

European Luxury: Global Blue

Tourism spend in March +12%

March Global Blue tourist spend +12% y/y, Q1 +15%, 2016 -6%

Tourism spend is an important component of luxury revenue making up c35% of sales globally according to Bain. Our monthly report on VAT refund provider Global Blue's data gives us a good indication of travel spending trends. For Q1 overall, Chinese tourist spend globally has accelerated to +19% (Q4 -4%). In March, which slowed to +10% against a toughening two-year comparison base, Chinese spending growth was supported by an increase in average spend while the number of transactions remained flat. Early Q1 reporting indicates that Chinese spending worldwide has been up "high single digit" (Burberry) to "extremely strong" (Louis Vuitton) suggesting Chinese spending is growing strongly both in the Mainland and outside Greater China, though Hong Kong remains less dynamic.

By destination: Europe was +15% y/y with France catching up with the UK

In Europe, UK remained the strongest market (+24% y/y) although a deceleration from +55% in February. France accelerated to +21% y/y (+9% in February) while Italy and Switzerland also retained good momentum. In Asia, Korea was down significantly -31% y/y (-11% in February) given the political fallout with China as we discuss below to the benefit of Japan +25% y/y. Most luxury companies have commented that Hong Kong has seen some improvement recently, which we think is likely related to more attractive intra-Asia price gaps.

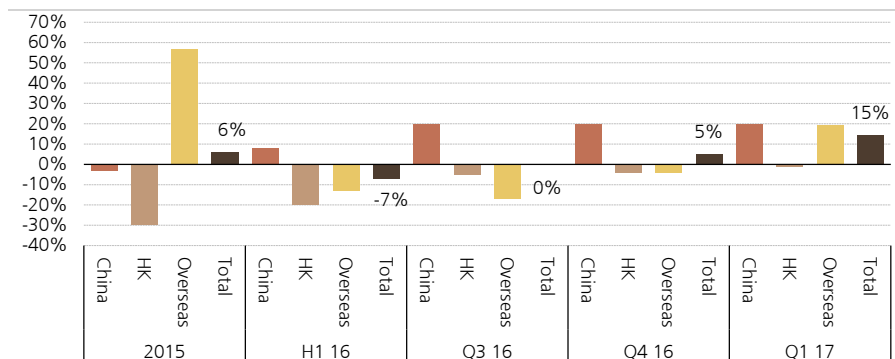
By nationality: US spend accelerated while Middle East spend declined

US tourist spend has accelerated to +26% y/y (+19% in February) due to a stronger currency. On the other hand Middle East tourist spend declined significantly to -7% y/y (+21% in February). Russian spend remains strong, posting +41% y/y mainly due to a stable rouble and better consumer confidence.

China's South Korea travel ban likely to have an impact on this market in 2017

The Chinese government has forbidden travel agencies to sell trips to South Korea as a result of political fallout from Korea's deployment of a US missile defence system. The ban affects group travel, independent travel and cruises etc. Bain estimates c.7% of Chinese spend globally is done in Korea (2% of luxury sales globally).

Figure 1: UBS estimate of Chinese consumer spend growth y/y



Source: UBS estimates

Equities

Europe including UK

Textiles & Apparel

Helen Brand

Analyst

helen.brand@ubs.com

+44-20-7568 4395

Fred Speirs

Analyst

fred.speirs@ubs.com

+44-20-7568 8829

Amy Xiang

Analyst

amy.xiang@ubs.com

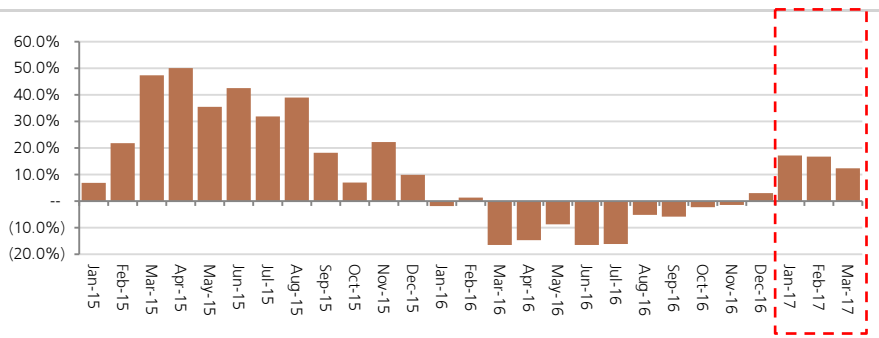
+44-20-7568 4411

Key Takeaways: March spend lower than previous months, Q1 strong at +15% y/y

(1) Global Blue March spending +12% y/y, Q1 +15% y/y (constant FX)

Global Blue provides us with constant FX figures, and data on a LFL basis excluding new merchants working with Global Blue less than 12 months. Tourism spending slowed in March (+12% y/y) compared to +17% y/y in January and February, which benefitted from Chinese New Year.

Figure 2: Worldwide tourism spending via Global Blue was +12% y/y in March, with Europe (+15%) growing faster than APAC (+6%)

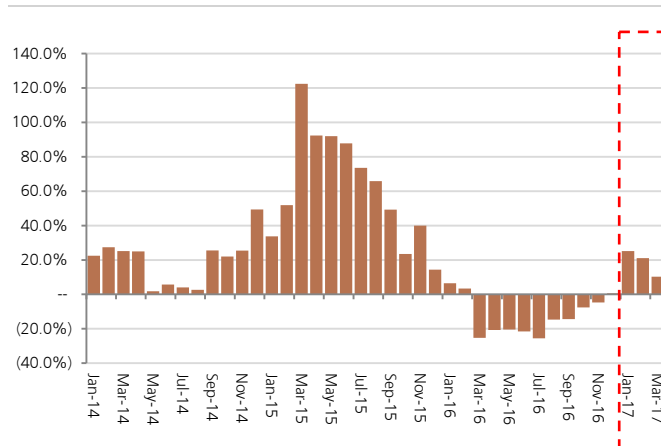


Source: Global Blue Intelligence © Copyright Global Blue (2017)

(2) Chinese tourism spending in Europe and Asia ex HK has increased significantly in Q1 +19% (Jan +25%, Feb +21% and Mar +10%)

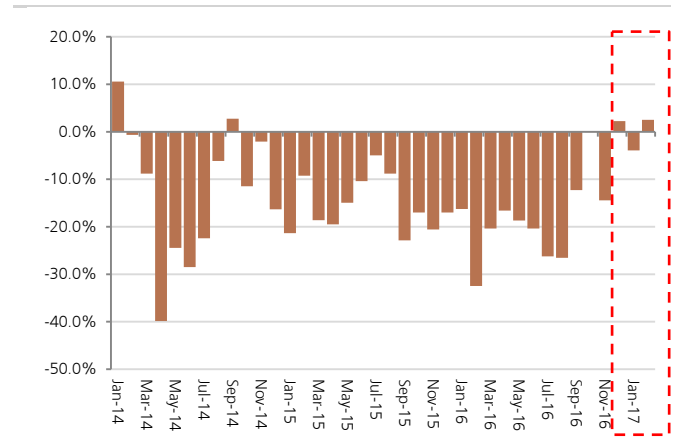
With Hong Kong also stabilising this implies at least a low double digit increase in spend for the Chinese consumer outside the Mainland in Q1 supported by the important Chinese New Year spending period. We see this as a good indication of materially improving trends with the important Chinese consumer which we believe is being driven by structural growth from the middle class as well as being boosted by cyclical factors including strong property prices. In March, the Chinese spend growth is supported by an increase of average spend while the number of transactions remains flat.

Figure 3: Chinese tourism spend (c40% of Chinese spend globally we estimate) via Global Blue was +10% in Mar. after +21% in Feb.



Source: Global Blue Intelligence © Copyright Global Blue (2017)

Figure 4: Hong Kong (c20-25% of Chinese spend globally we estimate) watches/jewellery retail sales in February +2.5% y/y (January -3.9%)



Source: Datastream

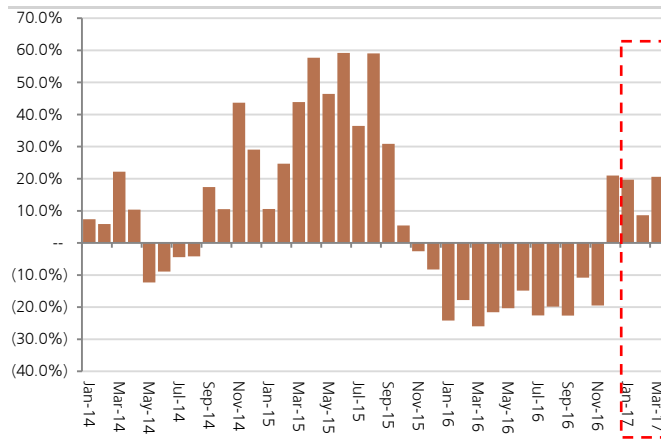
* Global Blue is the leader in VAT refund transactions. It operates one of the world's biggest Tax Free shopping networks with over 270,000 retailers in 43 countries. This means that the spending through its networks is a good proxy for tourism spending in the luxury sector across Europe and Asia. Tourism spending accounts for more than 50% of sales in Europe (>15% of global sales) and according to Bain up to c35% of sales for the luxury industry globally. This means that this data is meaningful for global spending.

We estimate that Chinese spend globally has increased by mid-teens in Q1

(3) By destination in Europe (+15% y/y): UK the main growth driver (+24% y/y) while France was also strong (+21% y/y)

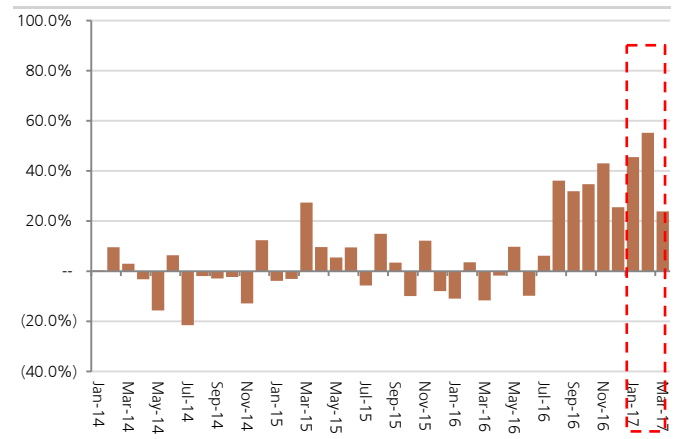
The UK was again the outperforming market +24% y/y helped by the weaker pound, although lower than February (+55% y/y). France, the biggest single country for tourism spending in Europe, saw strong momentum in the month +21% growth y/y after +9% in February. Italy was stable month on month +12% (Feb. +13%) while Switzerland accelerated to +19% (Feb. +13%). We will monitor with care the region for possible negative impacts from recent terrorist events on growth.

Figure 5: Tourism spending in France +21% y/y – Mar.



Source: Global Blue Intelligence © Copyright Global Blue (2017)

Figure 6: Tourism spending in UK +24% y/y – Mar.

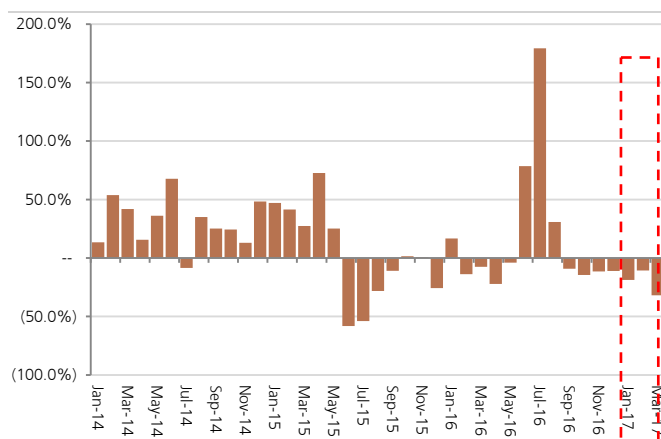


Source: Global Blue Intelligence © Copyright Global Blue (2017)

(4) By destination in APAC (+6% y/y): Korea is being impacted by political fallout with China (-32% y/y), benefitting Japan (+25% y/y)

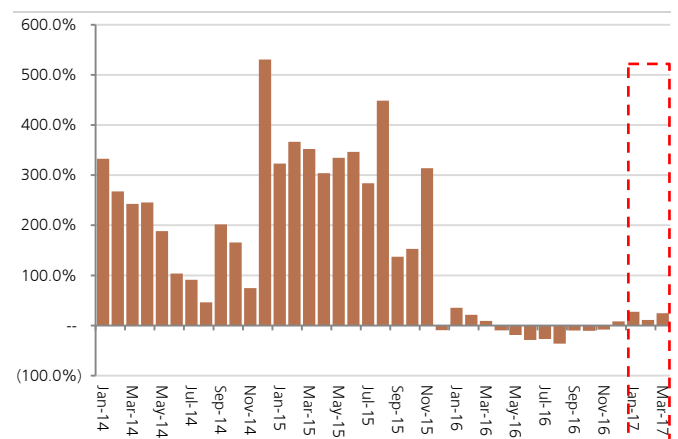
Korea is suffering from a traffic perspective with the Chinese (who typically account for >70% of tourism spend) due to political instability. Spend here declined in March -32% y/y (Feb. -11%). Japan has benefited from transfer of Chinese tourism spend, growing +25% y/y (Feb. +11%), and so has Singapore with tax free spend back to growth after 8 quarters of decline.

Figure 7: Tourism spending in Korea -32% y/y – Mar.



Source: Global Blue Intelligence © Copyright Global Blue (2017)

Figure 8: Tourism spending in Japan +25% y/y – Mar.



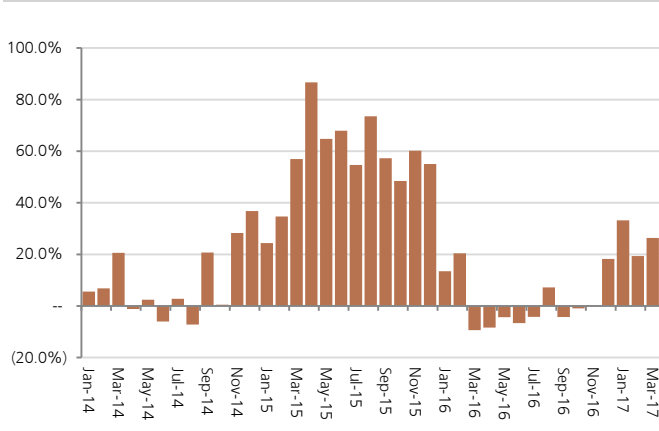
Source: Global Blue Intelligence © Copyright Global Blue (2017)

(5) US consumer spend accelerated while Middle East spend declined

The US tourists are benefitting from a strong currency, which led to +26% y/y increase in spend this month (Feb. +19%), mainly focused in Europe. On the other

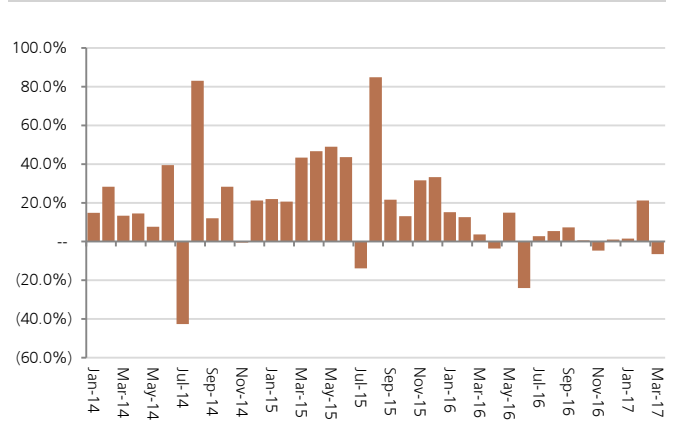
hand Middle East tourist spend declined -7%/y/y (Feb. +21%). Russian spend remains strong, posting +41% y/y in March mainly due to a stable rouble and better consumer confidence.

Figure 9: US tourism spend +26% y/y – Mar.



Source: Global Blue Intelligence © Copyright Global Blue (2017)

Figure 10: Middle East tourism spend -7% y/y – Mar.

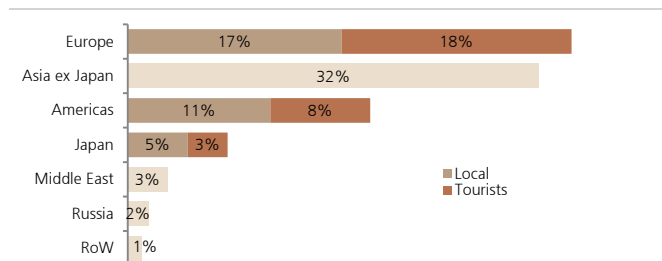


Source: Global Blue Intelligence © Copyright Global Blue (2017)

Spend by Destination: March tourist spending slowed

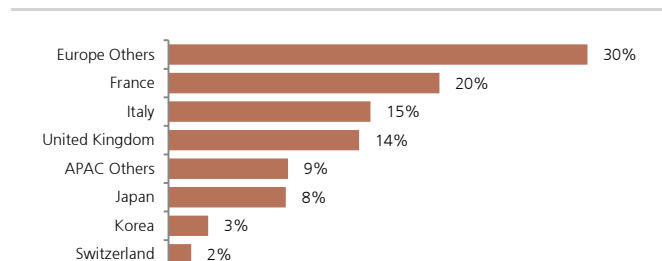
Tourism spending slowed in March +12% y/y compared to +17% in January and February, which benefitted from Chinese New Year. Tourist spending flows particularly from the Chinese are becoming more important to assess sales and margin performance of the luxury sector.

Figure 11: % of sales by destination for European luxury. European tourism spend (c18% of sales for the space) is more important than Asian



Source: UBS, Altgamma Bain, Company data

Figure 12: % sales by destination for Global Blue spend. European spending (c80%) also more important than Asian spend (c20%) (2015)



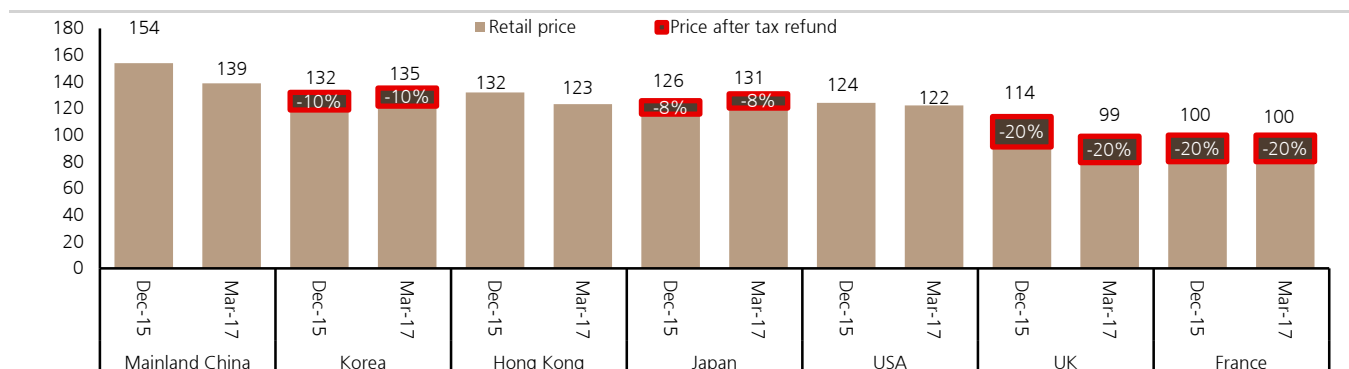
Source: Global Blue Intelligence © Copyright Global Blue (2017)

Figure 13: Global Blue spending growth y/y % by destination (organic)

	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17
Total Europe	(8.4%)	(1.9%)	(20.8%)	(14.9%)	(8.8%)	(17.9%)	(18.8%)	(2.0%)	(5.0%)	0.2%	0.3%	3.7%	20.9%	22.6%	15.0%
France	(24.2%)	(17.8%)	(25.9%)	(21.6%)	(20.4%)	(14.9%)	(22.6%)	(19.9%)	(22.6%)	(10.8%)	(19.5%)	21.0%	19.7%	8.6%	20.6%
Italy	3.4%	7.6%	(23.9%)	(11.3%)	(9.2%)	(23.0%)	(23.1%)	(11.2%)	(8.0%)	(8.7%)	(16.3%)	(6.9%)	11.2%	13.2%	12.2%
Switzerland	3.1%	(0.4%)	(19.1%)	(5.4%)	9.0%	6.5%	(10.6%)	17.2%	(2.2%)	(9.7%)	(3.7%)	3.7%	10.5%	13.3%	18.7%
United Kingdom	(10.9%)	3.6%	(11.7%)	(1.7%)	9.7%	(9.8%)	6.2%	36.1%	31.9%	34.7%	43.0%	25.5%	45.5%	55.2%	23.9%
Europe Others	(6.2%)	(1.8%)	(20.9%)	(20.0%)	(11.9%)	(21.0%)	(24.2%)	(6.6%)	(12.9%)	(3.6%)	0.9%	(6.2%)	13.4%	17.7%	10.4%
Total APAC	17.6%	8.2%	(3.6%)	(14.1%)	(8.6%)	(11.4%)	(6.2%)	(17.4%)	(8.5%)	(11.7%)	(7.5%)	1.4%	7.6%	3.2%	6.3%
Japan	35.3%	21.3%	9.3%	(9.6%)	(18.7%)	(28.6%)	(26.7%)	(36.2%)	(9.8%)	(10.7%)	(8.0%)	8.4%	27.5%	11.2%	24.5%
Korea	16.7%	(13.8%)	(7.6%)	(22.1%)	(3.9%)	78.6%	179.3%	30.9%	(9.2%)	(14.5%)	(11.5%)	(11.1%)	(18.7%)	(10.6%)	(31.9%)
APAC Others	3.6%	2.8%	(14.2%)	(17.0%)	0.9%	(8.9%)	(2.6%)	(8.4%)	(6.8%)	(12.0%)	(5.2%)	(1.9%)	(3.4%)	(1.2%)	0.9%
Rest of the World	66.3%	59.2%	54.3%	(18.5%)	(14.0%)	(1.7%)	25.4%	21.0%	22.8%	27.2%	12.5%	4.0%	7.4%	62.8%	(1.9%)
World	(1.9%)	1.3%	(16.6%)	(14.7%)	(8.8%)	(16.6%)	(16.2%)	(5.2%)	(5.9%)	(2.3%)	(1.5%)	3.0%	17.2%	16.7%	12.4%

Source: Global Blue Intelligence © Copyright Global Blue (2017)

Figure 14: Japan is the cheapest destinations in Asia post tax refunds, UK cheapest globally

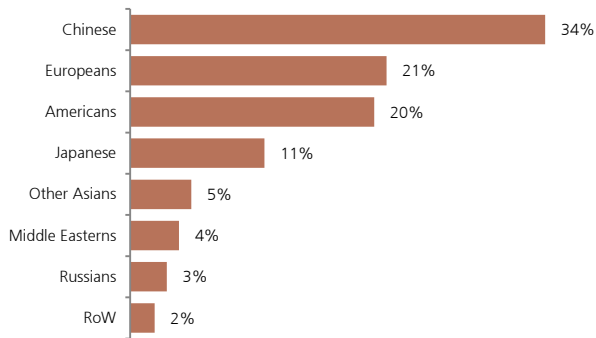


Source: UBS Evidence Lab, based on like-for-like products excluding discounted and promotional products

Spend by Nationality: Chinese tourists spend higher in Europe than APAC

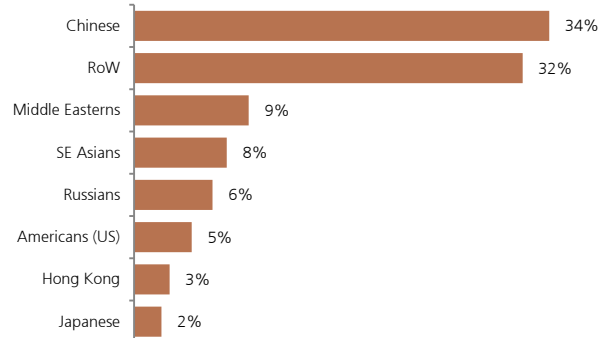
The Chinese consumer is the most important for luxury and here Global Blue shows a slower March (+10% vs. +21% in Feb.) as a result of seasonal low traffic (no benefit from Chinese New Year). We estimate that when combined with Hong Kong this consumer outside of the Mainland is increasing by a low double digit rate at present.

Figure 15: % luxury sales by nationality (2015)



Source: UBS

Figure 16: % Global Blue sales by nationality (2016)



Source: Global Blue Intelligence © Copyright Global Blue (2017)

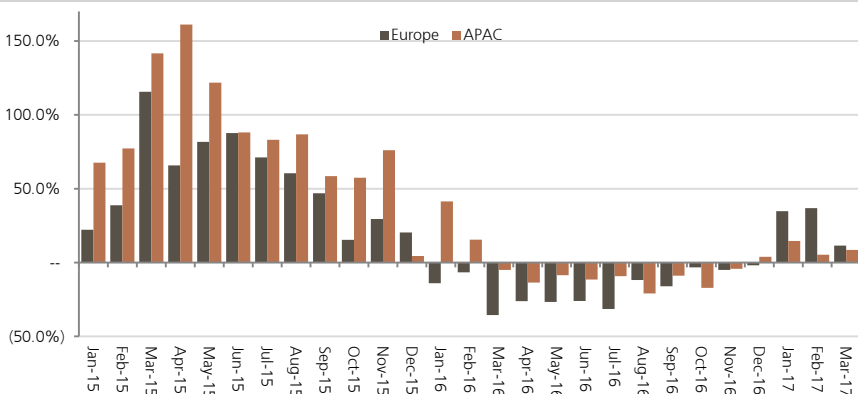
Figure 17: Global Blue spending growth y/y % by nationality

	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17
Chinese	6.5%	3.4%	(25.3%)	(20.7%)	(20.4%)	(21.5%)	(25.6%)	(14.6%)	(14.4%)	(7.6%)	(4.7%)	0.6%	25.2%	21.1%	10.3%
Russians	(22.7%)	(11.4%)	(22.2%)	(20.0%)	(22.8%)	(32.8%)	(27.8%)	(7.7%)	(9.5%)	2.9%	2.7%	3.2%	32.3%	45.7%	40.6%
Middle Easterns	15.2%	12.7%	3.7%	(3.6%)	14.9%	(24.1%)	2.8%	5.4%	7.3%	0.6%	(4.7%)	1.0%	1.6%	21.2%	(6.5%)
Americans (US)	13.5%	20.4%	(9.4%)	(8.4%)	(4.3%)	(6.6%)	(4.2%)	7.2%	(4.3%)	(0.9%)	0.3%	18.2%	33.2%	19.4%	26.4%
SE Asians	(8.9%)	(12.4%)	(7.2%)	(15.9%)	(2.4%)	(12.9%)	2.3%	(6.3%)	6.9%	18.8%	10.0%	2.9%	9.3%	11.0%	3.0%
Japanese	0.6%	1.4%	0.4%	(0.5%)	52.0%	10.8%	26.7%	27.1%	14.4%	(1.9%)	3.0%	5.0%	18.8%	3.9%	6.5%
Hong Kong	(16.3%)	0.1%	(27.3%)	(33.6%)	(13.6%)	(24.1%)	(22.9%)	(9.0%)	(12.4%)	(7.0%)	(5.5%)	14.9%	31.7%	15.8%	10.0%
RoW	(4.6%)	0.3%	(11.8%)	(9.4%)	(2.4%)	(8.6%)	(11.4%)	1.6%	(5.0%)	(1.1%)	(1.0%)	2.9%	9.9%	6.2%	14.7%
All	(1.9%)	1.3%	(16.6%)	(14.7%)	(8.8%)	(16.6%)	(16.2%)	(5.2%)	(5.9%)	(2.3%)	(1.5%)	3.0%	17.2%	16.7%	12.4%

Source: Global Blue Intelligence © Copyright Global Blue (2017). Note: Organic growth since Jan 16.

The Chinese consumer spend growth is higher in Europe than Asia excluding HK in 2017 partly due to political tension leading to fewer tourists in South Korea.

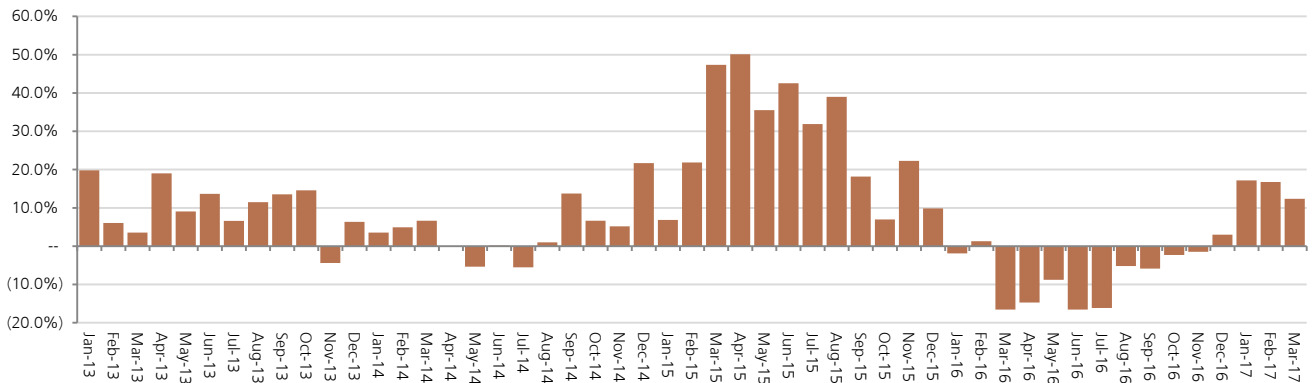
Figure 18: Chinese consumer spend y/y growth is higher Europe than in Asia ex HK in March



Source: Global Blue Intelligence © Copyright Global Blue (2017). Note: Organic growth since Jan 16.

Long term detail by destination and nationality

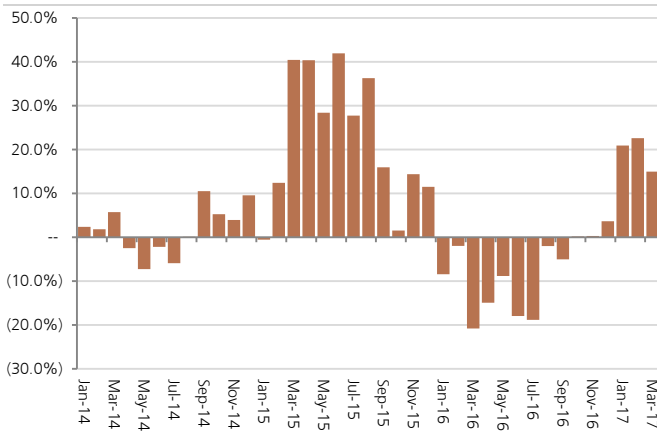
Figure 19: Worldwide Global Blue tourism spending % growth y/y



Source: Global Blue Intelligence © Copyright Global Blue (2017)

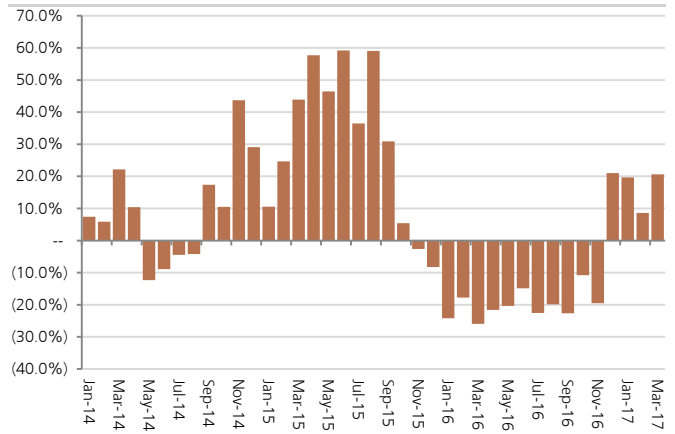
Spend by Destination

Figure 20: Global Blue Europe spending y/y %



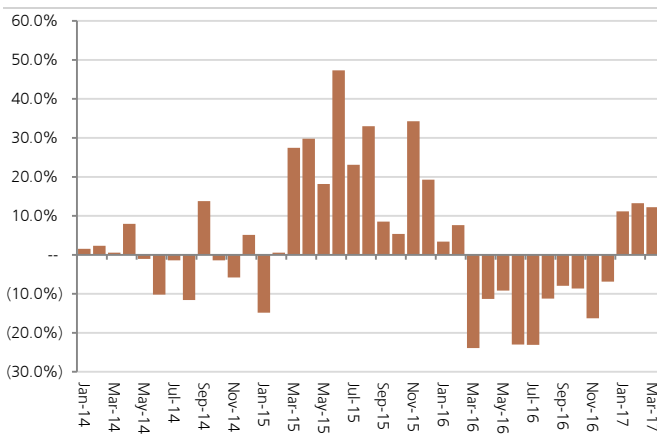
Source: Global Blue Intelligence © Copyright Global Blue (2017)

Figure 21: Global Blue France spending y/y %



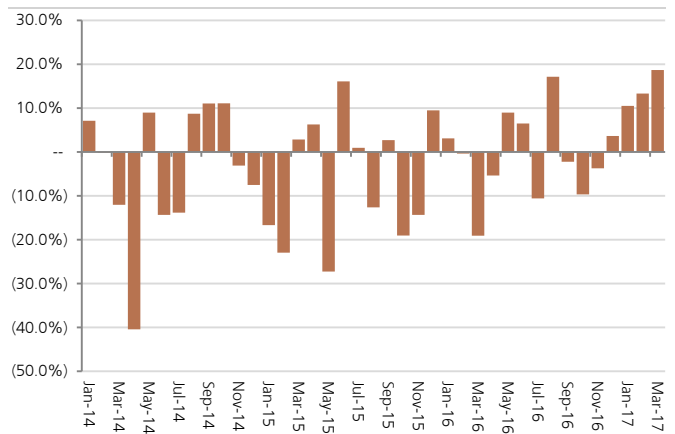
Source: Global Blue Intelligence © Copyright Global Blue (2017)

Figure 22: Global Blue Italy spending y/y %



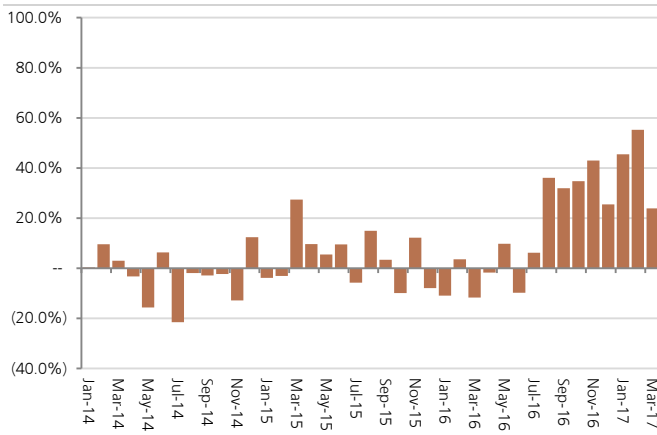
Source: Global Blue Intelligence © Copyright Global Blue (2017)

Figure 23: Global Blue Switzerland spending y/y %



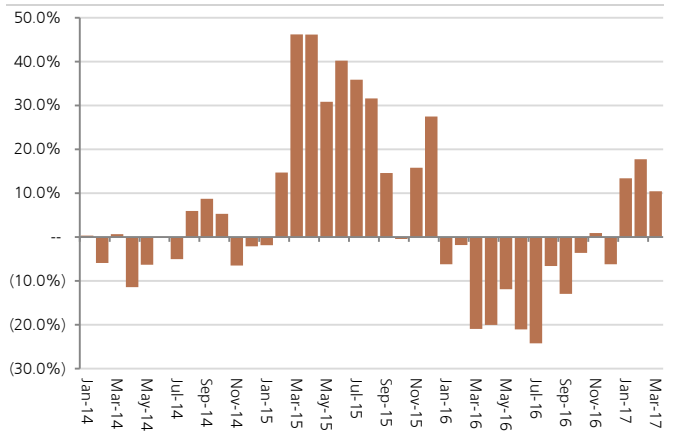
Source: Global Blue Intelligence © Copyright Global Blue (2017)

Figure 24: Global Blue UK spending y/y %



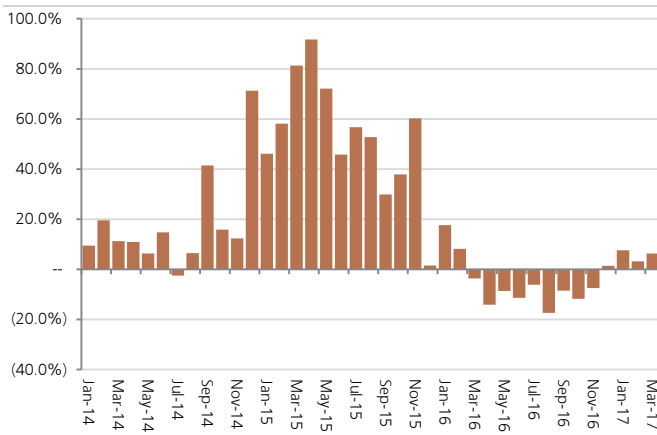
Source: Global Blue Intelligence © Copyright Global Blue (2017)

Figure 25: Global Blue other Europe spending y/y %



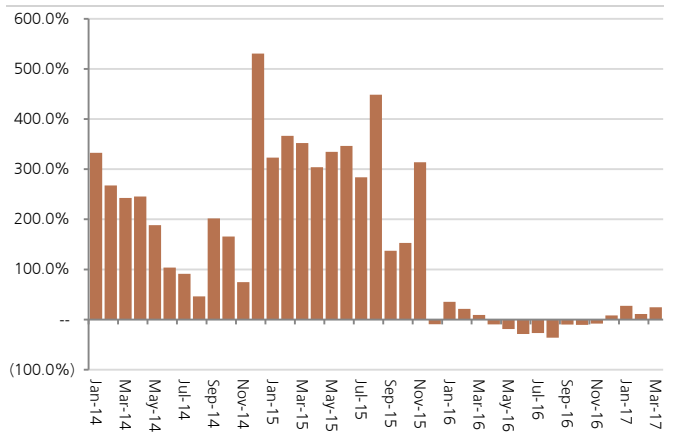
Source: Global Blue Intelligence © Copyright Global Blue (2017)

Figure 26: Global Blue Asia spending y/y %



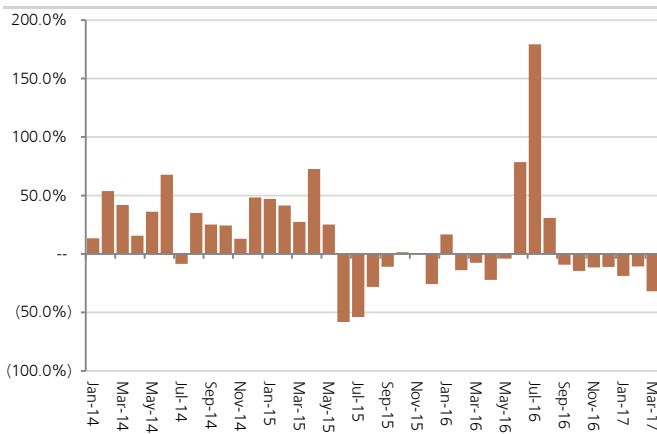
Source: Global Blue Intelligence © Copyright Global Blue (2017)

Figure 27: Global Blue Japan spending y/y %



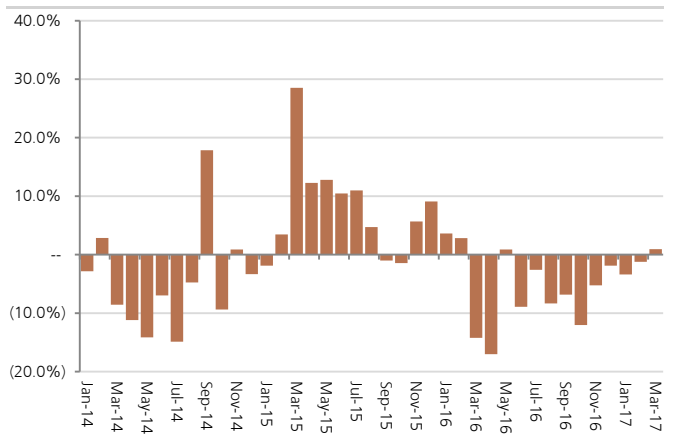
Source: Global Blue Intelligence © Copyright Global Blue (2017)

Figure 28: Global Blue Korea spending y/y %



Source: Global Blue Intelligence © Copyright Global Blue (2017)

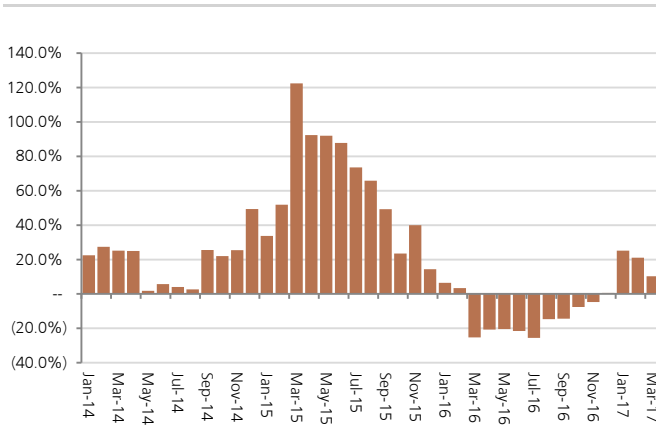
Figure 29: Global Blue rest of Asia spending y/y %



Source: Global Blue Intelligence © Copyright Global Blue (2017)

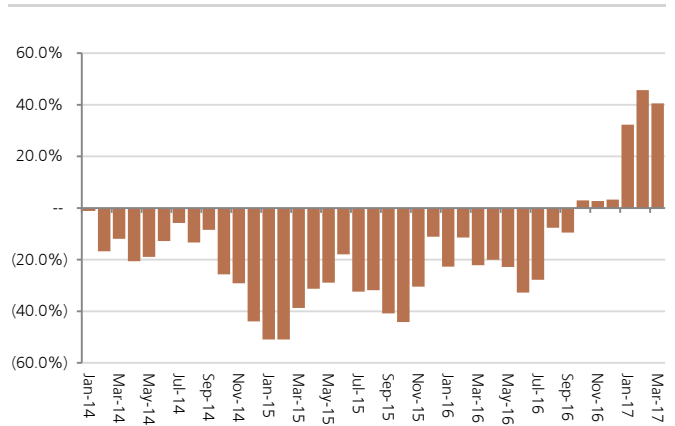
Spend by Nationality

Figure 30: Global Blue Chinese spending y/y %



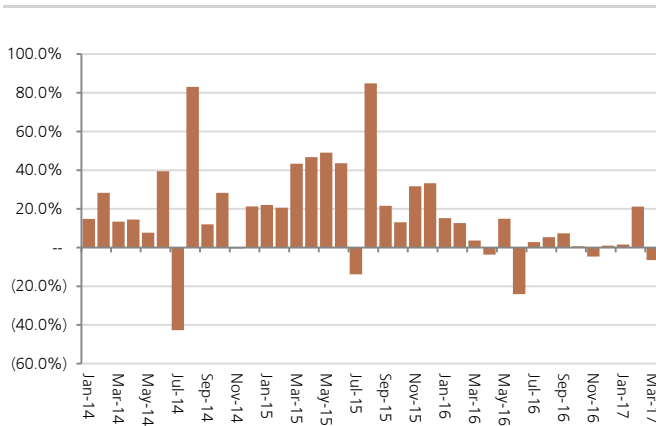
Source: Global Blue Intelligence © Copyright Global Blue (2017)

Figure 31: Global Blue Russian spending y/y %



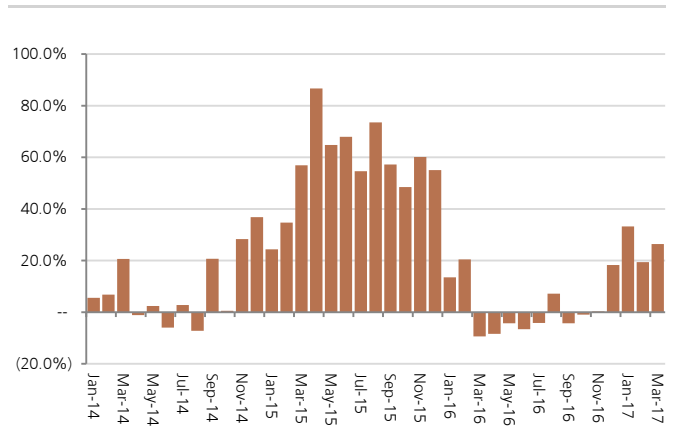
Source: Global Blue Intelligence © Copyright Global Blue (2017)

Figure 32: Global Blue Middle East spending y/y %



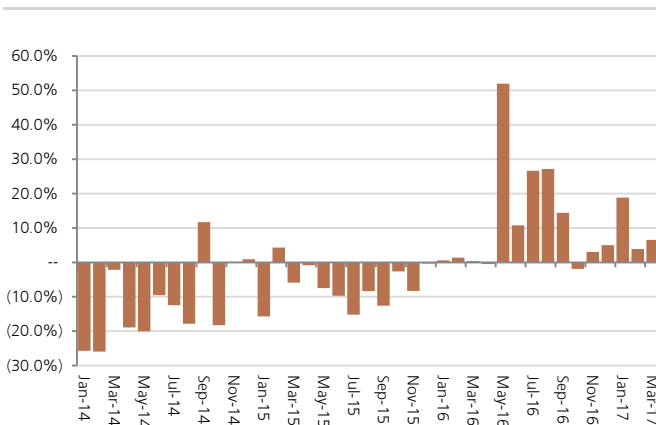
Source: Global Blue Intelligence © Copyright Global Blue (2017)

Figure 33: Global Blue US spending y/y %



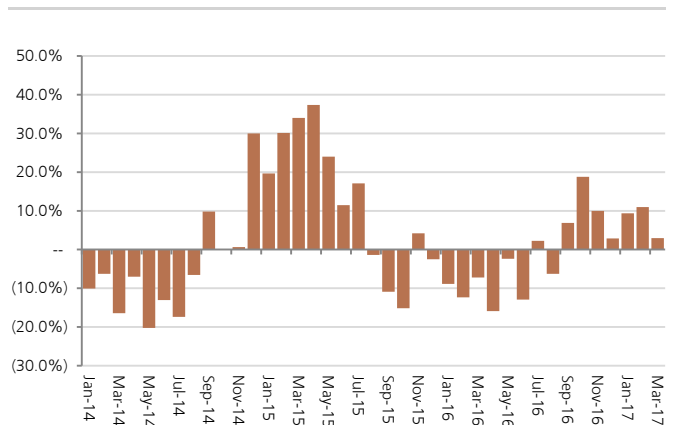
Source: Global Blue Intelligence © Copyright Global Blue (2017)

Figure 34: Global Blue Japanese spending y/y %



Source: Global Blue Intelligence © Copyright Global Blue (2017)

Figure 35: Global Blue S.E. Asian spending y/y %



Source: Global Blue Intelligence © Copyright Global Blue (2017)

Valuation Method and Risk Statement

Risk to luxury goods companies include 1) external influence on consumption, such as terrorism and epidemics, 2) drastic political changes, 3) pricing pressure, 4) brand value, 5) management execution and successor issues, 6) perception in equity market about their long-term growth and 7) foreign exchange rates. Our price targets are DCF-based.

Required Disclosures

This report has been prepared by UBS Limited, an affiliate of UBS AG. UBS AG, its subsidiaries, branches and affiliates are referred to herein as UBS.

For information on the ways in which UBS manages conflicts and maintains independence of its research product; historical performance information; and certain additional disclosures concerning UBS research recommendations, please visit www.ubs.com/disclosures. The figures contained in performance charts refer to the past; past performance is not a reliable indicator of future results. Additional information will be made available upon request. UBS Securities Co. Limited is licensed to conduct securities investment consultancy businesses by the China Securities Regulatory Commission. UBS acts or may act as principal in the debt securities (or in related derivatives) that may be the subject of this report. This recommendation was finalized on: 19 April 2017 11:09 PM GMT.

Analyst Certification: Each research analyst primarily responsible for the content of this research report, in whole or in part, certifies that with respect to each security or issuer that the analyst covered in this report: (1) all of the views expressed accurately reflect his or her personal views about those securities or issuers and were prepared in an independent manner, including with respect to UBS, and (2) no part of his or her compensation was, is, or will be, directly or indirectly, related to the specific recommendations or views expressed by that research analyst in the research report.

UBS Investment Research: Global Equity Rating Definitions

12-Month Rating	Definition	Coverage ¹	IB Services ²
Buy	FSR is > 6% above the MRA.	46%	30%
Neutral	FSR is between -6% and 6% of the MRA.	38%	28%
Sell	FSR is > 6% below the MRA.	16%	18%
Short-Term Rating	Definition	Coverage ³	IB Services ⁴
Buy	Stock price expected to rise within three months from the time the rating was assigned because of a specific catalyst or event.	<1%	<1%
Sell	Stock price expected to fall within three months from the time the rating was assigned because of a specific catalyst or event.	<1%	<1%

Source: UBS. Rating allocations are as of 31 March 2017.

1: Percentage of companies under coverage globally within the 12-month rating category.

2: Percentage of companies within the 12-month rating category for which investment banking (IB) services were provided within the past 12 months.

3: Percentage of companies under coverage globally within the Short-Term rating category.

4: Percentage of companies within the Short-Term rating category for which investment banking (IB) services were provided within the past 12 months.

KEY DEFINITIONS: **Forecast Stock Return (FSR)** is defined as expected percentage price appreciation plus gross dividend yield over the next 12 months. **Market Return Assumption (MRA)** is defined as the one-year local market interest rate plus 5% (a proxy for, and not a forecast of, the equity risk premium). **Under Review (UR)** Stocks may be flagged as UR by the analyst, indicating that the stock's price target and/or rating are subject to possible change in the near term, usually in response to an event that may affect the investment case or valuation. **Short-Term Ratings** reflect the expected near-term (up to three months) performance of the stock and do not reflect any change in the fundamental view or investment case. **Equity Price Targets** have an investment horizon of 12 months.

EXCEPTIONS AND SPECIAL CASES: **UK and European Investment Fund ratings and definitions are:** **Buy:** Positive on factors such as structure, management, performance record, discount; **Neutral:** Neutral on factors such as structure, management, performance record, discount; **Sell:** Negative on factors such as structure, management, performance record, discount. **Core Banding Exceptions (CBE):** Exceptions to the standard +/-6% bands may be granted by the Investment Review Committee (IRC). Factors considered by the IRC include the stock's volatility and the credit spread of the respective company's debt. As a result, stocks deemed to be very high or low risk may be subject to higher or lower bands as they relate to the rating. When such exceptions apply, they will be identified in the Company Disclosures table in the relevant research piece.

Research analysts contributing to this report who are employed by any non-US affiliate of UBS Securities LLC are not registered/qualified as research analysts with FINRA. Such analysts may not be associated persons of UBS Securities LLC and therefore are not subject to the FINRA restrictions on communications with a subject company, public appearances, and trading securities held by a research analyst account. The name of each affiliate and analyst employed by that affiliate contributing to this report, if any, follows.

UBS Limited: Helen Brand; Fred Speirs; Amy Xiang.

Unless otherwise indicated, please refer to the Valuation and Risk sections within the body of this report. For a complete set of disclosure statements associated with the companies discussed in this report, including information on valuation and risk, please contact UBS Securities LLC, 1285 Avenue of Americas, New York, NY 10019, USA, Attention: Investment Research.

Additional Prices: Burberry, 1,566p (19 Apr 2017); LVMH Moët Hennessy Louis Vuitton SA, €204.80 (19 Apr 2017); Source: UBS. All prices as of local market close.

Global Disclaimer

This document has been prepared by UBS Limited, an affiliate of UBS AG. UBS AG, its subsidiaries, branches and affiliates are referred to herein as UBS.

Global Research is provided to our clients through UBS Neo and, in certain instances, UBS.com (each a "System"). It may also be made available through third party vendors and distributed by UBS and/or third parties via e-mail or alternative electronic means. The level and types of services provided by Global Research to a client may vary depending upon various factors such as a client's individual preferences as to the frequency and manner of receiving communications, a client's risk profile and investment focus and perspective (e.g., market wide, sector specific, long-term, short-term, etc.), the size and scope of the overall client relationship with UBS and legal and regulatory constraints.

All Global Research is available on UBS Neo. Please contact your UBS sales representative if you wish to discuss your access to UBS Neo.

When you receive Global Research through a System, your access and/or use of such Global Research is subject to this Global Research Disclaimer and to the terms of use governing the applicable System.

When you receive Global Research via a third party vendor, e-mail or other electronic means, your use shall be subject to this Global Research Disclaimer and to UBS's Terms of Use/Disclaimer (<http://www.ubs.com/global/en/legalinfo2/disclaimer.html>). By accessing and/or using Global Research in this manner, you are indicating that you have read and agree to be bound by our Terms of Use/Disclaimer. In addition, you consent to UBS processing your personal data and using cookies in accordance with our Privacy Statement (<http://www.ubs.com/global/en/legalinfo2/privacy.html>) and cookie notice (<http://www.ubs.com/global/en/homepage/cookies/cookie-management.html>).

If you receive Global Research, whether through a System or by any other means, you agree that you shall not copy, revise, amend, create a derivative work, transfer to any third party, or in any way commercially exploit any UBS research provided via Global Research or otherwise, and that you shall not extract data from any research or estimates provided to you via Global Research or otherwise, without the prior written consent of UBS.

This document is for distribution only as may be permitted by law. It is not directed to, or intended for distribution to or use by, any person or entity who is a citizen or resident of or located in any locality, state, country or other jurisdiction where such distribution, publication, availability or use would be contrary to law or regulation or would subject UBS to any registration or licensing requirement within such jurisdiction. It is published solely for information purposes; it is not an advertisement nor is it a solicitation or an offer to buy or sell any financial instruments or to participate in any particular trading strategy. No representation or warranty, either expressed or implied, is provided in relation to the accuracy, completeness or reliability of the information contained in this document ("the Information"), except with respect to Information concerning UBS. The Information is not intended to be a complete statement or summary of the securities, markets or developments referred to in the document. UBS does not undertake to update or keep current the Information. Any opinions expressed in this document may change without notice and may differ or be contrary to opinions expressed by other business areas or groups of UBS. Any statements contained in this report attributed to a third party represent UBS's interpretation of the data, information and/or opinions provided by that third party either publicly or through a subscription service, and such use and interpretation have not been reviewed by the third party.

Nothing in this document constitutes a representation that any investment strategy or recommendation is suitable or appropriate to an investor's individual circumstances or otherwise constitutes a personal recommendation. Investments involve risks, and investors should exercise prudence and their own judgement in making their investment decisions. The financial instruments described in the document may not be eligible for sale in all jurisdictions or to certain categories of investors. Options, derivative products and futures are not suitable for all investors, and trading in these instruments is considered risky. Mortgage and asset-backed securities may involve a high degree of risk and may be highly volatile in response to fluctuations in interest rates or other market conditions. Foreign currency rates of exchange may adversely affect the value, price or income of any security or related instrument referred to in the document. For investment advice, trade execution or other enquiries, clients should contact their local sales representative.

The value of any investment or income may go down as well as up, and investors may not get back the full (or any) amount invested. Past performance is not necessarily a guide to future performance. Neither UBS nor any of its directors, employees or agents accepts any liability for any loss (including investment loss) or damage arising out of the use of all or any of the Information.

Any prices stated in this document are for information purposes only and do not represent valuations for individual securities or other financial instruments. There is no representation that any transaction can or could have been effected at those prices, and any prices do not necessarily reflect UBS's internal books and records or theoretical model-based valuations and may be based on certain assumptions. Different assumptions by UBS or any other source may yield substantially different results.

This document and the Information are produced by UBS as part of its research function and are provided to you solely for general background information. UBS has no regard to the specific investment objectives, financial situation or particular needs of any specific recipient. In no circumstances may this document or any of the Information be used for any of the following purposes:

- (i) valuation or accounting purposes;
- (ii) to determine the amounts due or payable, the price or the value of any financial instrument or financial contract; or
- (iii) to measure the performance of any financial instrument.

By receiving this document and the Information you will be deemed to represent and warrant to UBS that you will not use this document or any of the Information for any of the above purposes or otherwise rely upon this document or any of the Information.

UBS has policies and procedures, which include, without limitation, independence policies and permanent information barriers, that are intended, and upon which UBS relies, to manage potential conflicts of interest and control the flow of information within divisions of UBS and among its subsidiaries, branches and affiliates. For further information on the ways in which UBS manages conflicts and maintains independence of its research products, historical performance information and certain additional disclosures concerning UBS research recommendations, please visit www.ubs.com/disclosures.

Research will initiate, update and cease coverage solely at the discretion of UBS Research Management, which will also have sole discretion on the timing and frequency of any published research product. The analysis contained in this document is based on numerous assumptions. All material information in relation to published research reports, such as valuation methodology, risk statements, underlying assumptions (including sensitivity analysis of those assumptions), ratings history etc. as required by the Market Abuse Regulation, can be found on NEO. Different assumptions could result in materially different results.

The analyst(s) responsible for the preparation of this document may interact with trading desk personnel, sales personnel and other parties for the purpose of gathering, applying and interpreting market information. UBS relies on information barriers to control the flow of information contained in one or more areas within UBS into other areas, units, groups or affiliates of UBS. The compensation of the analyst who prepared this document is determined exclusively by research management and senior management (not including investment banking). Analyst compensation is not based on investment banking revenues; however, compensation may relate to the revenues of UBS and/or its divisions as a whole, of which investment banking, sales and trading are a part, and UBS's subsidiaries, branches and affiliates as a whole.

For financial instruments admitted to trading on an EU regulated market: UBS AG, its affiliates or subsidiaries (excluding UBS Securities LLC) acts as a market maker or liquidity provider (in accordance with the interpretation of these terms in the UK) in the financial instruments of the issuer save that where the activity of liquidity provider is carried out in accordance with the definition given to it by the laws and regulations of any other EU jurisdictions, such information is separately disclosed in this document. For financial instruments admitted to trading on a non-EU regulated market: UBS may act as a market maker save that where this activity is carried out in the US in accordance with the definition given to it by the relevant laws and regulations, such activity will be specifically disclosed in this document. UBS may have issued a warrant the value of which is based on one or more of the financial instruments referred to in the document. UBS and its affiliates and employees may have long or short positions, trade as principal and buy and sell in instruments or derivatives identified herein; such transactions or positions may be inconsistent with the opinions expressed in this document.

United Kingdom and the rest of Europe: Except as otherwise specified herein, this material is distributed by UBS Limited to persons who are eligible counterparties or professional clients. UBS Limited is authorised by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and the Prudential Regulation Authority. **France:** Prepared by UBS Limited and distributed by UBS Limited and UBS Securities France S.A. UBS Securities France S.A. is regulated by the ACPR (Autorité de Contrôle Prudentiel et de Résolution) and the Autorité des Marchés Financiers (AMF). Where an analyst of UBS Securities France S.A. has contributed to this document, the document is also deemed to have been prepared by UBS Securities France S.A. **Germany:** Prepared by UBS Limited and distributed by UBS Limited and UBS Europe SE. UBS Europe SE is regulated by the Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin). **Spain:** Prepared by UBS Limited and distributed by UBS Limited and UBS Securities España SV, SA. UBS Securities España SV, SA is regulated by the Comisión Nacional del Mercado de Valores (CNMV). **Turkey:** Distributed by

UBS Limited. No information in this document is provided for the purpose of offering, marketing and sale by any means of any capital market instruments and services in the Republic of Turkey. Therefore, this document may not be considered as an offer made or to be made to residents of the Republic of Turkey. UBS AG is not licensed by the Turkish Capital Market Board under the provisions of the Capital Market Law (Law No. 6362). Accordingly, neither this document nor any other offering material related to the instruments/services may be utilized in connection with providing any capital market services to persons within the Republic of Turkey without the prior approval of the Capital Market Board. However, according to article 15 (d) (ii) of the Decree No. 32, there is no restriction on the purchase or sale of the securities abroad by residents of the Republic of Turkey. **Poland:** Distributed by UBS Limited (spółka z ograniczoną odpowiedzialnością) Oddział w Polsce regulated by the Polish Financial Supervision Authority. Where an analyst of UBS Limited (spółka z ograniczoną odpowiedzialnością) Oddział w Polsce has contributed to this document, the document is also deemed to have been prepared by UBS Limited (spółka z ograniczoną odpowiedzialnością) Oddział w Polsce. **Russia:** Prepared and distributed by UBS Bank (OOO). **Switzerland:** Distributed by UBS AG to persons who are institutional investors only. UBS AG is regulated by the Swiss Financial Market Supervisory Authority (FINMA). **Italy:** Prepared by UBS Limited and distributed by UBS Limited and UBS Limited, Italy Branch. Where an analyst of UBS Limited, Italy Branch has contributed to this document, the document is also deemed to have been prepared by UBS Limited, Italy Branch. **South Africa:** Distributed by UBS South Africa (Pty) Limited (Registration No. 1995/011140/07), an authorised user of the JSE and an authorised Financial Services Provider (FSP 7328). **Israel:** This material is distributed by UBS Limited. UBS Limited is authorised by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and the Prudential Regulation Authority. UBS Securities Israel Ltd is a licensed Investment Marketer that is supervised by the Israel Securities Authority (ISA). UBS Limited and its affiliates incorporated outside Israel are not licensed under the Israeli Advisory Law. UBS Limited is not covered by insurance as required from a licensee under the Israeli Advisory Law. UBS may engage among others in issuance of Financial Assets or in distribution of Financial Assets of other issuers for fees or other benefits. UBS Limited and its affiliates may prefer various Financial Assets to which they have or may have Affiliation (as such term is defined under the Israeli Advisory Law). Nothing in this Material should be considered as investment advice under the Israeli Advisory Law. This Material is being issued only to and/or is directed only at persons who are Eligible Clients within the meaning of the Israeli Advisory Law, and this material must not be relied on or acted upon by any other persons. **Saudi Arabia:** This document has been issued by UBS AG (and/or any of its subsidiaries, branches or affiliates), a public company limited by shares, incorporated in Switzerland with its registered offices at Aeschenvorstadt 1, CH-4051 Basel and Bahnhofstrasse 45, CH-8001 Zurich. This publication has been approved by UBS Saudi Arabia (a subsidiary of UBS AG), a Saudi closed joint stock company incorporated in the Kingdom of Saudi Arabia under commercial register number 1010257812 having its registered office at Tatweer Towers, P.O. Box 75724, Riyadh 11588, Kingdom of Saudi Arabia. UBS Saudi Arabia is authorized and regulated by the Capital Market Authority to conduct securities business under license number 08113-37. **Dubai:** The information distributed by UBS AG Dubai Branch is intended for Professional Clients only and is not for further distribution within the United Arab Emirates. **United States:** Distributed to US persons by either UBS Securities LLC or by UBS Financial Services Inc., subsidiaries of UBS AG; or by a group, subsidiary or affiliate of UBS AG that is not registered as a US broker-dealer (a 'non-US affiliate') to major US institutional investors only. UBS Securities LLC or UBS Financial Services Inc. accepts responsibility for the content of a document prepared by another non-US affiliate when distributed to US persons by UBS Securities LLC or UBS Financial Services Inc. All transactions by a US person in the securities mentioned in this document must be effected through UBS Securities LLC or UBS Financial Services Inc., and not through a non-US affiliate. UBS Securities LLC is not acting as a municipal advisor to any municipal entity or obligated person within the meaning of Section 15B of the Securities Exchange Act (the "Municipal Advisor Rule"), and the opinions or views contained herein are not intended to be, and do not constitute, advice within the meaning of the Municipal Advisor Rule. **Canada:** Distributed by UBS Securities Canada Inc., a registered investment dealer in Canada and a Member-Canadian Investor Protection Fund, or by another affiliate of UBS AG that is registered to conduct business in Canada or is otherwise exempt from registration. **Mexico:** This report has been distributed and prepared by UBS Casa de Bolsa, S.A. de C.V., UBS Grupo Financiero, an entity that is part of UBS Grupo Financiero, S.A. de C.V. and is an affiliate of UBS AG. This document is intended for distribution to institutional or sophisticated investors only. Research reports only reflect the views of the analysts responsible for the reports. Analysts do not receive any compensation from persons or entities different from UBS Casa de Bolsa, S.A. de C.V., UBS Grupo Financiero, or different from entities belonging to the same financial group or business group of such. For Spanish translations of applicable disclosures, please see www.ubs.com/disclosures. **Brazil:** Except as otherwise specified herein, this material is prepared by UBS Brasil CCTVM S.A. to persons who are eligible investors residing in Brazil, which are considered to be: (i) financial institutions, (ii) insurance firms and investment capital companies, (iii) supplementary pension entities, (iv) entities that hold financial investments higher than R\$300,000.00 and that confirm the status of qualified investors in written, (v) investment funds, (vi) securities portfolio managers and securities consultants duly authorized by Comissão de Valores Mobiliários (CVM), regarding their own investments, and (vii) social security systems created by the Federal Government, States, and Municipalities. **Hong Kong:** Distributed by UBS Securities Asia Limited and/or UBS AG, Hong Kong Branch. **Singapore:** Distributed by UBS Securities Pte. Ltd. [MCI (P) 007/09/2016 and Co. Reg. No.: 198500648C] or UBS AG, Singapore Branch. Please contact UBS Securities Pte. Ltd., an exempt financial adviser under the Singapore Financial Advisers Act (Cap. 110); or UBS AG, Singapore Branch, an exempt financial adviser under the Singapore Financial Advisers Act (Cap. 110) and a wholesale bank licensed under the Singapore Banking Act (Cap. 19) regulated by the Monetary Authority of Singapore, in respect of any matters arising from, or in connection with, the analysis or document. The recipients of this document represent and warrant that they are accredited and institutional investors as defined in the Securities and Futures Act (Cap. 289). **Japan:** Distributed by UBS Securities Japan Co., Ltd. to professional investors (except as otherwise permitted). Where this document has been prepared by UBS Securities Japan Co., Ltd., UBS Securities Japan Co., Ltd. is the author, publisher and distributor of the document. Distributed by UBS AG, Tokyo Branch to Professional Investors (except as otherwise permitted) in relation to foreign exchange and other banking businesses when relevant. **Australia:** Clients of UBS AG: Distributed by UBS AG (ABN 47 088 129 613 and holder of Australian Financial Services License No. 231087). Clients of UBS Securities Australia Ltd: Distributed by UBS Securities Australia Ltd (ABN 62 008 586 481 and holder of Australian Financial Services License No. 231098). This Document contains general information and/or general advice only and does not constitute personal financial product advice. As such, the Information in this document has been prepared without taking into account any investor's objectives, financial situation or needs, and investors should, before acting on the Information, consider the appropriateness of the Information, having regard to their objectives, financial situation and needs. If the Information contained in this document relates to the acquisition, or potential acquisition of a particular financial product by a 'Retail' client as defined by section 761G of the Corporations Act 2001 where a Product Disclosure Statement would be required, the retail client should obtain and consider the Product Disclosure Statement relating to the product before making any decision about whether to acquire the product. The UBS Securities Australia Limited Financial Services Guide is available at: www.ubs.com/ecs-research-fsg. **New Zealand:** Distributed by UBS New Zealand Ltd. UBS New Zealand Ltd is not a registered bank in New Zealand. You are being provided with this UBS publication or material because you have indicated to UBS that you are a "wholesale client" within the meaning of section 5C of the Financial Advisers Act 2008 of New Zealand (Permitted Client). This publication or material is not intended for clients who are not Permitted Clients (non-permitted Clients). If you are a non-permitted Client you must not rely on this publication or material. If despite this warning you nevertheless rely on this publication or material, you hereby (i) acknowledge that you may not rely on the content of this publication or material and that any recommendations or opinions in such this publication or material are not made or provided to you, and (ii) to the maximum extent permitted by law (a) indemnify UBS and its associates or related entities (and their respective Directors, officers, agents and Advisors) (each a 'Relevant Person') for any loss, damage, liability or claim any of them may incur or suffer as a result of, or in connection with, your unauthorised reliance on this publication or material and (b) waive any rights or remedies you may have against any Relevant Person for (or in respect of) any loss, damage, liability or claim you may incur or suffer as a result of, or in connection with, your unauthorised reliance on this publication or material. **Korea:** Distributed in Korea by UBS Securities Pte. Ltd., Seoul Branch. This document may have been edited or contributed to from time to time by affiliates of UBS Securities Pte. Ltd., Seoul Branch. **Malaysia:** This material is authorized to be distributed in Malaysia by UBS Securities Malaysia Sdn. Bhd (Capital Markets Services License No.: CMSL/A0063/2007). This material is intended for professional/institutional clients only and not for distribution to any retail clients. **India:** Distributed by UBS Securities India Private Ltd. (Corporate Identity Number U67120MH1996PTC097299) 2/F, 2 North Avenue, Maker Maxity, Bandra Kurla Complex, Bandra (East), Mumbai (India) 400051. Phone: +912261556000. It provides brokerage services bearing SEBI Registration Numbers: NSE (Capital Market Segment): INB230951431, NSE (F&O Segment) INF230951431, NSE (Currency Derivatives Segment) INE230951431, BSE (Capital Market Segment) INB010951437; merchant banking services bearing SEBI Registration Number: INM000010809 and Research Analyst services bearing SEBI Registration Number: INH000001204. UBS AG, its affiliates or subsidiaries may have debt holdings or positions in the subject Indian company/companies. Within the past 12 months, UBS AG, its affiliates or subsidiaries may have received compensation for non-investment banking securities-related services and/or non-securities services from the subject Indian company/companies. The subject company/companies may have been a client/clients of UBS AG, its affiliates or subsidiaries during the 12 months preceding the date of distribution of the research report with respect to investment banking and/or non-investment banking securities-related services and/or non-securities services. With regard to information on associates, please refer to the Annual Report at: http://www.ubs.com/global/en/about_ubs/investor_relations/annualreporting.html

The disclosures contained in research documents produced by UBS Limited shall be governed by and construed in accordance with English law.

UBS specifically prohibits the redistribution of this document in whole or in part without the written permission of UBS and UBS accepts no liability whatsoever for the actions of third parties in this respect. Images may depict objects or elements that are protected by third party copyright, trademarks and other intellectual property rights. © UBS 2017. The key symbol and UBS are among the registered and unregistered trademarks of UBS. All rights reserved.

