital Markets Research Publishing, P.O. Box 50, 200 Bay Street, Royal Bank Plaza, 29th Floor, South Tower, Toronto, Ontario M5J 2W7. We reserve the right to amend or supplement this policy at any time.

Dissemination of research and short-term trade ideas



RBC Capital Markets endeavors to make all reasonable efforts to provide research simultaneously to all eligible clients, having regard to local time zones in overseas jurisdictions. RBC Capital Markets' equity research is posted to our proprietary website to ensure eligible clients receive coverage initiations and changes in ratings, targets and opinions in a timely manner. Additional distribution may be done by the sales personnel via email, fax, or other electronic means, or regular mail. Clients may also receive our research via third party vendors. RBC Capital Markets also provides eligible clients with access to SPARC on the Firms proprietary INSIGHT website, via email and via third-party vendors. SPARC contains market color and commentary regarding subject companies on which the Firm currently provides equity research coverage. Research Analysts may, from time to time, include short-term trade ideas in research reports and / or in SPARC. A short-term trade idea offers a short-term view on how a security may trade, based on market and trading events, and the resulting trading opportunity that may be available. A short-term trade idea may differ from the price targets and recommendations in our published research reports reflecting the research analyst's views of the longer-term (one year) prospects of the subject company, as a result of the differing time horizons, methodologies and/or other factors. Thus, it is possible that a subject company's common equity that is considered a long-term 'Sector Perform' or even an 'Underperform' might present a short-term buying opportunity as a result of temporary selling pressure in the market; conversely, a subject company's common equity rated a long-term 'Outperform' could be considered susceptible to a short-term downward price correction. Short-term trade ideas are not ratings, nor are they part of any ratings system, and the firm generally does not intend, nor undertakes any obligation, to maintain or update short-term trade ideas. Short-term trade ideas may not be suitable for all investors and have not been tailored to individual investor circumstances and objectives, and investors should make their own independent decisions regarding any securities or strategies discussed herein. Please contact your investment advisor or institutional salesperson for more information regarding RBC Capital Markets' research.

For a list of all recommendations on the company that were disseminated during the prior 12-month period, please click on the following link: <https://rbcnew.bluematrix.com/sellside/MAR.action>

The 12 month history of SPARCs can be viewed at <https://www.rbcinsight.com/CM/Login>.

Analyst certification

All of the views expressed in this report accurately reflect the personal views of the responsible analyst(s) about any and all of the subject securities or issuers. No part of the compensation of the responsible analyst(s) named herein is, or will be, directly or indirectly, related to the specific recommendations or views expressed by the responsible analyst(s) in this report.

Third-party-disclaimers

The Global Industry Classification Standard ("GICS") was developed by and is the exclusive property and a service mark of MSCI Inc. ("MSCI") and Standard & Poor's Financial Services LLC ("S&P") and is licensed for use by RBC. Neither MSCI, S&P, nor any other party involved in making or compiling the GICS or any GICS classifications makes any express or implied warranties or representations with respect to such standard or classification (or the results to be obtained by the use thereof), and all such parties hereby expressly disclaim all warranties of originality, accuracy, completeness, merchantability and fitness for a particular purpose with respect to any of such standard or classification. Without limiting any of the foregoing, in no event shall MSCI, S&P, any of their affiliates or any third party involved in making or compiling the GICS or any GICS classifications have any liability for any direct, indirect, special, punitive, consequential or any other damages (including lost profits) even if notified of the possibility of such damages.

References herein to "LIBOR", "LIBO Rate", "L" or other LIBOR abbreviations means the London interbank offered rate as administered by ICE Benchmark Administration (or any other person that takes over the administration of such rate).

Disclaimer

RBC Capital Markets is the business name used by certain branches and subsidiaries of the Royal Bank of Canada, including RBC Dominion Securities Inc., RBC Capital Markets, LLC, RBC Europe Limited, Royal Bank of Canada, Hong Kong Branch and Royal Bank of Canada, Sydney Branch. The information contained in this report has been compiled by RBC Capital Markets from sources believed to be reliable, but no representation or warranty, express or implied, is made by Royal Bank of Canada, RBC Capital Markets, its affiliates or any other person as to its accuracy, completeness or correctness. All opinions and estimates contained in this report constitute RBC Capital Markets' judgement as of the date of this report, are subject to change without notice and are provided in good faith but without legal responsibility. Nothing in this report constitutes legal, accounting or tax advice or individually tailored investment advice. This material is prepared for general circulation to clients and has been prepared without regard to the individual financial circumstances and objectives of persons who receive it. The investments or services contained in this report may not be suitable for you and it is recommended that you consult an independent investment advisor if you are in doubt about the suitability of such investments or services. This report is not an offer to sell or a solicitation of an offer to buy any securities. Past performance is not a guide to future performance, future returns are not guaranteed, and a loss of original capital may occur. RBC Capital Markets research analyst compensation is based in part on the overall profitability of RBC Capital Markets, which includes profits attributable to investment banking revenues. Every province in Canada, state in the U.S., and most countries throughout the world have their own laws regulating the types of securities and other investment products which may be offered to their residents, as well as the process for doing so. As a result, the securities discussed in this report may not be eligible for sale in some jurisdictions. RBC Capital Markets may be restricted from publishing research reports, from time to time, due to regulatory restrictions and/ or internal compliance policies. If this is the case, the latest published research reports available to clients may not reflect recent material changes in the applicable industry and/or applicable subject companies. RBC Capital Markets research reports are current only as of the date set forth on the research reports. This report is not, and under no circumstances should be construed as, a solicitation to act as securities broker or dealer in any jurisdiction by any person or company that is not legally permitted to carry on the business of a securities broker or dealer in that jurisdiction. To the full extent permitted by law neither RBC Capital Markets nor any of its affiliates, nor any other



person, accepts any liability whatsoever for any direct or consequential loss arising from any use of this report or the information contained herein. No matter contained in this document may be reproduced or copied by any means without the prior consent of RBC Capital Markets.

Additional information is available on request.

To U.S. Residents:

This publication has been approved by RBC Capital Markets, LLC (member FINRA, NYSE, SIPC), which is a U.S. registered broker-dealer and which accepts responsibility for this report and its dissemination in the United States. Any U.S. recipient of this report that is not a registered broker-dealer or a bank acting in a broker or dealer capacity and that wishes further information regarding, or to effect any transaction in, any of the securities discussed in this report, should contact and place orders with RBC Capital Markets, LLC.

To Canadian Residents:

This publication has been approved by RBC Dominion Securities Inc. (member IIROC). Any Canadian recipient of this report that is not a Designated Institution in Ontario, an Accredited Investor in British Columbia or Alberta or a Sophisticated Purchaser in Quebec (or similar permitted purchaser in any other province) and that wishes further information regarding, or to effect any transaction in, any of the securities discussed in this report should contact and place orders with RBC Dominion Securities Inc., which, without in any way limiting the foregoing, accepts responsibility for this report and its dissemination in Canada.

To U.K. Residents:

This publication has been approved by RBC Europe Limited ('RBCEL') which is authorized by the Prudential Regulation Authority and regulated by the Financial Conduct Authority ('FCA') and the Prudential Regulation Authority, in connection with its distribution in the United Kingdom. This material is not for general distribution in the United Kingdom to retail clients, as defined under the rules of the FCA. However, targeted distribution may be made to selected retail clients of RBC and its affiliates. RBCEL accepts responsibility for this report and its dissemination in the United Kingdom.

To German Residents:

This material is distributed in Germany by RBC Europe Limited, Frankfurt Branch which is regulated by the Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin).

To Persons Receiving This Advice in Australia:

This material has been distributed in Australia by Royal Bank of Canada - Sydney Branch (ABN 86 076 940 880, AFSL No. 246521). This material has been prepared for general circulation and does not take into account the objectives, financial situation or needs of any recipient. Accordingly, any recipient should, before acting on this material, consider the appropriateness of this material having regard to their objectives, financial situation and needs. If this material relates to the acquisition or possible acquisition of a particular financial product, a recipient in Australia should obtain any relevant disclosure document prepared in respect of that product and consider that document before making any decision about whether to acquire the product. This research report is not for retail investors as defined in section 761G of the Corporations Act.

To Hong Kong Residents:

This publication is distributed in Hong Kong by Royal Bank of Canada, Hong Kong Branch, which is regulated by the Hong Kong Monetary Authority and the Securities and Futures Commission ('SFC'), RBC Investment Services (Asia) Limited and RBC Investment Management (Asia) Limited, both entities are regulated by the SFC. Financial Services provided to Australia: Financial services may be provided in Australia in accordance with applicable law. Financial services provided by the Royal Bank of Canada, Hong Kong Branch are provided pursuant to the Royal Bank of Canada's Australian Financial Services Licence ('AFSL') (No. 246521.)

To Singapore Residents:

This publication is distributed in Singapore by the Royal Bank of Canada, Singapore Branch, a registered entity granted offshore bank licence by the Monetary Authority of Singapore. This material has been prepared for general circulation and does not take into account the objectives, financial situation, or needs of any recipient. You are advised to seek independent advice from a financial adviser before purchasing any product. If you do not obtain independent advice, you should consider whether the product is suitable for you. Past performance is not indicative of future performance. If you have any questions related to this publication, please contact the Royal Bank of Canada, Singapore Branch. Royal Bank of Canada, Singapore Branch accepts responsibility for this report and its dissemination in Singapore.

To Japanese Residents:

Unless otherwise exempted by Japanese law, this publication is distributed in Japan by or through RBC Capital Markets (Japan) Ltd. which is a Financial Instruments Firm registered with the Kanto Local Financial Bureau (Registered number 203) and a member of the Japan Securities Dealers Association ("JSDA").

® Registered trademark of Royal Bank of Canada. RBC Capital Markets is a trademark of Royal Bank of Canada. Used under license.

Copyright © RBC Capital Markets, LLC 2017 - Member SIPC

Copyright © RBC Dominion Securities Inc. 2017 - Member Canadian Investor Protection Fund

Copyright © RBC Europe Limited 2017

Copyright © Royal Bank of Canada 2017

All rights reserved