CHINA E + COMMERCE

Shopping Re-Imagined

Online supermarkets, omni-channel sales, and lower-tier cities add up to the next phase of ecommerce growth in China

China's online retail market will be US$1.7 trillion by 2020, more than twice the size it is today. We see growth being propelled by (1) expansion of online categories, including supermarket items, supported by the nationwide same or next-day delivery infrastructure build-out, and (2) further online penetration of existing categories (apparel, electronics) into lower-tier cities and rural areas.

We estimate online retail can sustain its momentum, with 23% CAGR till 2020 — as the merging of online + offline channels ("E + Commerce") and expansion into hundreds of China's lower-tier cities and rural areas brings vast numbers of consumers to within a click or two of ever more goods.

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Acronym buster

3P: marketplace model**, 1P:** direct sales model, **3PL:** third-party logistics providers, **GMV:** gross merchandise value, **FMCG:** fast-moving consumer goods, **SKUs:** stock-keeping units, i.e. distinct items, **B2C:** business-to-consumer, **C2C:** consumer-to-consumer.

Key numbers: Our Thesis in Six Clicks

WE SEE YOUNG, LOWER-TIER AND RURAL ONLINE SHOPPERS…

71%

of the 200mn new online shoppers will come from lower tier cities till 2020E

Three quarters of **China's current 467mn online shoppers are Millennials** — digital natives, brand-conscious, budget-savvy and value convenience. Till 2020, we expect 200 million more online shoppers to come from lower tier cities and rural China.

… WITH HIGHER ONLINE SPENDING TO DRIVE FURTHER GROWTH

70%

Tmall's market share in online apparel in China (B2C) by 2020E

We expect **(1)** the continued shift from **unbranded to branded** goods, particularly in top-tier cities, **(2)** rise of **online supermarkets**, and **(3) low-tier and rural users'** new purchases in traditional categories (e.g. apparel, electronics/appliances) to contribute to overall increase in per user spending, **10% CAGR** till 2020, driving online retail growth of **23%** till 2020.

FULFILMENT CENTERS ARE SHORTENING DELIVERY TIMES

Over 200 cities

in China have same-day or next-day delivery coverage by Cainiao and JD

Alibaba (via. Cainiao Alliance) has broadened its same/next-day delivery from **50 cities** in 2015 to **200 in 2016** with the build-out of new fulfilment centers. Meanwhile, the government has set a 90% express delivery network coverage target for rural by 2020.

By storing goods closer to consumers, forming partnerships with offline retailers/supermarkets and providing supply chain solutions to "mom & pop" stores, we believe Alibaba and JD will transform supply chains in China (on+offline) over the next few years.

AND COULD STIMULATE GROWTH IN UNDER-PENETRATED SEGMENTS

Rmb1.8 trillion

Online FMCG market size by 2020. We forecast online penetration of 5% → 13% FMCG/groceries in China (2016→ 2020E)

With only **5%** online penetration in 2016 for Fast Moving Consumer Goods (incl. groceries) vs. **14%** penetration for overall online goods, we expect Tmall and JD's new supermarket initiatives to drive further online growth in the supermarket segment. These will be enabled by their logistics improvements, wider FMCG brand participation and ongoing new user adoption. We see the FMCG market big enough for two online winners.

COLD CHAIN, MARGINS, DELIVERY COSTS ARE KEY CHALLENGES

4mn

express delivery personnel in China by 2020E, as well as **1mn** food takeout delivery staff, 2-3% of males aged 20-40 in China

Fresh food (20% of online FMCG) has high spoilage rates, requires investments in cold-chain and/or partnership with offline stores to deliver produce straight from stores. For overall FMCG, we believe **Tmall Supermarket (3P)** and **JD Supermarket (1P)** will see drags to their profitability in the near term due to subsidies in fulfilment costs. Longer-term, **labor costs** could be the challenge given the need for 4mn express delivery personnel by 2020 (from current 2.5mn)

TMALL MONETIZATION TO CONTINUE TO IMPROVE, NEW RETAIL; JD MARGIN EXPANSION, SUPERMARKET SCALE GAINS

+32% / +26%

upside potential to our Alibaba (Conviction Buy) and JD (Buy) 12-month target prices respectively

We see Alibaba as best positioned with the emerging trends of lower-tier cities, expansion into under-penetrated categories via. the marketplace/consignment model and positioning as an online + offline marketing platform.
For JD, we expect gross margin improvement in existing 1P categories and turnaround of JD Supermarket by 2019E to drive long-term earnings. We also remain Buy in VIPS and ZTO given their earnings growth trajectories and on valuation.

E + Commerce to double China's online market by 2020: The What, How and Who

Jack Ma, 2016: "...we anticipate the birth of a re-imagined retail industry driven by the integration of online, offline, logistics and data across a single value chain." (SCMP, Oct 2016)

We term the new era of omni-channel (online + offline) commerce as:
E + Commerce

Over 2016-2020, we expect online GMV growth of:

20% in apparel

13% in electronics & appliances

34% in FMCG

Growing to be a US$1.7 trillion market by 2020

With more than 460 million online shoppers racking up Rmb5.2 trillion (US$750 billion) in sales last year, China is the world's largest ecommerce market. While there have been concerns of a slowdown — following deceleration in growth to mid-20% in 2016, we expect online retail growth to sail on at 23% CAGR over 2016-2020 — continuing to grow at nearly triple the pace of offline retail.

We raise our online retail sales forecast for 2020 by 15%, with the market reaching Rmb11.7 trillion (US$1.7 trillion) and expect online retail penetration to rise from 16% in 2016 to 25% in 2020 (previously we expected 22% by 2020) mainly driven by: **(1)** expansion of online retail categories such as Fast Moving Consumer Goods (FMCG) facilitated by upgraded logistics infrastructure over the past two years and the rising omni-channel (online + offline) retail approach, **(2)** sustained online growth in existing categories like apparel and electronics into lower-tier cities and rural areas, supported by technology (live streaming, potential for AR/VR in online shopping), and **(3)** further room for growth in the number of online shoppers, where we expect 200 million more.

What? Categories – Still room for growth for clothes and gadgets, FMCGs to drive growth

Where we are different: **Online FMCG to take off, while sub-category fresh will remain relatively more challenging**

- Today, almost a quarter of all ecommerce sales is **apparel, footwear and accessories** where Alibaba is biggest (with a marketplace model). Another one-fifth is **electronics and appliances** where JD (with a direct sales model) and Tmall+Suning each occupy >40% of the market. While 30-40% of these categories are sold online in China (according to Euromonitor on B2C, adjusted for returns), we think there is still room for lower-tier cities to catch up and even surpass top-tier cities due to weaker offline retail offerings. For more seasoned e-consumers, Augmented and Virtual Reality, plus offline experience stores, could drive apparel online penetration further into non-standardized items, in our view. We expect **Alibaba** and **JD** to remain dominant in their existing categories, sustaining their market shares in online apparel and electronics/appliances over the next few years. (Page 12, 20)
- However, the biggest opportunity we see is **Fast Moving Consumer Goods (FMCG)** and groceries – a US$2 trillion market in China by 2020E, which is 37% of all retail spending today. FMCG and groceries include fresh food, packaged food, personal care, beverages, healthcare, infant/maternity (ex. fashion) etc — that is, all the items that one would expect to find in a typical supermarket. (Page 27)
- FMCG has traditionally been a challenging category for online — with penetration of only 5% in 2016 due to thin margins, small ticket sizes, low coverage of rapid delivery, and for marketplace players – adapting to a consignment business model (that requires taking greater control of inventory management on behalf of brands). Both Alibaba (via. affiliate Cainiao) and JD have broadened their fulfilment and same/next-day delivery capabilities to over 200 cities over the past two years with the build-out of nationwide Tmall Supermarket and JD Asia No. 1 fulfilment centers. (Page 36)
- **Fresh food**, which is 20% of online FMCG segment, will remain relatively more challenging due to high spoilage rates and cold-chain requirements (which are costly to build and maintain). Online giants have been experimenting with an omni-channel approach (online + offline partnerships) by offering deliveries from warehouse-to-home and from stores-to-home directly following a number of their offline supermarket partnerships/investments. (Page 35)

- While Alibaba and JD appear equally aggressive in grabbing online FMCG market share, we believe the offline market is so immense that **both Tmall Supermarket** (under 3P consignment model) and **JD Supermarket** (under 1P model) **can grow GMV in tandem**, taking share from offline channels, over the next few years – enabled by the logistics improvements, wider FMCG brand participation and ongoing new user adoption. **We believe it will take time for profits to emerge** due to low take rates and ongoing fulfilment subsidies under the 3P model (at Tmall Supermarket) and ramp-up time for building scale to expand gross margins (at JD Supermarket), but we expect both online supermarkets to contribute to the bottom line over 2018-2019.

How? Logistics – boxing clever

Where we are different: **we estimate intra-city will grow at double the pace of inter-city over the next few years**

Richard Liu, Founder and CEO of JD (2016), "Goods in China are on average transported seven times before reaching the consumer. We want to reduce that to two times."

- We identify four key themes for ecommerce logistics through to 2020: (1) Intra-city parcels to lead in growth, (2) combined online-offline supply chains, (3) cold-chain infrastructure build-out and (4) technology.
- We believe the **infrastructure** is mostly in place for online giants to change the retail landscape. By storing goods closer to consumers, forming partnerships with offline retailers/supermarkets and providing supply chain solutions to offline retailers and "mom & pop" stores, we believe Alibaba and JD will transform supply chains in China (online + offline) over the next few years. (Page 40)
- We expect **intra-city parcel growth** to be double that of inter-city parcels to 2020 driven by FMCG growth and better supply chain and inventory management (goods are placed closer to end-consumers). **JD Logistics** is well positioned with this emerging trend. Full service/cold-chain logistics providers like S.F. Express (Not Covered), Rokin Logistics (part of CJ Korea Express), Sinotrans and Kerry Logistics could also benefit from increased cold-chain logistics demand.

Who? 670+ million online shoppers

Where we are different: **We expect lower-tier cities to be a bigger swing factor in GMV than rural consumers**

- China's **467 million existing online shoppers spend US$1,300 a year each** on ecommerce, representing over a quarter of average disposable income. Despite this, we believe there is still room for 10% growth a year as three quarters of current online shoppers are Millennials, living in cities that will see their incomes grow over the next few years and spending on more diverse categories.
- We also expect **200 million more** online shoppers in China (exceeding the total number of online shoppers in the US today) to provide new impetus to ecommerce growth out to 2020.
- While we are positive on the long-term potential of China's vast rural, with GMV of Rmb1.1 trillion by 2020 — with Alibaba pledging to invest Rmb10bn into rural expansion over the next 3 years — we believe **lower-tier cities**, where half of China's people live, **will be a bigger GMV swing factor** in the next few years. We expect consumers in these cities to command greater spending power and become home to younger citizens from rural areas as China continues to urbanize.

Stock picks: Three Buys to tap the online profit pool; fulfilment needs to benefit logistics enablers

Online retail players

Alibaba, JD and VIPS together account for c. 80% of goods sold online. We see the profit pool from marketplace (including online advertising and online commissions) expanding to Rmb188bn, up 30% CAGR over 2016-2020E, and direct online sales profits of Rmb37bn by 2020 (85% CAGR). These add up to a **US$33 billion operating profit opportunity** by 2020E (from US$10 billion in 2016), compared with US$18 billion and US$4 billion of operating profits for Wal-Mart and Amazon's US retail businesses in 2016.

- **TAM for online marketplace platforms (GMV of Rmb7.6trn by 2020, 20% CAGR):** we expect Alibaba to remain the dominant online marketplace player with GMV of Rmb6.7trn by FY2021 (March year-end at BABA). Alibaba monetizes its marketplace by being an online marketing platform (charging merchants for advertising, pay-for-performance) and charging merchant commissions (take rate on GMV, depending on categories). We estimate Alibaba's online marketing revenues to grow 23% CAGR on further personalization and targeted marketing, and commission revenues to grow 17% CAGR (as FMCG brings Tmall's blended commission rate down from 2.1% in FY2017E to 1.9% in FY2021E by our estimate).
- **TAM for online direct sales players (GMV of Rmb1.3trn by 2020, 26% CAGR)**: we expect JD to remain the largest single online direct retailer with GMV of Rmb569 billion in direct sales by 2020E (53% of JD's total GMV), with JD Supermarket and general merchandise items contributing to key sources of growth. We expect 1P direct sales to be a bigger piece of the overall GMV pie (from 12% in 2016 to 15% by 2020E) as an increasing number of brands grow their own online direct flagship stores over time.
- **Online profit pool of Rmb225bn (US$33bn) by 2020:** We estimate Alibaba, JD and VIPS will take 69%, 12% and 3% of the 2020 profit pool (from 88%, 2% and 5% in 2016) as JD Mall's core operating profit continues to improve over the next few years, driven by 1P margin improvements in electronics and appliances, and gradual improvement in JD Supermarket's profitability (turning profitable in 2019E).

We see **Alibaba (CL-Buy)** as best positioned for the emerging trends of lower-tier cities, expansion into under-penetrated categories like FMCG (via a marketplace model with less unpredictability surrounding execution), and business model as an online marketing platform. As BABA generates two-thirds of its China retail revenues from **online marketing revenues** (the remaining third from **commissions**, i.e. take rates), we forecast its effective monetization rate to expand further from 2.6% in FY2016 to 3.5% by FY2019E driven by higher personalization, click-through rates, driving higher margins/profitability.

We also expect **JD's (Buy)** logistics strength and Yihaodian acquisition to drive further GMV growth. We expect FMCG margins to gradually improve over the next few years, driving higher profitability of JD Mall longer-term (despite being a drag on 2017-2018 earnings). As a direct online retailer (half of GMV) and also a marketplace, we expect improving 1P gross margins on scale, and online marketing revenues to drive JD's profit turnaround (we forecast non-GAAP/GAAP profits for JD in 2017E/18E).

We also retain our Buy rating on **VIPS (Buy)** given its dominant positioning in the online discount retail market, earnings growth trajectory and valuation discount (trading at 16X 2017E non-GAAP P/E vs. Alibaba at 25X).

Related research

The Asia Stock Collection: Alibaba - The Power of Personalization, Feb 27, 2017

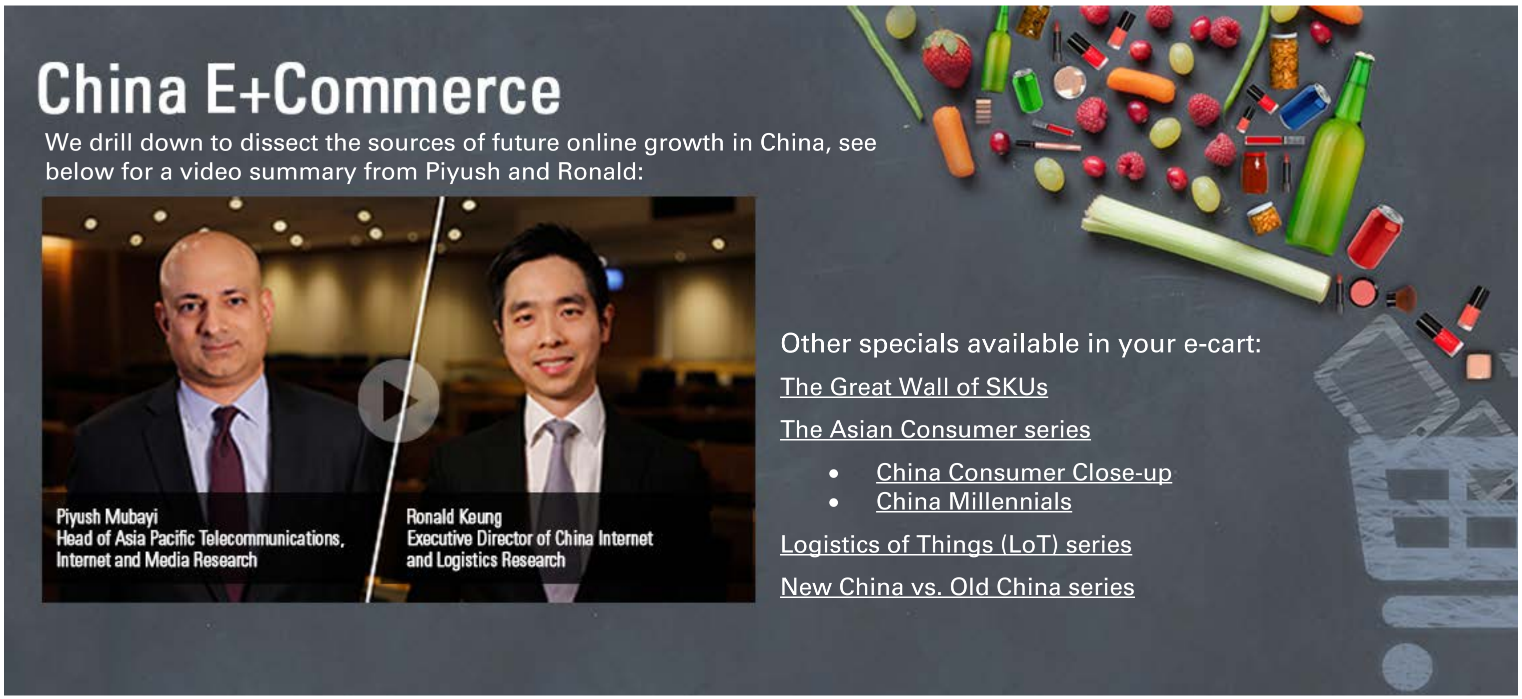
JD: Addressing five key debates; lifting target price to US$38; Buy, Feb 28, 2017

Logistics enablers

The fragmented structure of the logistics and express delivery market, with the largest third-party logistics player **Sinotrans** accounting for <3% of China's contract logistics market and the largest express player (by parcel volumes), **ZTO Express,** accounting for <15% of total parcel volumes in China, lead us to expect execution abilities, competitive cost structure and business model will be crucial factors in driving the ultimate winners.

For **ZTO Express (Buy)**, while we expect parcels growth to be driven more by intra-city parcels (+41% CAGR) over 2017E-2020E, instead of inter-city parcels (+21% CAGR) that ZTO focuses on, we expect ZTO to continue to gain share in the inter-city parcel market (+29% CAGR in volumes) given its strong execution track record (74% parcel volume CAGR over 2011-2016E vs. industry at 54%, with top-quartile service rankings over the past 12 months), and focus on defending its cost leadership with the industry's largest high-capacity truck fleet (enabled by scale, balance sheet) and being an early-mover into sorting automation.

We see a full service logistics offering as a strength; i.e. the ability to help merchants/brands as a one-stop shop, taking care of warehousing, trucking, express and even cold-chain and cross-border requirements. With our expectation of more goods being stored closer to consumers before being boxed to send to end-consumers, we believe full service players with warehouse fulfilment capabilities, like **JD Logistics** and **S.F. Express** (Not Covered), could be well positioned.



Assessing China retail TAM and sizing the profit pools for online players

Exhibit 1: Dissecting China's overall and online retail sales of goods: Apparel and 3C/appliances were the key online categories, we expect FMCG to be next. We estimate Rmb9 trillion in online GMV of goods sold in 2020E (21% CAGR), contributing to an overall profit pool of Rmb225 billion in 2020E (35% CAGR)

CHINA OVERALL RETAIL SALES	Rmb33 trillion (2016) to Rmb46 trillion (2020E) CAGR: 9%
CHINA RETAIL SALES OF GOODS	Rmb30 trillion (2016) to Rmb41 trillion (2020E) CAGR: 9%
ONLINE GMV – GOODS AND SERVICES	Rmb5 trillion (2016) to Rmb12 trillion (2020E) CAGR: 23%
ONLINE GMV OF GOODS	Rmb4 trillion (2016) to Rmb9 trillion (2020E) CAGR: 21%

ONLINE PENETRATION OF GOODS
14% in 2016 to 21.5% by 2020E (GSe)

	APPAREL, SHOES & ACCESSORIES	ELECTRONICS (3C) & APPLIANCES	FMCG GROCERIES (PERSONAL CARE, FOOD)	FURNITURE & FININSHINGS	AUTO & FUEL	OTHER GOODS
2016 online + offline market size	Rmb 2.5trn	Rmb 1.8trn	Rmb 10.9trn	Rmb 1.1trn	Rmb 7.3trn	Rmb 6.0trn
As % of China retail goods spending	8%	6%	37%	4%	25%	20%
As % of China online GMV	25%	18%	13%	1%	7%	36%
2013-2016 ave. growth						
Offline + online:	6%	8%	7%	8%	14%	39%
Online:	34%	31%	35%	62%	N/A	34%
2017E-2020E ave. growth						
Offline + online:	7%	4%	6%	5%	6%	20%
Online:	20%	13%	34%	24%	N/A	22%
Online penetration (adjusted*) – 2016E	31%	40%	5%	4%	N/A	16%
Online penetration (adjusted*) – 2020E	49%	55%	12%	8%	N/A	17%

TAM	Marketplace (3P) GMV		
	Online marketing revenue pool		
	Online commissions revenue pool		
	Online direct sales (1P) GMV		
	Online direct sales revenue pool		
Operating profit pool	Marketplace profit pool	Rmb65bn (2016E) to Rmb188bn (2020E) CAGR: 30%	*Alibaba's share: 92% (2016E) to 82% (2020E)*
	Online direct profit pool	Rmb3bn (2016E) to Rmb37bn (2020E) CAGR: 85%	*JD's share: NM (2016E) to 39% (2020E)*
	Overall profit pool	Rmb68bn (2016E) to Rmb225bn (2020E) CAGR: 35%	*Alibaba's share: 88% (2016E) to 69% (2020E)*

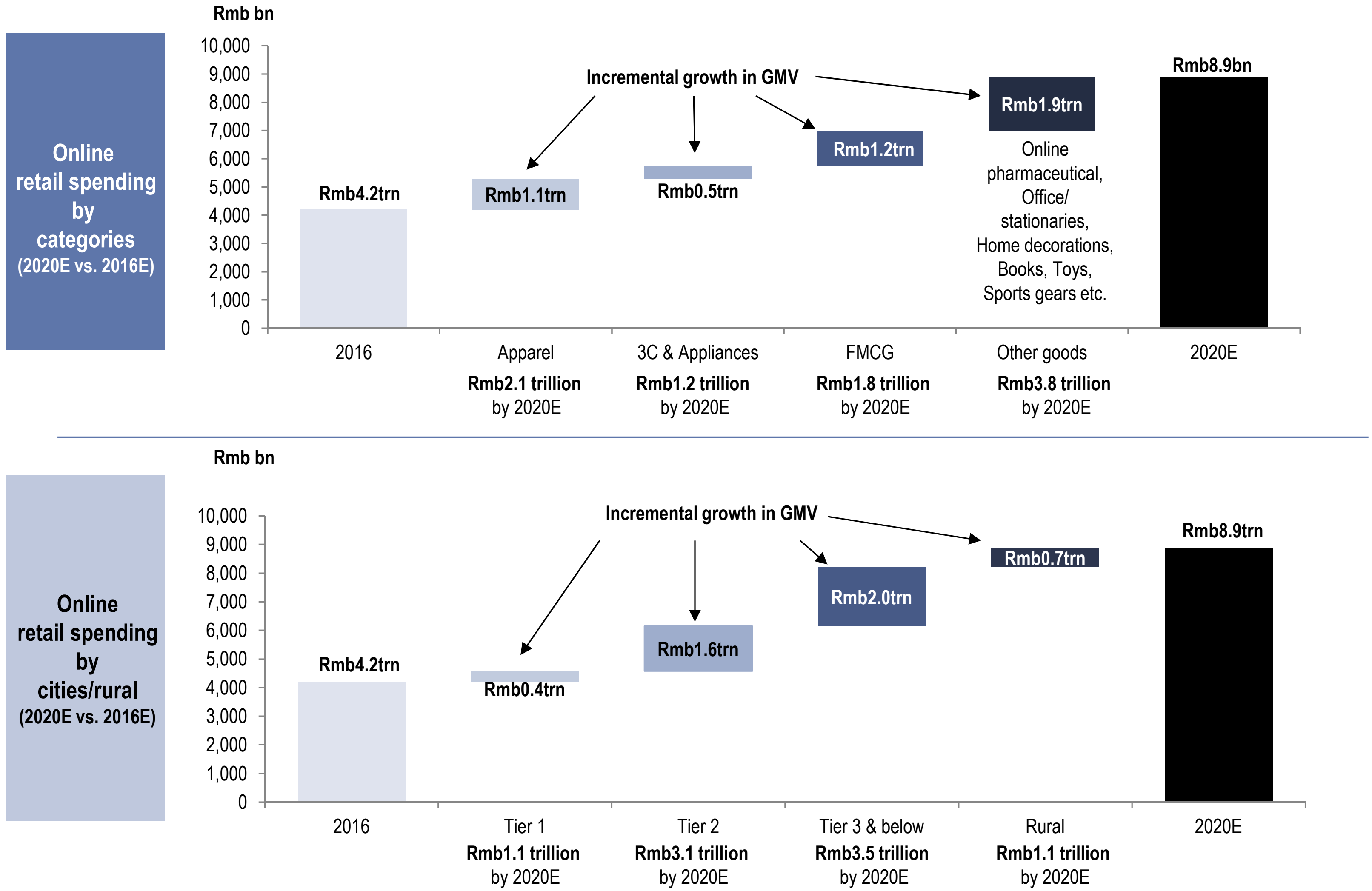
Note: Including both online goods and services, online penetration would be 25% by 2020E vs. 16% in 2016.*Penetration by categories are adjusted for returns and unfulfilled orders.

Source: Euromonitor, iResearch, Kantar, eMarketer, Company data, Goldman Sachs Global Investment Research.

Understanding the sources of growth

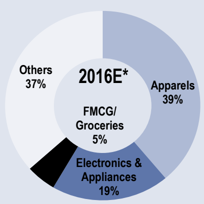
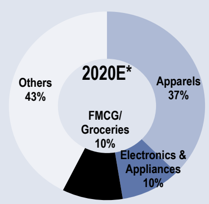
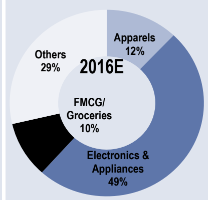
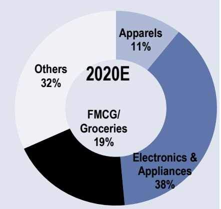
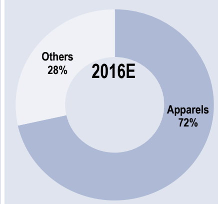
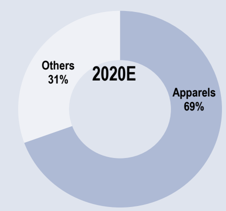
- **FMCG will be one of the biggest swinging factors for online GMV growth**, we estimate Rmb1.2 trillion in incremental GMV over 2017E-2020E. We expect top and mid-tier cities to tap into more convenient grocery shopping, where both JD and Tmall (via Cainiao's dedicated Tmall fulfilment centers) are well positioned to grab share from the offline market.
- **Tier 3-6 cities will drive Rmb2 trillion in incremental spending**, in our view, from apparel, 3Cs, appliances and FMCG.

Exhibit 2: 2020E vs. 2016 market size by category and demographics: We expect FMCG to be the largest single category contributing to growth till 2020. In terms of consumers, we expect online shoppers from Tier 3 cities and below to be the biggest driver



Source: Euromonitor, iResearch, Kantar, Company data, Goldman Sachs Global Investment Research.

Exhibit 3: Head to head: Alibaba (Conviction list), JD and VIPS at a glance and key comparisons (2016 to 2020E): We see broadly similar market cap vs. GMV relationships between the three online players (despite the different business models, business segments & investments)

	Alibaba (BABA, Buy)		JD (Buy)	VIPS (Buy)
Current market cap (US$bn)	**US$258bn** China retail: US$183bn (GSe: 71% of NAV)		**US$44bn** **1/6 of BABA's market cap** China retail: US$36bn (GSe: 88% of NAV)	**US$8bn** **1/6 of JD's market cap**
	Taobao	**Tmall**	**JD Mall**	**VIP Shop**
Market share in China online retail goods sold (2016E)	**65%**		**12%**	**2%**
2016E headline GMV (Rmb bn)	**Rmb2.2trn***	**Rmb1.6trn***	**Rmb0.65trn** **JD's GMV is 1/6 of overall BABA, or at 40% of Tmall**	**Rmb0.07trn (net GMV)** **VIPS' GMV is 1/7 of JD (net)**
2020E headline GMV (Rmb bn)	**Rmb3.3trn^**	**Rmb3.3trn^**	**Rmb1.4trn** **JD's GMV to be 1/5 of overall BABA, or 43% of Tmall**	**Rmb0.1trn (net GMV)** **VIPS' GMV to be 1/9 of JD (net)**
Active Buying Customers (million, 2016E)	**443 million**	50% 50%	**200 million** 55% 45%	**52 million** 20% 80%
Category mix		 *Tmall only		
Business model	**C2C marketplace**	**B2C marketplace where:** Tmall Supermarket uses a consignment model	**B2C direct sales (57% of 2016E GMV)** **B2C marketplace (43% of 2016E GMV)**	**B2C direct sales (95% of 2016E GMV)** **B2C marketplace (5% of 2016E GMV)**
Offline analogy	Commercial real estate e.g. Manhattan Mall		Wal-Mart	T.J.Maxx, Ross Stores
Logistics assets	47% stake in Cainiao Network		Owned + leased fulfilment centers, warehouses, distribution centers	Owned + leased fulfilment centers, warehouses, distribution centers
Last-mile delivery	Third-party logistics (3PL)		In-house (50% of parcels) + 3PL (50% of parcels)	In-house (90% parcels) + 3PL (10% parcels)

*Source: Euromonitor, iResearch, Kantar, Analysys, Company data, Goldman Sachs Global Investment Research. Note: *FY2017E ^FY2021E*

WHAT?

Apparel and Electronics/Appliances still have room to grow

- In this section, we assess the room for growth for the current two largest online categories, Apparel and Electronics & Appliances.
- We expect apparel **growth to normalize**, Alibaba's dominance to continue with its 3P + third-party logistics model.
- We see the **duopoly** structure of JD and BABA in a slowing online electronics/ appliances market continuing. JD to maintain the lead (1P + in-house logistics).

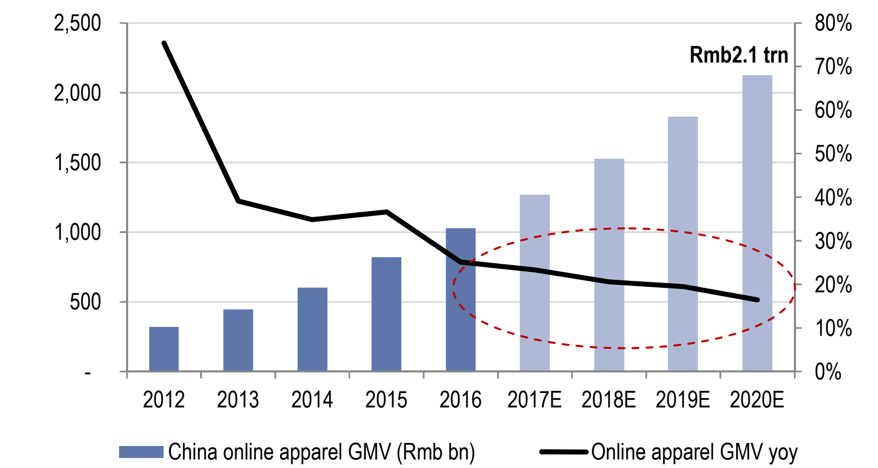
Overview: Apparel and Electronics/Appliances still have room to grow

Today, almost a quarter of all ecommerce sales is **apparel, footwear and accessories,** where Alibaba is biggest (with a marketplace model). Another one-fifth is **electronics and appliances** where JD (with a direct sales model) and Tmall+Suning each occupy >40% of the market. While 30-40% of these categories are sold online in China (according to Euromonitor on B2C), we think there is still room for lower-tier cities to catch up and even surpass top-tier cities due to weaker offline retail offerings. For more seasoned e-consumers, Augmented and Virtual Reality, plus offline experience stores, could drive apparel online penetration further into non-standardized items, in our view. We expect **Alibaba** and **JD** to remain dominant in their existing categories, sustaining their market shares in online apparels and electronics/appliances over the next few years.

TAM'ing the two key existing ecommerce segments

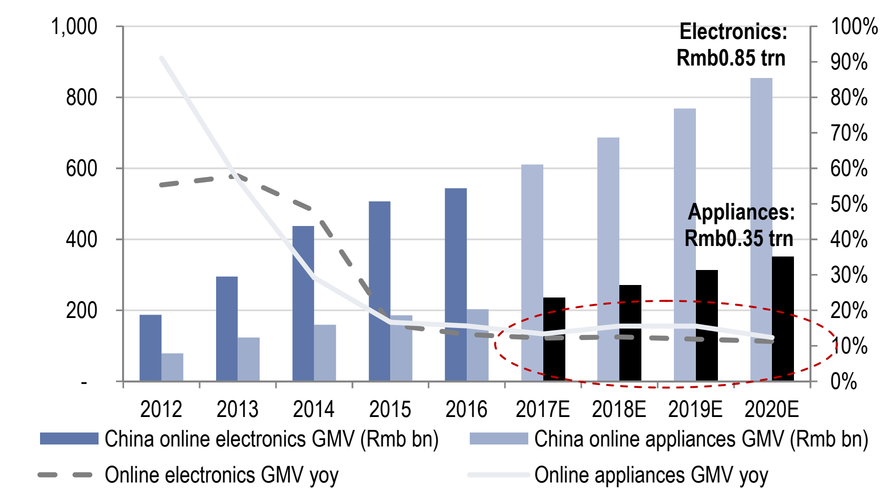
- **Apparel, footwear and accessories (Overall market: 7% CAGR till 2020E; Online GMV: Rmb2.1 trillion by 2020, 20% CAGR):** Referencing Euromonitor data, cross-checked with National Bureau of Statistics of China, iResearch and Analysys, we forecast the overall offline+online apparel, footwear and accessories market to grow 7% CAGR over 2017E-2020E driven by 3% CAGR in apparel units per person and 4% CAGR in price per unit with the shift to more branded. We see high correlation between apparel sales per capita and GDP per capita compared across countries, in line with our market size estimation. For online penetration, we forecast apparel online GMV to reach Rmb2.1 trillion, or 20% CAGR, driven by the further rise in adjusted penetration from 31% in 2016 to 49% by 2020 from lower-tier cities/rural shoppers and technology (in driving online sales of less-tapped unstandardized/high-end segments).
- **Electronics and appliances (Overall: 4% CAGR till 2020E; Online GMV: Rmb1.2 trillion, 13% CAGR):** We expect the overall market to be driven more by replacement demand over the next few years, 4% CAGR, while online penetration to expand to 61%/44% for electronics/appliances by 2020 (from 45%/31% in 2016). The slower growth outlook reflects our expectation of competition from offline channels (e.g. OPPO/Vivo's extensive offline distribution network focusing on lower-tier cities), part offset by competitive logistics fulfilment capabilities and scale benefits of online players.

Exhibit 4: We forecast 20% CAGR for online apparel GMV over 2017-20E...
Online apparel market GMV and our growth forecasts (gross, before returns)



Source: Euromonitor, China NBS, Analysys, Goldman Sachs Global Investment Research.

Exhibit 5: ...and 13% CAGR for online electronics and appliances
Online electronics/appliances market GMV and our growth forecasts (gross)



Source: Euromonitor, China NBS, Analysys, Goldman Sachs Global Investment Research.

Apparel: Online growth to normalize, Alibaba's dominance to continue

Apparel, footwear and accessories account for a quarter of China's ecommerce GMV and was the key category driving the early rise of ecommerce. Online penetration of this segment was over 30% in 2016, based on Euromonitor B2C data and taking into account of returns, while we expect this to expand to 49% in 2020E supported by technology (live-streaming, AR/VR see page15) and the rising spending power of consumers in lower-tier cities. Alibaba is the dominant player – and we expect it to remain so on the back of its effective marketplace (3P) model plus strength of the 3PL network under Cainiao (ZTO, YTO, Yunda, STO are key delivery partners).

Exhibit 6: Apparel made apparent – our forecasts for the segment. We estimate higher online penetration to drive the online apparel market to Rmb2 trillion GMV by 2020E, with Alibaba's dominance to continue with over 70% market share in the B2C market (Tmall)

31% → 49%

our forecasts for online penetration of apparel in China, adjusted for returns and unfulfilled orders (2016→ 2020E)

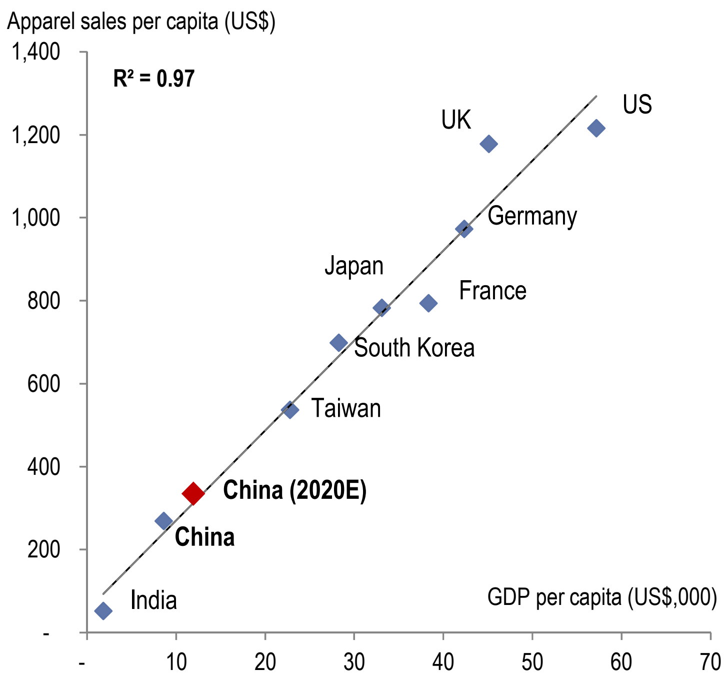
Rmb1.0trn → Rmb2.1trn

our forecasts for online apparels, footwear and accessories market size in China (**20% CAGR**, 2016→ 2020E)

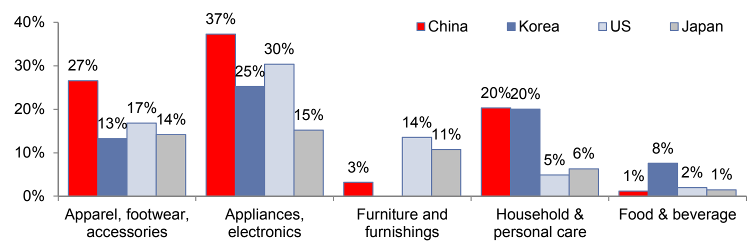
73% → 72% (for Tmall)

our forecast for Tmall's market share in the B2C apparels market (2015→ 2020E)

We expect China's overall (online + offline) apparel and footwear market to grow at CAGR of 7% over 2017-2020E



Apparel has one of the highest online penetrations in China (2015)



Note: After adjusting for returns, unfulfilled orders

But we expect further growth driven by technology, lower-tier cities

2016-2020E CAGR, ppts

	Online retail sales of goods
China	**21%**
Tier 1 city	11%
Tier 2 city	19%
Tier 3 and below cities	25%
Rural	25%

Source: Euromonitor, Analysys, Kantar, Company data, Goldman Sachs Global Investment Research.

Electronics (3C) & Appliances: Duopoly in a slowing online market; JD to keep its lead

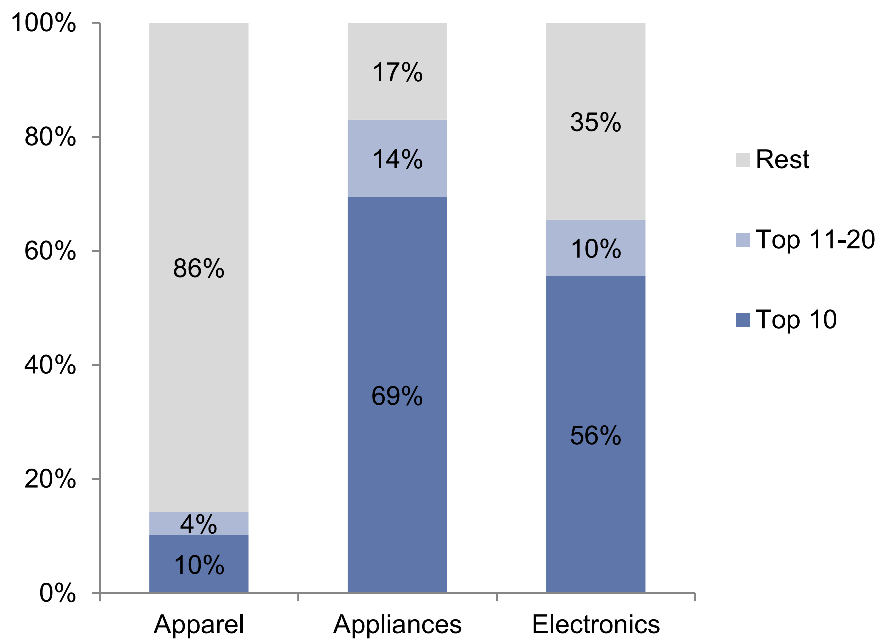
We expect the overall **electronics and appliances** market in China to grow by an average 4% a year over 2017E-2020E. After years of high growth, we see the appliances market shifting from a penetration story to a replacement/upgrade story. See *Initiation: White goods leaders freeze out global peers; Buy Haier (A) Dec 14, 2016,* for further details.

Exhibit 7: Electronics market to cool, appliances market to continue to grow

45% → 61% (for Electronics) **31% → 44%** (for Appliances) our forecasts for online penetration of apparels and electronics in China, adjusted for returns, unfulfilled orders (2016→ 2020E)	**Rmb544bn → Rmb854bn** (for Electronics, 10% CAGR, 2% take rate) **Rmb203bn → Rmb352bn** (for Appliances, 14% CAGR, 3% take rate) our forecasts for online market size in China	**43% → 53%** (for JD) **46% → 46%** (for BABA+Suning) our forecast for market share in the B2C 3C and appliances market (2015→ 2020E)

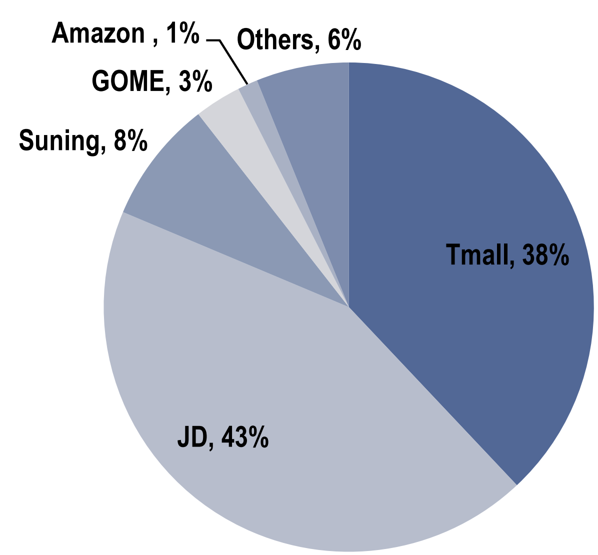
Unlike apparel, appliance brands are more consolidated and predominantly B2C (84%)

Market share of Top 10, 20 brands



Offline retailers Suning and Gome have c.10% of online market share, while JD is most dominant in 3Cs; BABA and Suning began their tie-up in 2015

Online appliances, electronics B2C market share in 2015



Source: Company data, Analysys, Goldman Sachs Global Investment Research.

The rise of technology: Live-streaming, AR/VR

Live streaming & ecommerce: stimulating more shopping interest

Ecommerce platforms like Tmall have introduced live streaming features, and platforms (e.g. Weibo, YY) direct traffic to ecommerce sites regarding their mentioned products (e.g. Key Opinion Leaders, or we call KOLs, typically recommend apparel, and will direct their audiences to their Taobao stores). Other platforms like www.bolo.me, is a 1P cross border ecommerce platform that focuses on interactive live streaming overseas shopping sessions. The combination of media, entertainment and ecommerce is one of Alibaba's strategies in expanding the reach/scopes of online shopping via investments into Yukou Tudou, and stake in Weibo.

<u>Virtual reality vs. augmented reality</u>
VR uses an opaque headset (which you cannot see through) to completely immerse the user in a virtual world whereas AR enables users can see the real world and overlay information and imagery onto it.

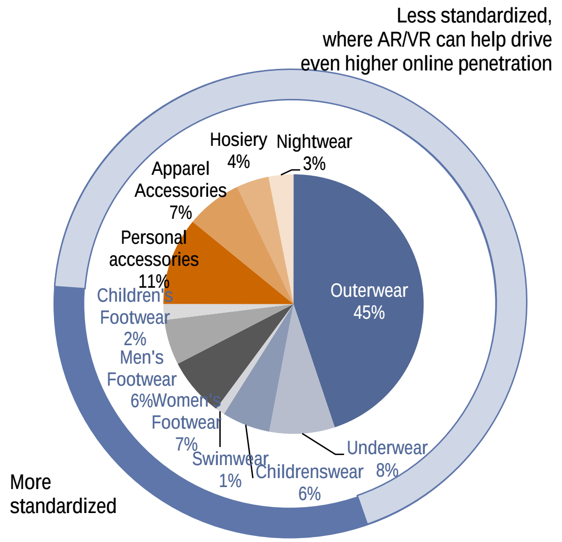
VR/AR: We expect to help drive higher online penetration of non-standardized/high-end items

Our Technology research team expects the adoption of VR and AR technology to revolutionize the high-end retail market, which has traditionally been challenging for the internet to penetrate. With such technology, an apparel consumer could use VR/AR to see how clothes would look on them without physically trying them on, and even shop around in virtual stores using VR devices and pick items in the VR environment without physically visiting the malls/stores.

- For Alibaba, its VR based promotion platform Buy+ had 8mn customers during 2016 Singles' Day, its virtual stores included Macy's, Costco, P&G, Chemist Warehouse, Freedom Foods, etc.
- JD announced in Dec 2016 the launch of its AR shopping platform JD dream in 2017. The platform will provide various AR/VR supported services in online shopping.

We believe AR/VR with offline experience stores will part contribute to rise in apparel online penetration: 31% (2016) to 49% by 2020.

Exhibit 8: We expect technology e.g. AR/VR to help drive higher penetration into non-standardized items longer-term, e.g. suits, accessories, coats
Apparel market breakdown by value, 2016



Source: Euromonitor..

Exhibit 9: We expect the adoption of VR and AR technology to revolutionize the high-end retail market, partly underpinning our expectation of online penetration of apparels to rise to 49% by 2020 from 31% in 2016 (after adjusting for returns, unfulfilled orders)
Link to *Profiles in Innovation: Virtual & Augmented Reality*

Source: Goldman Sachs Global Investment Research.

Can apparel online penetration rise further? Yes – but less of a swing factor now

We expect underlying online penetration of apparel to grow from 31% in 2016 to 49% by 2020, implying online apparel growth of 20% over 2017-2020E. We believe such levels are achievable given **(1)** a large proportion apparel categories are standardized, **(2)** we expect further adoption of AR/VR in online shopping, and **(3)** China's low delivery costs, at US$1-2 per delivery vs. developed markets of US$5-7 in Japan/US.

Exhibit 10: Apparel will be a smaller swing factor to overall online GMV growth ahead vs. the past few years, as other online categories grow

Scenario analysis: Impact on apparel online penetration to overall online retail goods

Apparel online penetration (adjusted)	35%	Base case: 49% by 2020E	55%	65%
Overall online retail growth CAGR (2017E-2020E)	19%	21%	21%	22%

Source: Euromonitor, Goldman Sachs Global Investment Research.

JD and VIPS finding their niche

We expect Alibaba's dominance in apparel via the marketplace model to continue, but we expect 1P/consignment models at JD/VIPS could continue to develop in their niche target markets — 1P male apparel at JD and flash sales at VIPS. For example, as show in our case study below of H-Style (strong performing Tao brand) and Liebo (underperforming Tao brand), Vipshop has taken some share from Alibaba, particularly in clearing inventory for Tao brands (e.g. Liebo that had underperformed other brands) via flash sales.

Exhibit 11: Case studies for H-Style and Liebo – apparel market share gains at VIPS

H Style's sales by platform: 2015 vs. 2014

Sales by platform (mn)	2015		2014	
Tmall & Taobao	840.03	66.68%	585.61	70.45%
VIPS	322.83	25.63%	180.77	21.75%
JD	49.48	3.93%	26.33	3.17%
Official website	15.85	1.26%	15.94	1.92%
Dangdang	5.60	0.44%	7.48	0.90%
Total	**1,259.74**	**97.94%**	**831.22**	**98.18%**

Liebo's sales by platform: 2015 vs. 2014

Sales by platform	2015		2014		2013	
Tmall & Taobao	319.36	58.5%	424.03	73.3%	571.84	83.2%
VIPS	198.49	36.4%	112.76	19.5%	50.69	7.4%
JD	14.08	2.6%	17.79	3.1%	28.16	4.1%
Official website	5.43	1.0%	9.28	1.6%	7.74	1.1%
Ladygo by Alibaba	1.96	0.4%	-	0.0%	-	0.0%
Others	6.66	1.2%	14.76	2.6%	29.15	4.2%
Total	**545.98**	**100.0%**	**578.63**	**100.0%**	**687.58**	**100.0%**

Source: Company data, Goldman Sachs Global Investment Research.

Implications of brands' online direct stores and alternative online channels like micro-merchants: we expect the Big 3's market share to gradually lower over the next few years

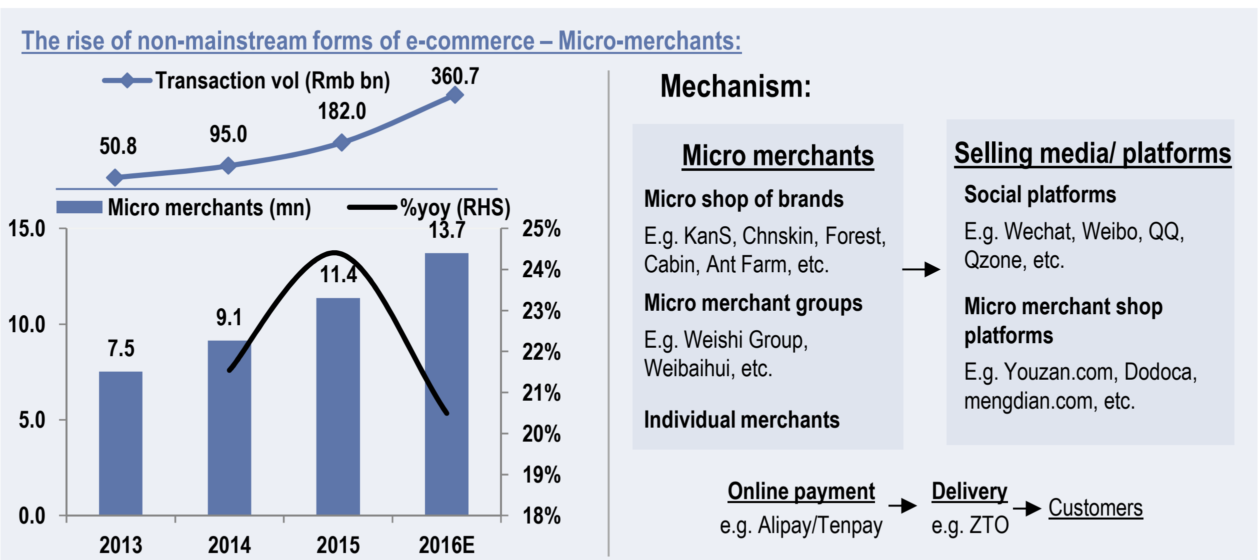
Alibaba, JD, VIPS together accounted for c. 80% of online retail goods sold in China in 2016, although we forecast the market share of the Big 3 to fall to 68% by 2020E. The rise of micro-merchants is a factor that underpins our expectation (see below). We also expect more brands to open their own online flagship stores (e.g. nike.com in China) in the future as online sales rise to a critical percentage and as more brands build their direct online customer relationships via personalization experiences at Tmall.

Micro-merchants are individual or enterprises that leverage interpersonal networks on internet mobile social platforms to conduct sales of goods or provide services. According to the Internet Society of China, transaction volumes generated from micro-merchants' social ecommerce was estimated at Rmb361bn in 2016, or 7% of overall online retail sales.

Top categories sold in 2015 by micro-merchants were: **(1)** Food & Beverage**, (2)** Offline supermarket items, and **(3)** Apparel, bags and shoes based on transaction volumes. A typical micro-merchant / micro-merchant group uses social platforms, e.g. Wechat via. the Moments function to post its latest product offerings. Online payments are then taken via. Alipay/Tencent Pay, and third-party express delivery players will help deliver the products.

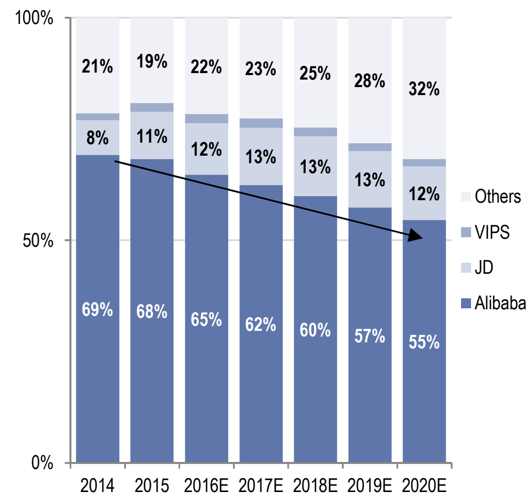
Given the general lack of clear policies in regulating micro-merchant transactions, issues of fake goods / logistics of good could impact user experience. We expect more policies to be enacted in the future to ensure healthy development of the numerous micro-merchant individuals and over 10,000 of micro-merchant enterprises.

Exhibit 12: Online sales provided by micro-merchants have grown significantly with the rise of social platforms, such as WeChat
Market size of micro-merchants (7% of online retail sales in 2016E) and mechanism



Source: Internet Society of China, iimedia, Sina news reports, Company data.

Exhibit 13: Online direct flagship stores, micro-merchants and rise of cross-border players like NetEase drive our market share estimates
Market share of Big 3 players by GMV



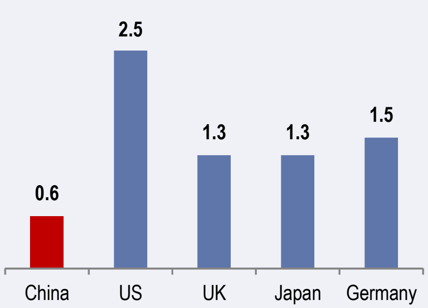
Source: Company data, China NBS, Goldman Sachs Global Investment Research.

The online discount retail market in China

The limited well-developed **offline discount/outlet retail offerings** in China has driven growth of online niche discount platforms like **Vipshop**, that works with over 10,000 brand partners by selling their excess inventory and off-season products at discount prices, under a flash sales model. Vipshop's net revenues reached Rmb57bn in 2016, which we estimate accounted for 3% of the overall (incl. online) apparel and footwear market in 2016 (or 30% of the discount market).

Offline retail in China remains relatively underdeveloped vs. developed countries, with a lack of well developed discount/outlet retail players...

2016 Retail space per capita (sqm)



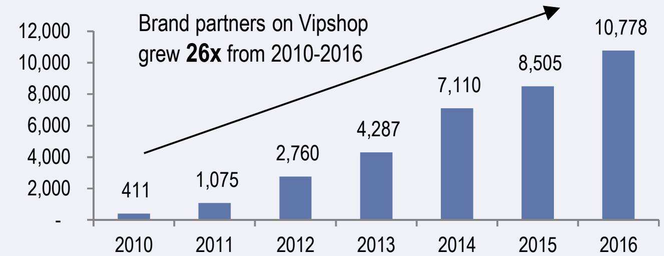
China vs. the U.S.

	Discount price retailer [Store number]		Offline outlet stores [outlet number]	
US	T.J. maxx [3,785]	ROSS [1,535]	SIMON [78]	Tanger [44]
China	None		BAILIAN [5]	BEIJING SCITECH [1]

Note: data as of Jan 2017.

...brands have therefore largely relied on third-party platforms to build online presence in the off-season/discount retailing market

Brand partners on Vipshop

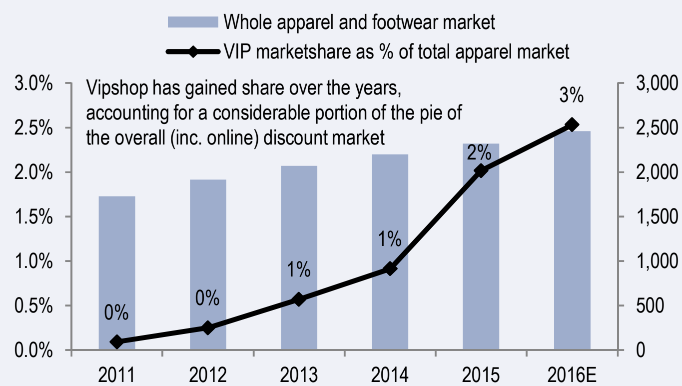


Vipshop's footprint in cross-border ecommerce (CEBC): the company has specialized purchase teams in over 11 countries around the world selecting products for its customers, and the logistics is supported by 12 overseas warehouses and 11 domestic bonded warehouses.

Vipshop vs. the US offline discount retailors: we see room for margin improvement at Vipshop

	VIPS			T.J. Maxx			ROSS		
US$ mn	2013	2014	2015	2013	2014	2015	2013	2014	2015
Revenue	1,697	3,774	6,379	25,878	27,423	29,078	9,721	10,230	11,042
% yoy	139%	122%	69%	12%	6%	6%	13%	5%	8%
Gross Profit	408	938	1,570	7,357	7,818	8,302	2,710	2,869	3,104
% margin	24%	24%	24%	28%	29%	29%	28%	28%	28%
EBIT (Adj.)	66	211	419	3,107	3,351	3,610	1,272	1,343	1,488
% margin	4%	6%	7%	12%	12%	12%	13%	13%	13%
Net profit	65	193	344	1,907	2,057	2,225	786.8	837.3	924.7
% margin	4%	5%	5%	7%	8%	8%	8%	8%	8%

We estimate the off-season market generally accounts for 10% of sales

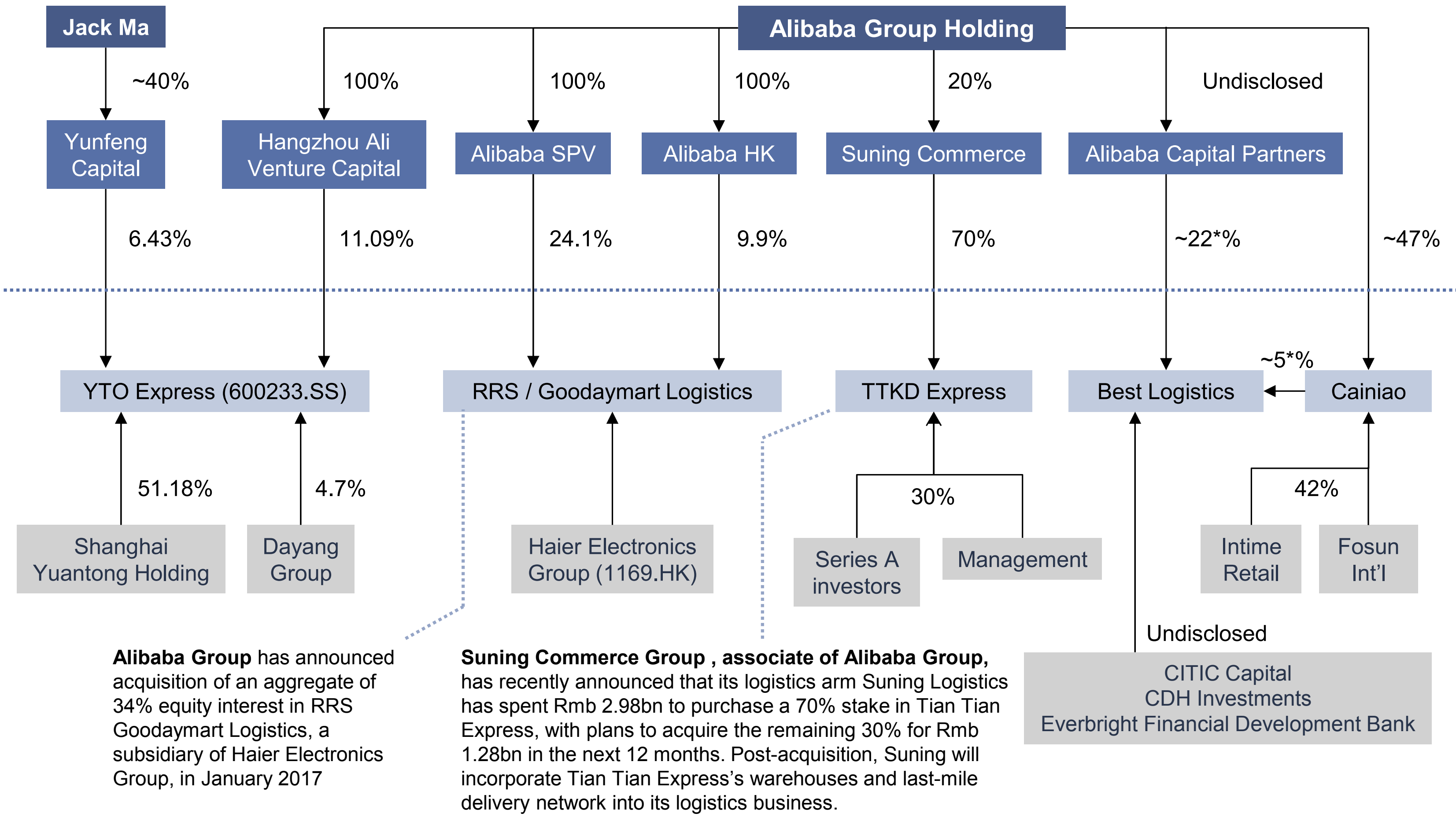


Source: Company data, iResearch, Euromonitor, L2 Inc, Goldman Sachs Investment Research.

Case study: Alibaba's expanded logistics & 1P exposure via investments into RRS, Suning

We believe success in the 3C and appliances online market hinges on brand awareness, direct sales (1P) and in-house logistics given consumers' expectations of timely/fast delivery given the high transaction value. We see BABA's tie-up with Suning (with 1P model) and further investments in RRS as testament to such. We expect JD and Suning to broadly continue their duopoly market positioning over the next few years, see Exhibit 15.

Exhibit 14: Alibaba's logistics ecosystem by share ownership: Alibaba has tied up with 1P players Suning and in-house logistics player RRS, which we believe will support the duopoly structure of the online 3C/appliances market over the next few years

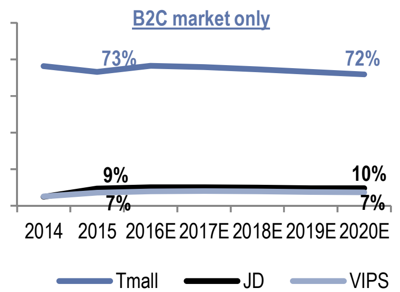
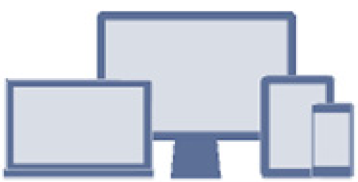
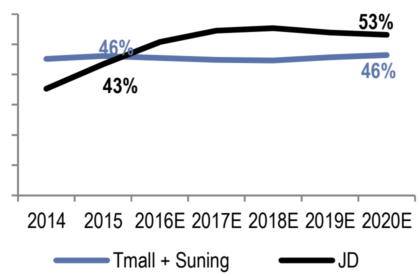
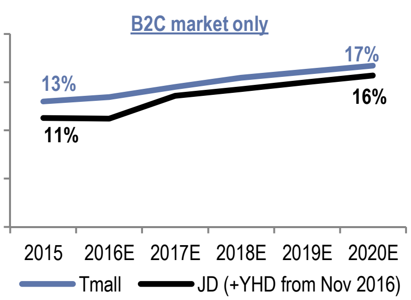


Source: Company data, Goldman Sachs Global Investment Research.

We expect Alibaba and JD to maintain their respective market shares in the two largest categories: apparel, 3Cs

We outline our expectation of Alibaba, JD and VIPS' market shares in each major category over the next few years, the commission rates for each (where apparels have highest take rates) and the logistics requirements (which are less demanding for apparels, but more demanding for electronics and FMCG). We believe the key swing factor to GMV and profit growth prospects ahead hinges on FMCG, which brings us to the next section "*What's next? US$2 trillion FMCG market now in focus*".

Exhibit 15: Snapshot of ecommerce key categories. Following inroads achieved by Alibaba and JD in their respective strongest categories (apparel, 3C), we believe Alibaba and JD are targeting the high frequency, sticky user base in FMCG/groceries

	AVERAGE ORDER SIZE	AVE. TAKE RATE	MARKET SHARE & GS FORECASTS (%)	CHARACTERISTICS AND LOGISTICS REQUIREMENTS
APPARELS 	Rmb100	5%-8%		• **Characteristics: Small** ticket size, **low** frequency, **high** take rate • **Logistics: Less** time sensitive, **light** parcels
ELECTRONICS (3C) & APPLIANCES 	Rmb400	2%-3% 6% for parts		• **Characteristics: High** ticket size, **low** frequency, **low** take rate • **Logistics: More** time sensitive, **light** parcels for 3Cs
FMCG/GROCERIES (PERSONAL CARE, FOOD) 	Rmb150	1%-5%		• **Characteristics: Low** ticket size, **high** frequency, **low** take rate • **Logistics: More** time sensitive, **heavy** parcels for liquids, **cold-chain** for fresh food

Source: Euromonitor, iResearch, Kantar, Analysys, Company data, Goldman Sachs Global Investment Research.

WHAT'S NEXT?

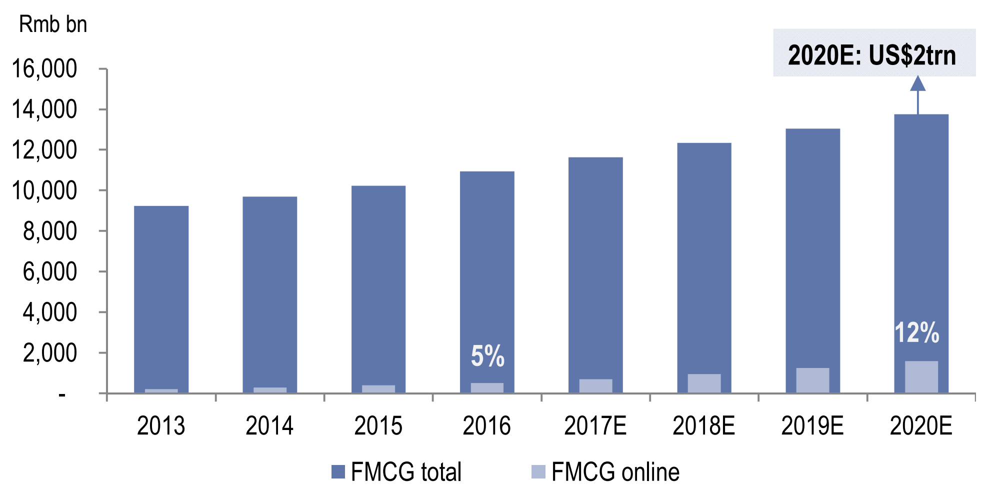
US$2 trillion FMCG market now in focus

- We expect Tmall and JD 's **online supermarkets to take off,** particularly for non-fresh, i.e. packaged food, beverages and general groceries.
- We think the **overall (offline + online) market size is vast enough at US$2 trillion** (by 2020) for two online players to grow in tandem over the next few years, before any ultimate winner emerges - be it JD's 1P + in-house model or Tmall Supermarket's 3P, consignment + Cainiao fulfilment model.
- Supermarket **losses will narrow** for both online players over 2017E-2018E and begin to contribute to profits from 2019E, in our view, driven by scale.
- We expect **fresh food to remain a challenging** category.

Overview: US$2 trillion FMCG market now in focus

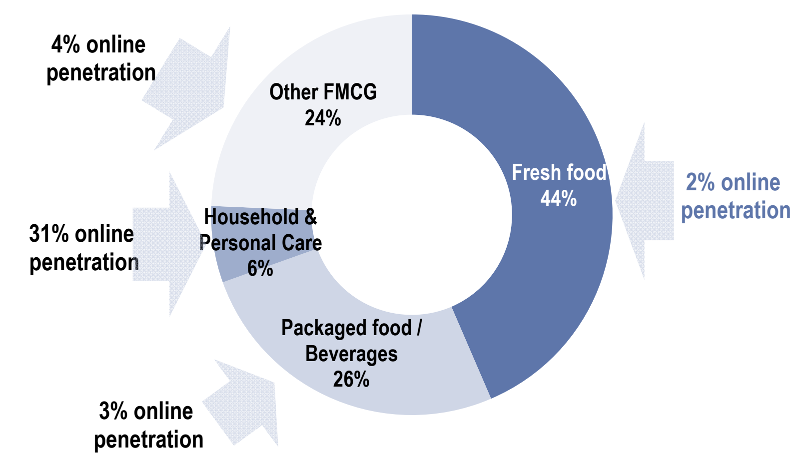
- The biggest opportunity we see as one of the fastest growing segments in online retail is **Fast Moving Consumer Goods (FMCG)** and groceries – a US$2 trillion market in China by 2020E, which is 37% of all retail spending today. FMCG and groceries include fresh food, packaged food, personal care, beverages, healthcare, infant/maternity (ex. fashion) etc — that is, all the items that one would expect to find in a typical supermarket.
- FMCG has traditionally been a challenging category for online — with penetration of only 5% in 2016 due to thin margins, small ticket sizes, low coverage of rapid delivery, and for marketplace players – adapting to a consignment business model (that requires taking greater control of inventory management on behalf of brands). Both Alibaba (via. affiliate Cainiao) and JD have broadened their fulfilment and same/next-day delivery capabilities to over 200 cities over the past two years with the build-out of nationwide Tmall Supermarket and JD Asia No. 1 fulfilment centers.
- **Fresh food**, which is 20% of online FMCG segment, will remain relatively more challenging due to high spoilage rates and cold-chain requirements (which are costly to build and maintain). Online giants have been experimenting with an omni-channel approach (online + offline partnerships) by offering deliveries from warehouse-to-home and from stores-to-home directly following a number of their offline supermarket partnerships/investments.
- While Alibaba and JD appear equally aggressive in grabbing online FMCG market share, we believe the offline market is so immense that **both Tmall Supermarket** (under 3P consignment model) and **JD Supermarket** (under 1P model) **can grow GMV in tandem**, taking share from offline channels, over the next few years – enabled by the logistics improvements, wider FMCG brand participation and ongoing new user adoption. **We believe it will take time for profits to emerge** due to low take rates and ongoing fulfilment subsidies under the 3P model (at Tmall Supermarket) and ramp-up time for building scale to expand gross margins (at JD Supermarket), but we expect both online supermarkets to contribute to the bottom line over 2018-2019.

Exhibit 16: We forecast the overall (offline + online) FMCG (including grocery) market to reach Rmb14 trillion (US$2 trillion) by 2020
China overall and online FMCG market size



Source: Kantar Retail, Goldman Sachs Global Investment Research.

Exhibit 17: And online penetration to rise to 13% by 2020E from 5% in 2016 driven by packaged food, personal care, beverages, infant etc.
Online penetration by FMCG categories (2016)



Source: Euromonitor, Kantar, Goldman Sachs Global Investment Resaerch.

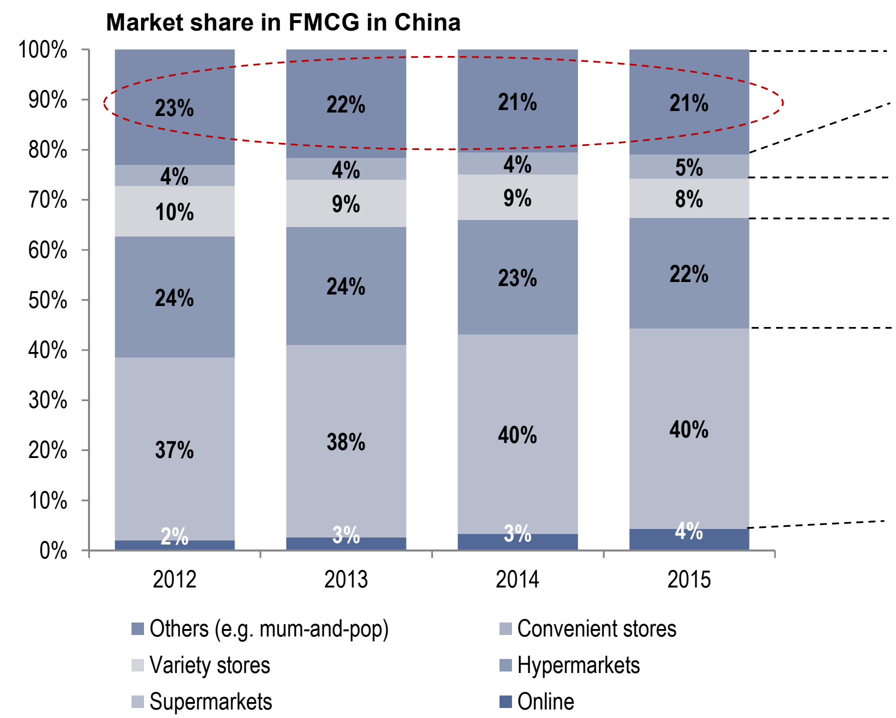
FMCG and Groceries: Vast potential for online expansion

The FMCG (Fast Moving Consumer Goods) and groceries segment includes fresh food, packaged food, personal care, beverages, healthcare, infant/maternity (ex. fashion) etc., i.e. all the general items/SKUs (Stock Keeping Units) that one would expect in a typical supermarket/grocery store. The FMCG/grocery market in China accounts for 37% of overall China retail goods spending, the largest single category, where we expect 6% CAGR in spending over 2016-2020E, reaching Rmb14 trillion (US$2 trillion) by 2020E.

We expect online FMCG to continue to gain share, particularly as traditional "Mom & Pop" losses share as online consumers in lower-tier cities go online for a wider selection of product offerings, and enjoy the improved fast delivery experience.

Exhibit 18: China FMCG/grocery market penetration to grow as big players build out logistics infrastructure

5% → 13%	Rmb11trn → Rmb14trn	Rmb0.6trn → Rmb1.8trn
our forecasts for online penetration of FMCG groceries in China (2016→ 2020E)	our forecasts for total offline + online FMCG and groceries market size in China (**6% CAGR**, 2016→ 2020E)	our forecasts for online FMCG and groceries market size in China (**34% CAGR**, 2016→ 2020E)



- **"Mom & Pop": Losing** share, limited SKUs, Store size <200 sqm
- **Convenient stores: Gaining** share, 18-24 hours operation, chain operation, up to 4,000 SKU. **7-Eleven, FamilyMart, LAWSON etc.**
- **Variety stores: Losing** share. **Watsons, Mannings etc.**
- **Hypermarkets: Losing** share. Generally >6,000 sqm, over 10,000 SKUs offering full selection of groceries and general merchandize. **Vanguard, Carrefour, RT-Mart, Walmart, Yonghui**
- **Supermarkets: Gaining** share. Generally 1,000-5,000 sqm, <10,000 SKUs. **Hualian, WUMart, Jingkelong, Ole**
- **Online: Gaining** share. Fragmented with **Taobao, Tmall, JD and Yihaodian** occupying half of the online market

Source: Company data, Kantar Retail, Goldman Sachs Global Investment Research.

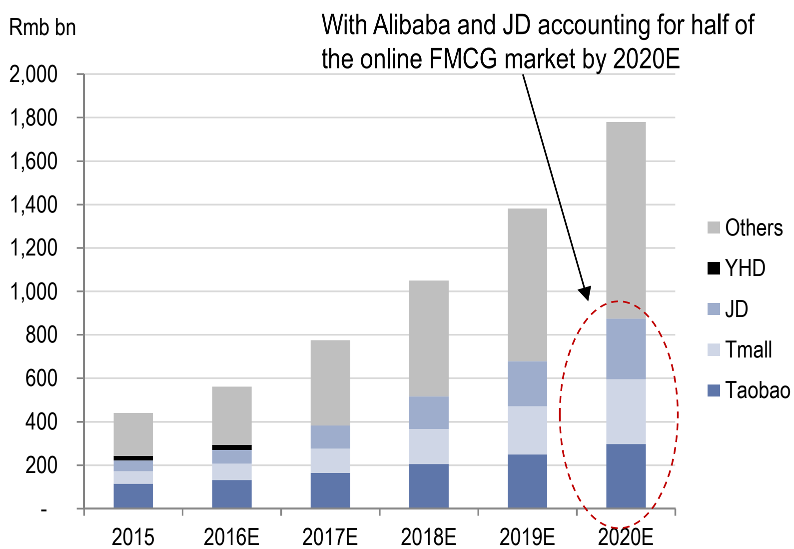
The jury is still out, yet we see BABA, JD growing in tandem given the massive offline market

We believe online penetration of FMCG (at c.5% in 2016) has been significantly lower than other main categories (e.g. apparel or electronics of 30-40% in 2016) due to logistics challenges in the past — i.e. lack of scalable same/next-day delivery capabilities of online players. However, over 2016, both Alibaba and JD had completed building their key nationwide industry-leading fulfilment centers, with Cainiao's dedicated Tmall Supermarket fulfilment centers in 19 cities (by end-2016) and JD's full operations of 8 Asia No. 1 warehouses and over 25 front distribution centers by end-2016. This, together with the large existence of less efficient "Mom & Pop" traditional stores in the offline FMCG market, leads us to expect a favorable shift to online for FMCG over the next few years (from 5% in 2016 to 13% by 2020E).

Exhibit 19: For the online FMCG market in particular, we estimate Rmb1.8 trillion GMV by 2020E where Alibaba and JD occupying over half the online market

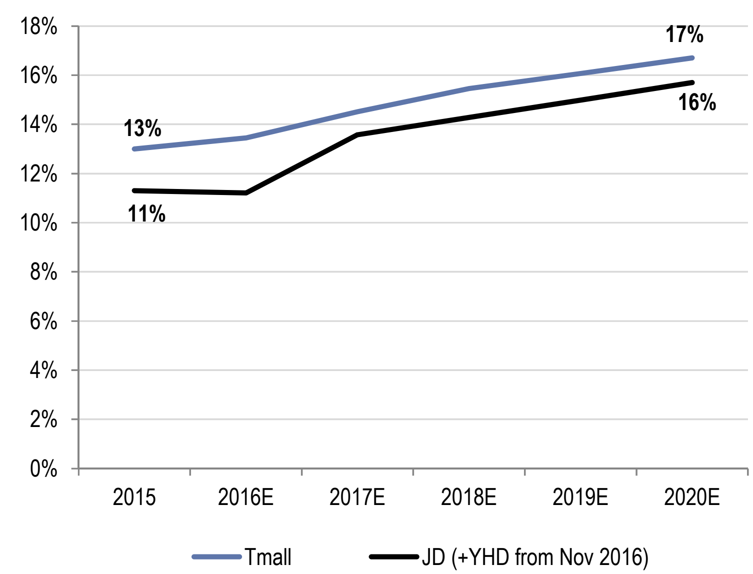
Rmb1.8trn	Alibaba (2016E → 2020E)	JD (2016E → 2020E)
2020E TAM for online FMCG and groceries market size in China (**33% CAGR**, 2016→ 2020E)	**Tmall FMCG GMV:** Rmb75bn → **Rmb297bn** **Taobao FMCG GMV:** Rmb132bn → **Rmb297bn**	**JD FMCG GMV:** Rmb63bn → **Rmb279bn** (majority 1P, GSe: 93% in 2020E) **EBIT:** Loss-making → **Rmb3bn** (GSe: 1.2% EBIT margin by 2020E)

Our forecast of online FMCG market in China by players



	2015	2016E	2017E	2018E	2019E	2020E
B2C %	74%	77%	79%	80%	82%	83%
C2C %	26%	23%	21%	20%	18%	17%

Market share of Tmall and JD in the online FMCG market



Note: We include Yihaodian's GMV into JD's FMCG GMV from 2017

Source: Kantar, Company data, Goldman Sachs Global Investment Research.

Characteristics of China's FMCG/grocery market: fragmented offline offering with large existence of "Mom & Pop"

Besides a large proportion of "Mom & Pop" and traditional trade-form of grocery shopping (e.g. wet markets), another defining characteristic of China's FMCG market is how fragmented the offline market is. The largest player SunArt only has 7%-8% market share.

Exhibit 20: FMCG online penetration was 4% in China in 2015, vs. 17% in South Korea. We expect this to take off, driven by Alibaba and JD following their respective logistics build-out and the relatively weaker/more fragmented offline supermarket offering

FMCG major product category

- Personal care
- Food & Beverage
- Health care products
- OTC medicines, etc.

Most FMCG products' ASPs are **less than Rmb100**, and this category contributes **~30%** of daily consumption.

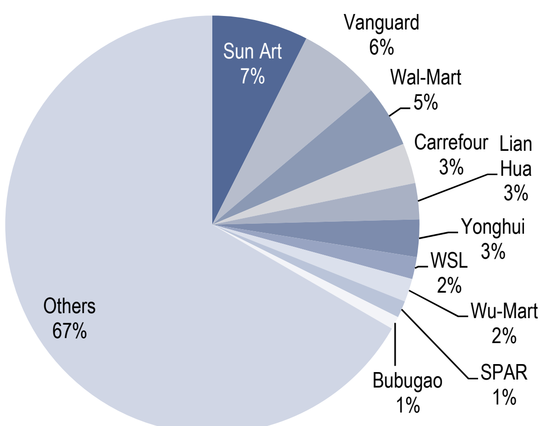
FMCG product characteristics

- High frequency
- Time sensitive
- Low ASP
- High homogenization
- Some are heavy/large

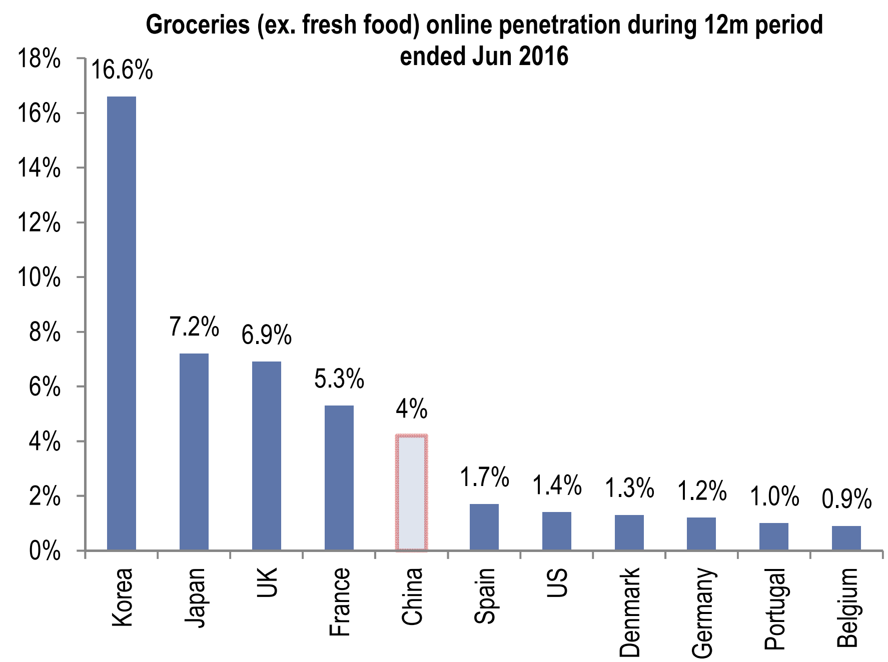
As a result, **time sensitivity** and **scene display** are crucial in the shopping experiences of FMCG products, which has underpinned online players' investments into logistics infrastructure over the past two years.

FMCG online penetration was 4% in China back in 2015

China grocery market share (12 weeks ending Dec 09, 2016)



FMCG online penetration varies on online/offline offerings and logistics



Source: Company data, Kantar Retail, Goldman Sachs Global Investment Research.

We acknowledge issues of low margins and demanding logistics for FMCG

While the online market potential for FMCG is huge, we acknowledge the two key challenges for online players, i.e. low margins for groceries (e.g. gross margins for supermarkets are only at half of apparel) and high demands/requirements for logistics (same/next day, cold-chain requirements for fresh/frozen food).

- For **Alibaba**, take rates are generally low at c.3% for groceries (vs. apparel at 5%-8%) and Alibaba currently subsidizes fulfilment costs conducted by Cainiao (losses at Tmall Supermarket are currently second to International Retail), but a high frequency user base could drive significant online marketing/cross-selling/advertising potential. The logistics requirements (same/next day) resulted in Alibaba's consignment business model for Tmall Supermarket (vs. pure 3P), where Tmall is in charge of inventory management, while ownership of the products remains at brands. We expect Tmall Supermarket to grow alongside JD Supermarket over the next few years.
- For **JD**, while food/groceries typically have low margins, gross margins are higher for groceries vs. JD's #1 direct sales category i.e. electronics and appliances. Referencing JD's successful strategy in 3Cs (growing market share by generating gross margins of 5%-6% vs. offline electronics retailers of 14%), we expect JD also to target a lower gross margin initially for JD Supermarket in the low-teens, and thereby continue to grow its GMV base supported by JD's strong in-house logistics. JD's ability to combine multiple FMCG orders into fewer parcels, and economics of free shipping promises (currently at Rmb99 per order or above) be the key swing factor to ultimate profitability. We forecast JD Supermarket's gross margins to expand from 12% (2016E) to 14% by 2019E, turning EBIT profits from 2019E. Online supermarket business may also be beneficiary to JD's working capital ahead helped by the short duration for receivables (by online customers) and typical monthly payable days (or typically > 50 days on average for offline supermarkets in China).

Exhibit 21: Challenges exist… low margin, logistics costs/infrastructure

Low margin

Gross profit margin for listed retailers (market cap $250mn+)

Retail format	China, HK	Japan	Korea	US
Apparel Retail	50	47	48	39
Other specialty stores	33	39		38
Multiline retail	27	31	61	33
Food, super/hypermarkets	23	25	19	22
Computer & Electronics Retail	14	29	25	42

Logistics:
Low ticket size, **time** sensitive, **heavy** parcels for liquids

Cost to serve non perishable groceries by retail format, as % of sales, US

Source: Company data, PricewaterhouseCoopers, Goldman Sachs Global Investment Research.

Logistics capabilities and service quality key swing factors to FMCG success

In 2015 Alibaba/Cainiao could achieve same-day/next-day delivery service in 50 cities. This has now increased to 200 cities. Given China has over 260 cities that are home to >1 million population, we believe the scale and level of dense population clusters in China has enabled the economics and development of such extensive same-day or next-day delivery coverage.

Exhibit 22: What have Alibaba and JD done in the FMCG space?

Logistics infrastructure build-out by Alibaba and JD...

200

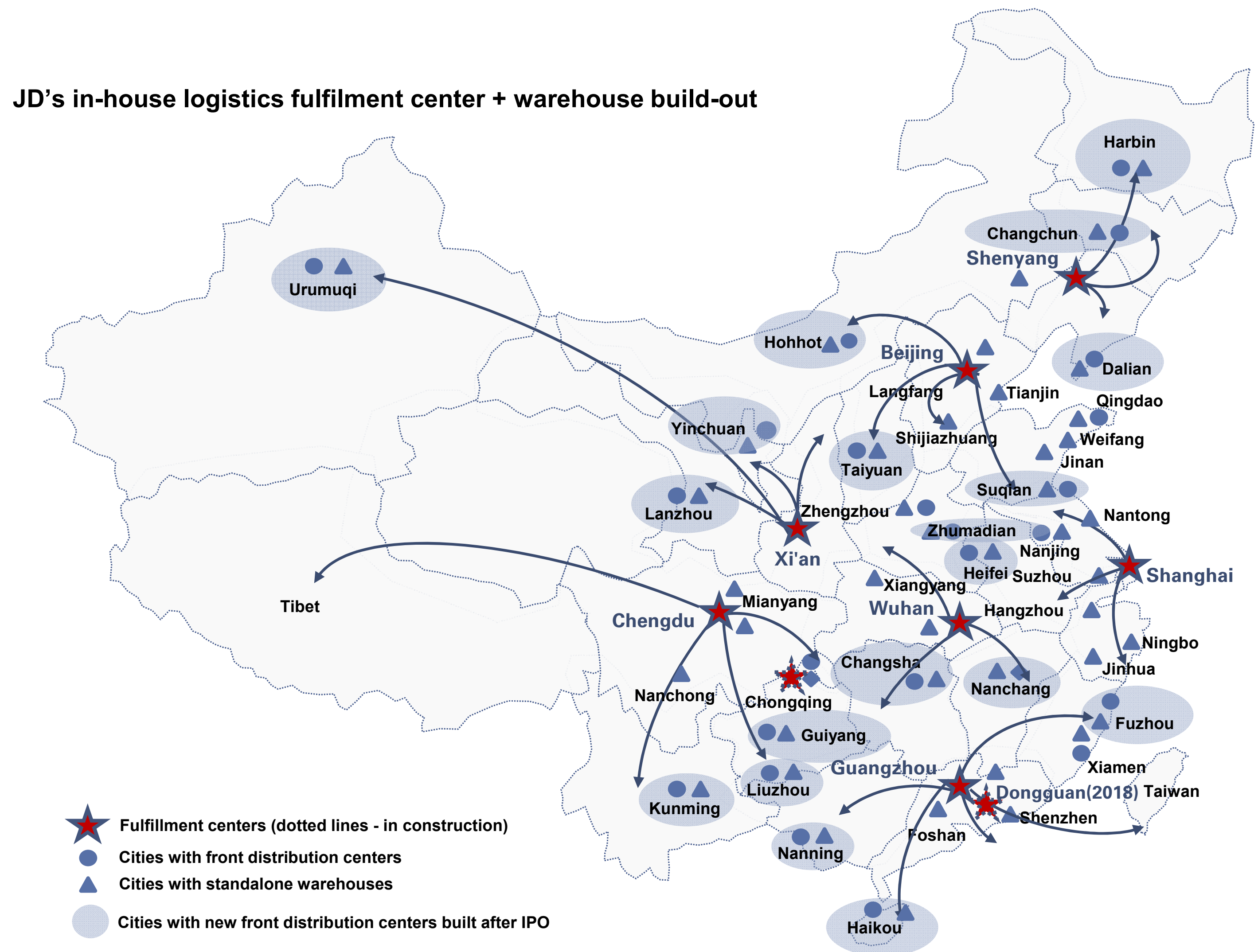
cities, with over 1,000 districts and counties in China already have same-day or next-day delivery coverage by Cainiao Alliance and JD Logistics as of Sep 2016

19

Dedicated Tmall Supermarket Fulfilment Centers by Cainiao have been completed end-2016

8

Asia No. 1 Fulfilment Centers are already operational at JD plus the recent consolidation of Yihaodian's logistics facilities



Source: Company data, Goldman Sachs Global Investment Research.

Introducing Tmall Supermarket and JD Supermarket

Alibaba and JD have stated their ambitions to expand their Tmall Supermarket and JD Supermarket GMV by 10x / 2x by 2018 / 2017, respectively. They have completed initial build-out of logistics capabilities, and have completed a series of acquisitions/investments (both online and offline). We expect JD Supermarket to remain 1P focused. Take rates are typically low for FMCG items (lower in Tmall as JD focuses on 1P, in our view), while personal care items have higher take rates (e.g. 5% vs. 1% for rice on Tmall).

Exhibit 23: Alibaba has adjusted Tmall Supermarket's business model to a consignment-based model, taking care of inventory

Business model – Tmall supermarket

► "Supplier as a seller"

- Tmall functions as a platform and generates revenue through commission rate;
- Suppliers/sellers are responsible for product selection, inventory management, pricing and marketing;
- All products sold in Tmall supermarket appears under the unified brand name "Tmall Supermarket"
- Features: unified warehouse and delivery services by Tmall

Business model – JD supermarket

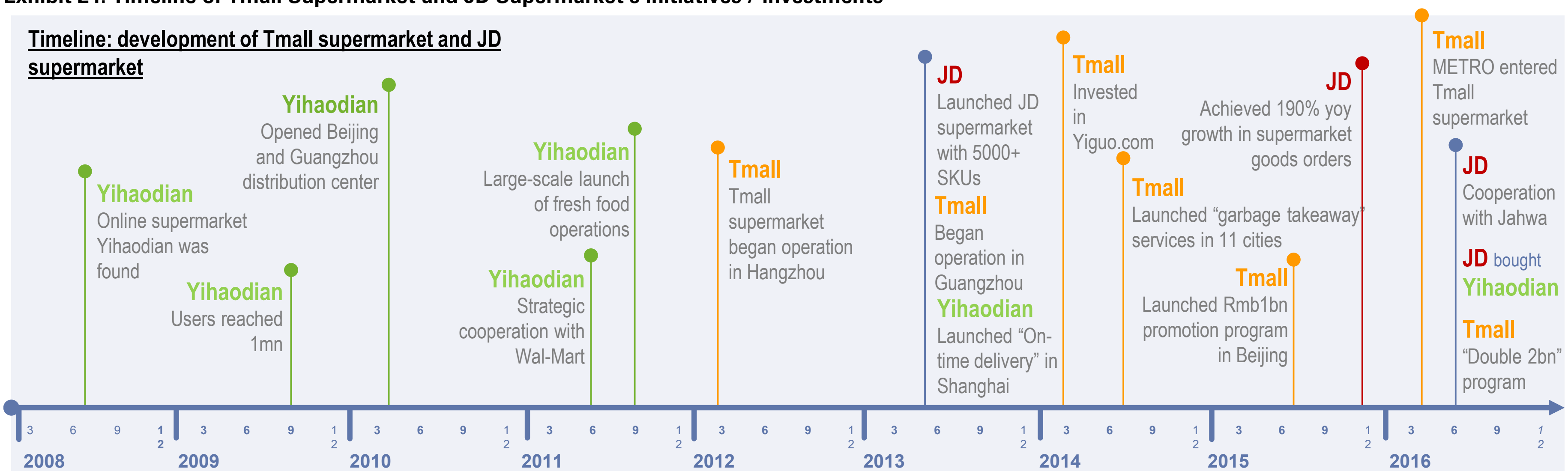
► Direct sales + market place

- Direct sales: traditional 1P model;
- Market place: SOP (sales on POP) and FBP (fulfillment by POP) model
- SOP: higher commission fee. Similar to Taobao, merchants function as independent seller and provide all services to customers
- FBP: lower commission fee. Merchants function as suppliers while JD provides customer services and logistics

Commission rate	Fresh food	Nuts	Milk Powder	Wine	Toothpaste/Personal care	Rice
JD supermarket	3.0%	4.0%	3.0%	5.5%	6.0%	3.0%
Tmall supermarket	2.0%	2.0%	2.0%	2.0%	5.0%	1.0%

Source: Company data, Goldman Sachs Global Investment Research.

Exhibit 24: Timeline of Tmall Supermarket and JD Supermarket's initiatives / investments

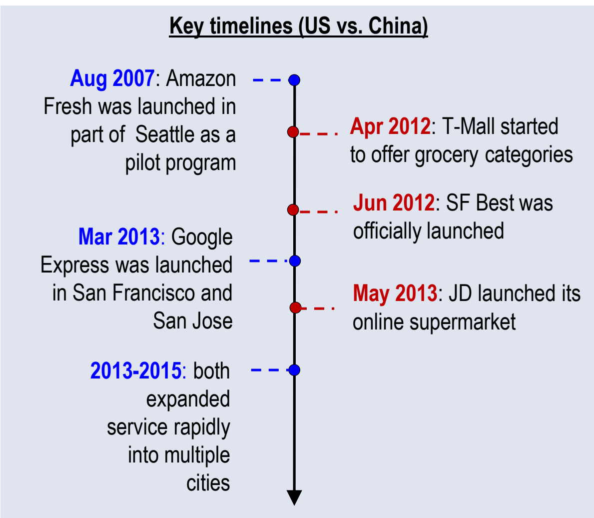


Source: Company data, Goldman Sachs Global Investment Research.

Fresh: the most challenging chunk of FMCG

- **Has been a challenging segment for players in the US: Amazon Fresh** offers same-day / early morning delivery of groceries (vegetables, fruit, dairy products, personal care items, etc.) to select areas of Seattle, Los Angeles, San Francisco, NYC and Philadelphia. Amazon has been developing refrigerated distribution centres and trucks dedicated to perishable goods, which can be used to ship ordinary items on Amazon.com and goods from local neighbourhood restaurant/shops as well. In Dec 2016, Amazon announced its new physical, grocery store concept Amazon Go, that eliminates checkout lines and allow customers to enter the store using a new mobile app. For **Google Express**, an online shopping platform launched by Google in 2013 to connect shoppers and traditional bricks-and-mortar retailers (e.g. Walgreen, Target, Costco), offering same-day/overnight delivery service to the customers via its own vehicle fleet, it currently still only covers 8 cities in the US.
- **China's fresh food delivery commenced hand-in-hand with groceries e-commerce in 2013**. Besides ecommerce giants such as Alibaba (T-Mall) and JD (+Yihaodian) that have branched into this segment, logistics players (e.g. SF Express) and bricks-and-mortar grocery retailers (RT Mart, Yonghui) have also tapped into the segment drawing on their fulfilment capacity and established offline store network. Omni-channel brands like Hemaxiansheng (invested by BABA), and online fruits platforms like Yiguo (invested by BABA) and Fruit Day (invested by JD) have also gained considerable foothold in top tier cities. However, the fresh food delivery market is a competitive and challenging field given the investment required in infrastructure/assets and low delivery prices charged.

Exhibit 25: Global cases: Fresh delivery has never been easy e.g. Amazon has been attempting to penetrate this market since 2007 and is still experimenting. JD is building its cold-chain logistics network to cover 98% of the population (currently covers 100+ cities) and has recently adjusted delivery fees upwards



Delivery pricing and coverage

JD Supermarket is available in most of the tier 1 and tier 2 cities in China, with increasing presence in lower tier cities as well. According to the 3-year JD supermarket upgrade plan in Aug 2016, JD Supermarket will aim to cover **363** cities and **2,639** counties in China with 100% in-house logistics.

US	Free delivery	Delivery fees/order*
Amazon Fresh	Order over US$50 if member	None
Google Express	Order over US$15 if member	Up from US$4.99
China		
T-Mall	Order over Rmb88 (US$13.9)	Rmb5-20 (US$0.8-US$3.1)
JD	Order over Rmb99 (US$12.4)^	Rmb6 (US$0.9)

Note (^): JD Logistics' delivery charge adjustments since 2016

	Ticket size (Rmb)	Order weight cap (Rmb)	Delivery fee
Before April 1, 2016	<79	No weight cap	Rmb5
	≥79	No weight cap	Free
After April 1, 2016	<99	No weight cap	Rmb6
	≥99	No weight cap	Free
Adjustments on Dec 1, 2016	<99	≤10/20kg >10/20kg	Rmb6 + Rmb1/kg
	≥99	≤10/20kg >10/20kg	Free + Rmb1/kg
Adjustments on Feb 4, 2017 *Relaxed weight cap; yet fresh and non-fresh are separately considered for logistics charges	≥199	≤20/30kg >20/30kg	Free + Rmb1/kg
	≥299	≤40kg >40kg	Free + Rmb1/kg
	≥399	≤50kg >50kg	Free + Rmb1/kg

Note: *Estimated average delivery fee.

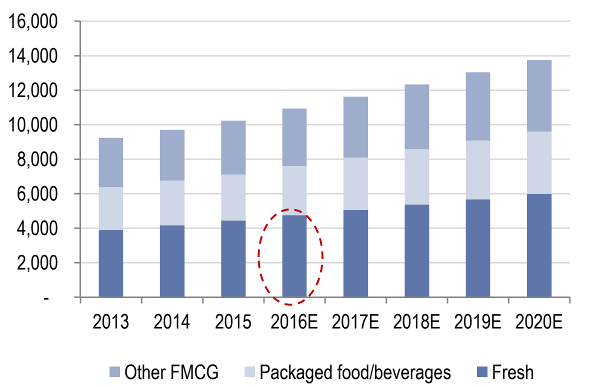
Source: Company data, Goldman Sachs Global Investment Research.

Online Fresh still green

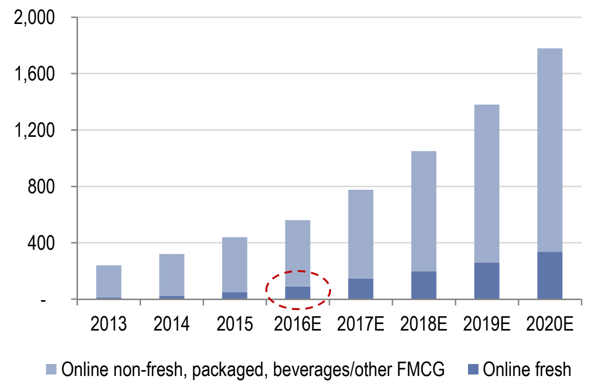
Fresh (including frozen and chilled meat, live seafood, fruits, vegetables, juice and ice cream etc) accounts for 44%/16% of the overall/online FMCG market, with one of the lowest online penetration of 2%, and has so far been a challenging segment to penetrate due to low ticket size and high fulfilment/cold-chain costs as % of GMV. Alibaba and JD have been testing waters via O2O channels (delivery of fresh from stores to home, instead of from warehouses to homes), but business model still heavily relies on subsidies at the moment.

Exhibit 26: Assessing China's fresh delivery online: we see this as the more challenging segment to penetrate. Players with scale, cold-chain infrastructure and close partnerships with offline stores (e.g. Alibaba and JD) would be relatively better positioned, although consumer behavior will take time to cultivate

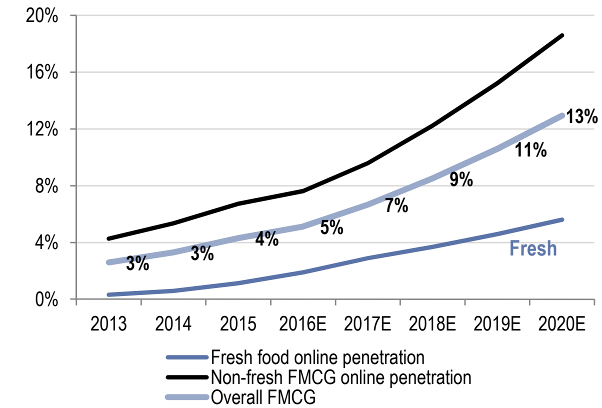
Fresh food market accounts for >40% of FMCG groceries...



...but < 20% of online FMCG groceries



Due to much lower online penetration of fresh vs. non-fresh (packaged, others)



Challenges of fresh delivery

- **Perishable (subjective picking by consumers)**
- **Costly cold chain logistics**
- **Price/shipping costs**

Three business models that are still under test:

1. Omnichannel: physical stores with storage at the back, fulfilling online orders in the nearby community, e.g. Hemaxiansheng.(delivery times within 30 mins-hours)

2. Outlets to homes: physical outlets close to homes, but only acts as distribution centers fulfilling online orders, e.g. Fruit Day (delivery times within hours)

3. Warehouse to homes: Tmall / JD Supermarket Fresh, but delivery times are longer (same/next day).

Logistics models of fresh food platforms

In-house logistics	**Strength**/Weakness	**Weakness**/Strength	3rd-party logistics
e.g. **JD Supermarket** yiguo.com SF Best tootoo.cn Fruit Day Miss Fresh	**High**/low customer satisfaction due to control over timing, delivery/logistics standardization, etc. **Flexible**/unflexible warehouse demand **Low**/high risks in data leak	**High**/low capital investment required **Not Conducive**/conducive for other core business development Expansion **limited**/not limited by scale	e.g. **miao.tmall.com** Benlai.com yqphh.com Joyvio 1mxian.com xuxian.com

Source: Kantar, Euromonitor, iResearch, Company data, Goldman Sachs Global Investment Research.

Both Alibaba and JD have been targeting supermarket and fresh via their own supermarket platforms + investments

We see both Alibaba and JD approaching the fresh segment via. three strategies: **(1)** offering fresh produce via. its own existing Tmall/JD Supermarket platform, **(2)** via. its investments, e.g. Yiguo at Alibaba and Fruit Day at JD, and **(3)** Omni-channel approach via partnership with Hemaxiansheng, Sanjiang, Bailian by Alibaba, and partnerships with Walmart and Yonghui at JD, with JD Daojia supermarket app and 1-hour delivery capabilities via. Xin Dada.

Exhibit 27: What have Alibaba and JD done in the fresh/grocery space? Initiatives include providing fresh produce on its online supermarket, investments into online fresh niche platforms (e.g. fruit), investments/forming partnerships with offline supermarkets and transforming offline+online FMCG supply chains
A number of investments, and targeting supply chains from the sources

Alibaba

- **Tmall Supermarket** — **2016:** Cainiao completed build-out of Tmall Supermarket's 19 fulfilment centers across China
- **Tmall/Taobao O2O platforms** — **2014:** Launched **Miao (喵鲜生)** targeted imported fresh food; 2016: Taobao launched **Daojia (淘宝到家)**
- **Investment into online platforms** — **June 2015:** Strategic investment into fruits groceries platform: **Yiguo (易果网)**
- **Investment into omni-channel/offline** — Invested into **Hemaxiansheng (O2O生鲜体验店盒马鲜生)** and **Sanjiang Shopping (三江购物)**. Announced partnership with **Bailian Group** in Feb 2017.
- **FMCG B2B supply chain** — **July 2015:** Invested via. RiverHill Fund (BABA is largest LP) in **Zhanghetianxia's (掌合天下)** US$16mn series A funding. Proceeds were used to improve e-commerce channels for small convenience stores. The company served over 200,000 convenience store with over 30,000 suppliers registered on its online portals

JD

- **JD Supermarket** — **March 2016:** Set up **JD Fresh** business unit, introducing fresh offerings on JD Supermarket
- **Yihaodian** — **June 2016:** Agreed to acquire online grocery platform Yihaodian from Walmart
- **JD Daojia, O2O** — **April 2016:** Merger of **JD Daojia and Dada**, largest O2O crowd logistics. 2017 focus will be for Xin Dada to focus on fresh food delivery
- **Investment into online/offline platforms** — **2015:** Invested into fruits groceries platform: **Fruit Day (天天果园)** and 10% in **Yonghui Supermarket**
- **FMCG B2B supply chain** — **End-2015**: Launched **JD Xintonglu (京东新通路)** B2B platform aimed to introduce e-commerce sourcing channels for small convenience and Mom & Pop stores.

Source: Company data, Goldman Sachs Global Investment Research.

New capital has flooded into the segment…

Since 2015, a long list of private funding had taken place into fresh delivery platforms, from fruits to flowers and imported food, with omnichannel approach combining offline offering at physical stores with online APP and delivery, e.g. Hemaxiansheng, or mostly pure online fresh platform, e.g. Yiguo.

While the potential of the fresh food market is immense as discussed above, the large amount of new capital coming into the segment indicates the **capital-intensive nature of the business** due to logistics requirements and high user acquisitions costs. Given the required infrastructure, omni-channel needs to facilitate fast deliveries and user costs, we believe the rising dominant online supermarkets (Tmall and JD Supermarkets) are better positioned to ultimately take a larger piece of the segment, via their own platform or investments into a few key smaller platforms (e.g. BABA's investment in Hemaxiansheng, Yiguo, and JD's investment into Fruit Daily).

Exhibit 28: Fresh delivery challenges: New capital flooding in with more intense competition

Date	Company	Chinese name	Financing Round	Amount (US$)
2016.1	Songxiaocai.com	宋小菜	A	~16 million
2016.1	andvip.com	俺的农场	NA	NA
2016.1	9bianli.com	酒便利	B	~63 million
2016.2	njxdkj.cn	农家兄弟	A	~2 million
2016.3	He Ma Xian Sheng	盒马鲜生	A	150 million
2016.3	Fresh Life China	鲜动生活	A+	millions
2016.3	freshfresh.com	两鲜网	A	20 million
2016.3	yiguo.com	易果生鲜	C	260 million
2016.3	haishangxian.cn	海上鲜	NA	millions
2016.3	ufresh.cn	U掌柜	B	30 million
2016.3	FruitDay	天天果园	D	> 100 million
2016.3	okliang.com	良食网	NA	millions
2016.4	FreshMarket	食行生鲜	C	~39 million
2016.4	Missfresh.cn	每日优鲜	B+	~36 million
2016.5	Songxiaocai.com	宋小菜	A+	~13 million
2016.5	funxin.cn	饭心	A	millions
2016.5	benlai.com	本来生活	C/C+	117 million
2016.5	Xia baby	虾baby	Pre-A	NA
2016.5	xianda365.cn	优食管家	B轮	Tens of millions
2016.8	FruitDay	天天果园	D+	~16 million
2016.8	youpeiliangpin.com	优配良品	A/A+	~19 million
2016.9	Meicai.cn	美菜网	Credit line	~156 million
2016.9	54nm.cn	我是农民	A	~8 million
2016.10	Cailanwang	菜篮网	A+	~13 million
2016.10	aiswl.com	食务链	A+	~8 million
2016.11	Bee Quick	爱鲜蜂	D	Tens of millions
2016.11	gfresh.cn	极鲜网	A	20mn
2016.11	yiguo.com	易果生鲜	C+	200 million
2016.12	weidao.com	味道网	B/B+	~16 million
2016.12	wochu.cn	我厨生鲜电商	B	Tens of millions

Date	Company	Chinese name	Financing Round	Amount (US$)
2015.1	benlai.com	本来生活	B	Tens of millions
2015.2	Diaoguoshi.cn	调果师	Pre-A	~3 million
2015.3	Farm Link	链农	A	8 million
2015.3	Mr.Food	青年菜君	A/B	millions
2015.4	500jia	五百家	Angel	~1 million
2015.4	Missfresh.cn	每日优鲜	Angel	5 million
2015.4	Dmall	Dmall	Angel	100 million
2015.5	Wo Shi Nong Min	我是农民	Angel	~3 million
2015.5	FreshMarket	食行生鲜	B	~28 million
2015.5	FruitDay	天天果园	C	70 million
2015.6	Tony's Farm	多利农庄	C	NA
2015.7	Yijia117.com	壹家美食荟	A	~8 million
2015.7	Love Soon	爱尚鲜花	NA	~16 million
2015.7	Cailanwang	菜篮网	A	millions
2015.7	Yimutian	一亩田网络	C	NA
2015.9	Bee Quick	爱鲜蜂	C	NA
2015.9	Meicai.cn	美菜网	C	NA
2015.10	Womai	我买网	C	~200 million
2015.10	Miaoshenghuo	妙生活	A	5 million
2015.11	Missfresh.cn	每日优鲜	B	~31 million
2015.12	yqphh.com	拼好货	B	50 million
2015.12	weidao.com	味道网	A	~5 million

Source: ITJuzi, Sina News reports, compiled by Goldman Sachs Global Investment Research.

But bankruptcies have risen as business models are still highly reliant on user/logistics subsidies. We think online supermarket leaders (Tmall, JD) together with their partners will gradually consolidate the market over the next few years

Exhibit 29: Bankruptcies/closures of fresh products online platforms in 2016, including Yummy77 that was invested by Amazon
According to JD's fresh business unit director Clark Meng in Sep 2016, there are ~5,000 online fresh products retailers in China, falling from 10,000 within the past couple of years due high last-mile logistics costs

Company	Chinese name	Launch time	Close time	Financing	Note
Yummy77	美味七七	May-13	Apr-16	Round A, US$20mn from Amazon	Focusing on Shanghai, Zhejiang, Jiangsu
Tablelife	壹桌网	Apr-15	Sep-16	Round A, US$6mn from ClearVue	High-end fresh food
Mr. Food	青年菜君	Jan-14	Aug-16	Angel, A & B, millions of USD from Zhen Fund, Ping An Ventures etc.	Grocery shopping
Higuo	果实帮	Jun-16	Aug-16	Angel, millions of Rmb	Fruit delivery

Source: ITJuzi, Goldman Sachs Global Investment Research.

Hemaxiansheng – Omnichannel approach serving both offline customers (pay by Alipay) and online

Our visit to Hemaxiansheng in Shanghai in Jan 2017 suggests an effective model so far in this top Tier city and high-end district, with more online orders than offline, but wider implementation into broader districts/cities and business model is still to be tested.

Exhibit 30: Omni-channel case study: Hemaxiansheng's Jinqiao store, which handles 5,000-6,000 online orders on a typical day

Source: Goldman Sachs Global Investment Research.

Alibaba and JD's fresh fruit platform investments: Omni-channel vs. pure online

Case study on Yiguo (易果生鲜)

Alliance with Alibaba, 1P model with in-house logistics

Founded in 2005, Yiguo only started its Round A financing in 2013 at the time of its fast expansion. The company currently covers 200+ cities in China, and the expansion continues with Tmall Supermarket's footprint. Logistics wise, Yiguo has 11 warehouses and 3.7k employees in the logistics team (74% of the total employees).

- As **Tmall Supermarket's** strategic partner, Yiguo exclusively operates the fresh produce category in the store and also gains support from the other BABA's resources such as Ant Financial and AliCloud.
- **Suning** and Yiguo entered strategic cooperation after Yiguo's Round C+ financing in Nov 2016. Yiguo serves as the major supplier for Suning's 1P platform Suxiansheng, and also connects to Suning's community O2O fresh produce stores - Suning Xiao Dian.
- Yiguo extended its ecosystem outside China, where the company invested a total of S$24mn in Nov 2016 for a 51% stake in **SunMoon**. SunMoon is a Singapore company that trades 100+ kinds of fruits and vegetables; it has a global presence with 11k retail outlet in total, and its 2015 sales was at SG$14mn (US$10mn).

Yiguo aims to build a full-category platform in groceries, including fruits, fishery, poultry & egg, oil and foodstuffs, etc., and the platform currently has a SKU of 4,000+.

According to CEO Zhang Ye in Aug 2016, Yiguo's GMV grew 200% yoy in 1H16 GMV, with average daily order exceeding 50k and average ticket size was at Rmb100-200/order. The company targeted a daily GMV of Rmb10mn in 2016, and aims to achieve profitability in 2018.

Case study on Fruit Day (天天果园)

From omni-channel expansion to consolidation back to online

As a B2C online groceries platform, Fruit Day announced its strategy in mid-2015 to open up physical chain stores, which would also serve as front-end warehouses for its online business. However, the company closed off all of the stores within one year operation, as they brought limited traffic while derailing overall business efficiency. According to Fruit Day CEO Wang Wei in Dec 2016, the rent of Fruit Day's previous store in Shanghai Jing'An was equivalent to the rent of 3 warehouses together, while the efficiency (in terms of orders generated) was only 1/3 of that of the warehouses.

Fruit Day's operation in 2015 vs. 2016

May 2015	Dec 2016
~50 offline retail stores	**0** offline retail stores **~30** front-end warehouses in Shanghai, allowing within 1-hour delivery
Daily purchase: **200 - 300**	Daily order: **1,500**
City coverage: **~200**	City coverage: **86**
Rent: **Rmb45k/month***	Rent: **Rmb15k/month**

** The company's previous offline store in Jing'an district, Shanghai*

Source: Company data, Huxiu.com.

According to management, Fruit Day will focus on ~300 SKUs (mostly fruit), with priority being business efficiency rather than topline expansion. As of Aug 2016, the average ticket size for Fruit Day was Rmb150/order, Rmb60 for its O2O 'flash' delivery (e.g. within 1-hour delivery) orders, with average fulfillment cost at Rmb25-28.

Under a scenario of gross margin of 20%, a Rmb150 ticket order would imply gross profit of Rmb30, and only roughly breakeven after fulfilment costs, for free shipment orders. This is before overheads, marketing and technology costs, which suggests challenges in fresh deliveries, i.e. either ticket sizes will have to be higher, or fulfilment costs will have to be reduced through scale.

HOW?

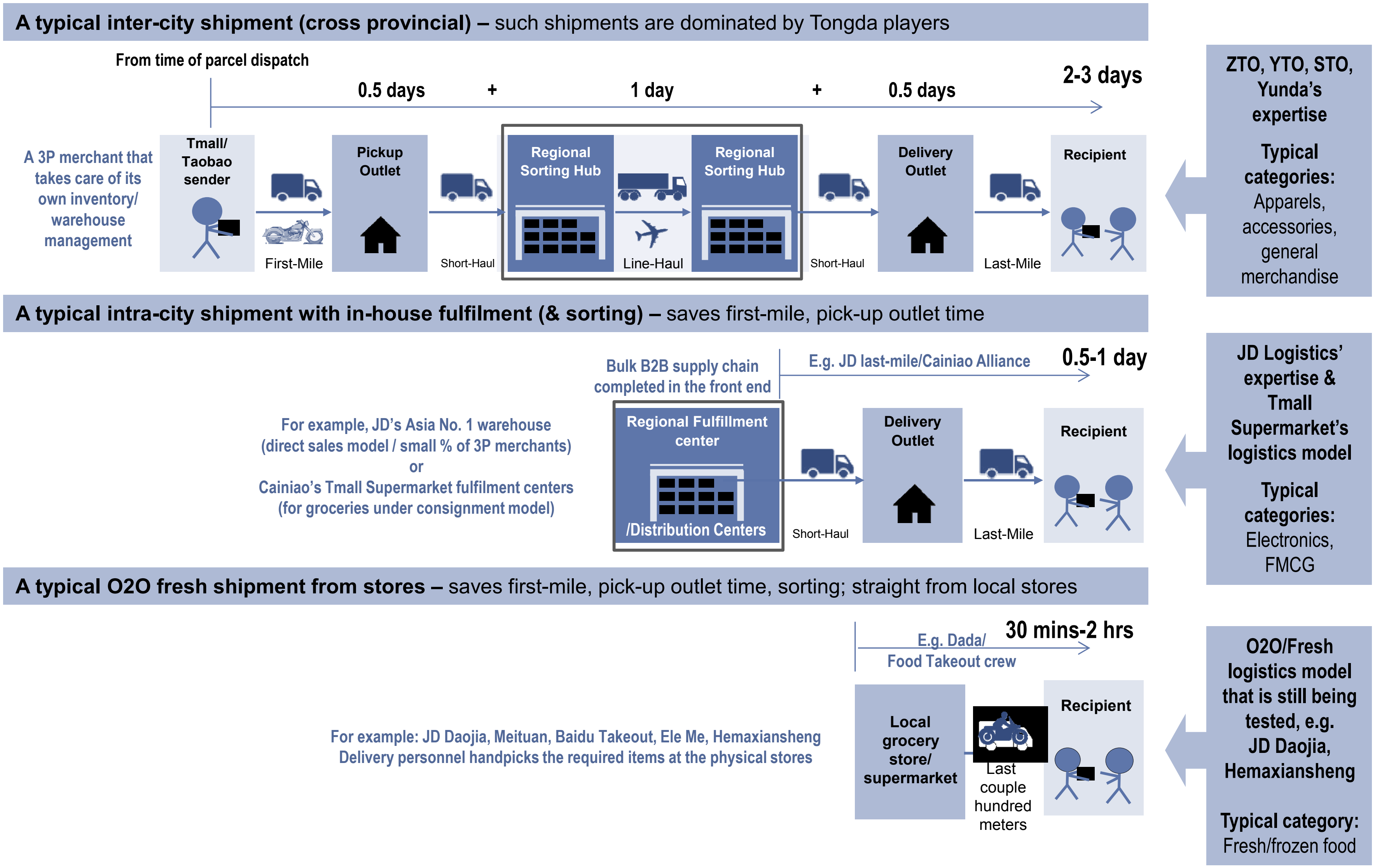
The logistics making it all work

- **Four themes for ecommerce logistics ahead**: Intra-city, combined online-offline supply chains, cold-chain and technology.
- We believe **the infrastructure is mostly in place** for online giants to change the retail landscape. By storing goods closer to consumers, forming partnerships with offline retailers/supermarkets and providing supply chain solutions to offline retailers and "mom & pop" stores, we believe Alibaba and JD will transform supply chains in China (online + offline) over the next few years.
- We expect **intra-city parcel growth** to be double that of inter-city parcels to 2020 driven by FMCG growth and better supply chain and inventory management (goods are placed closer to end-consumers). **JD Logistics** is well positioned in our view.

Logistics: The rise of Cainiao and the 'Tongda' express players, and JD Logistics

In this section, we introduce the logistics eco-system behind Alibaba's success in apparel and general merchandize via 3PLs like the Tongda express players (ZTO, YTO, STO, Yunda), and JD's success in capturing half of the electronics/appliances market, which we think was a results of its effective in-house JD Logistics arm that ensures 85% of its direct sales orders are delivered same/next day.

Exhibit 31: Different logistics capabilities in ecommerce: intra-city fast deliveries vs. inter-city 2-3 days delivery time



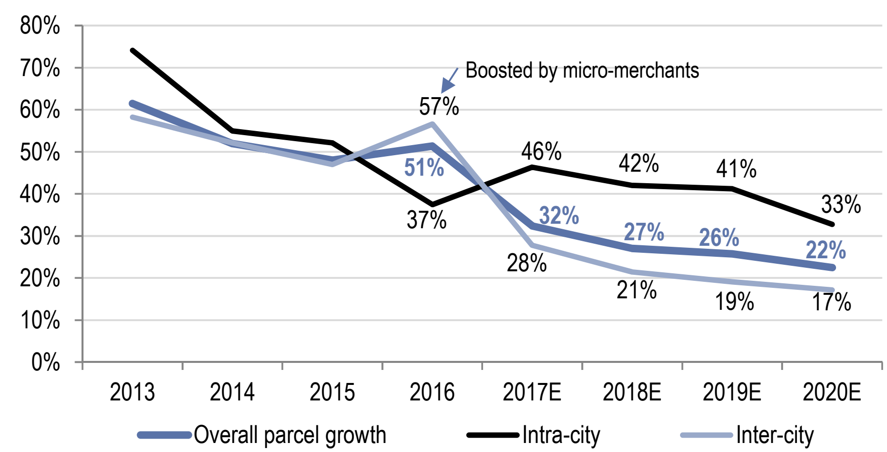
Source: Goldman Sachs Global Investment Research.

Four themes for ecommerce logistics ahead: Intra-city, combined online-offline supply chains, cold-chain and technology

We identify four key themes surrounding ecommerce logistics, where **JD Logistics** is one of the logistics companies that have presence into all of these emerging trends.

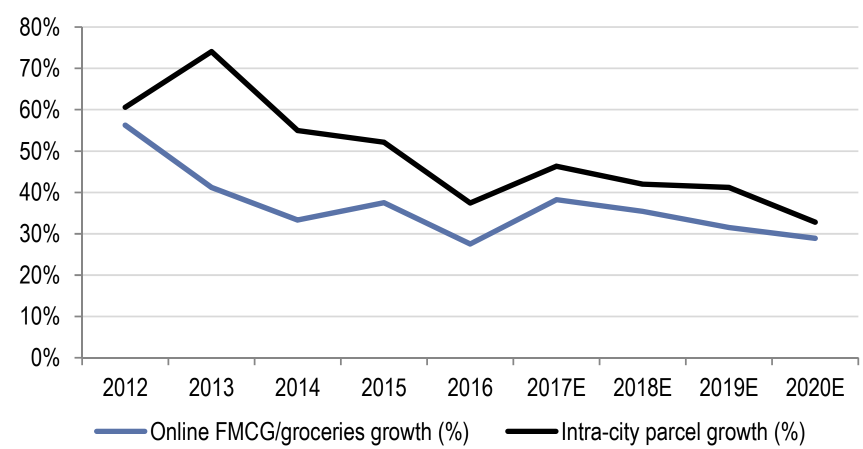
- **Intra-city to outpace inter-city parcels:** We expect intra-city parcel growth to be double that of inter-city parcels to 2020 driven by FMCG growth and better supply chain and inventory management (goods are placed closer to end-consumers). JD Logistics is well positioned with this emerging trend.
- **Combined online-offline supply chains:** We believe the infrastructure is mostly in place for online giants to change the retail landscape. By storing goods closer to consumers, forming partnerships with offline retailers/supermarkets and providing supply chain solutions to offline retailers and "mom & pop" stores, we believe Alibaba and JD will transform supply chains in China (online + offline) over the next few years.
- **Cold-chain:** We expect the ongoing push into fresh good by online players will lead to higher third-party cold-chain demand (excluding the JD eco-system, which will use JD Logistics). Cold-chain logistics providers like S.F. Express (Not Covered), Rokin Logistics (part of CJ Korea Express), Sinotrans and Kerry Logistics could also benefit from increased logistics demand.
- **Technology (in addressing labor shortage/cost inflation):** We expect express parcel volumes in China to grow 2.6X to 81bn parcels by 2020E (from 2016), or 27% CAGR, driven by lower ticket sizes as FMCG grows. Even assuming better productivity/efficiencies (55 parcels a day per employee), China will require 4mn express delivery staff by 2020E, accounting for 2-3% of males aged 20-40. We believe rising automation in sorting/fulfilment, and ultimately drones will be one of the solutions in delivery parcels, particularly in rural areas. On Feb 21, 2017, JD reached an agreement with the Shanxi Provincial Government in forming a smart logistics network, allowing drones to be used for delivery radius of over 300km using the low altitude air space.

Exhibit 32: We expect 81bn parcels by 2020E, 4mn express delivery staff...



Source: State Post Bureau, Goldman Sachs Global Investment Research.

Exhibit 33: ...driven more by intra-city groceries that are sent from local warehouses



Source: State Post Bureau, Kantar, Euromonitor, NBS, Goldman Sachs Global Investment Research.

Case study on YTO Express' plan of building a within-city delivery system

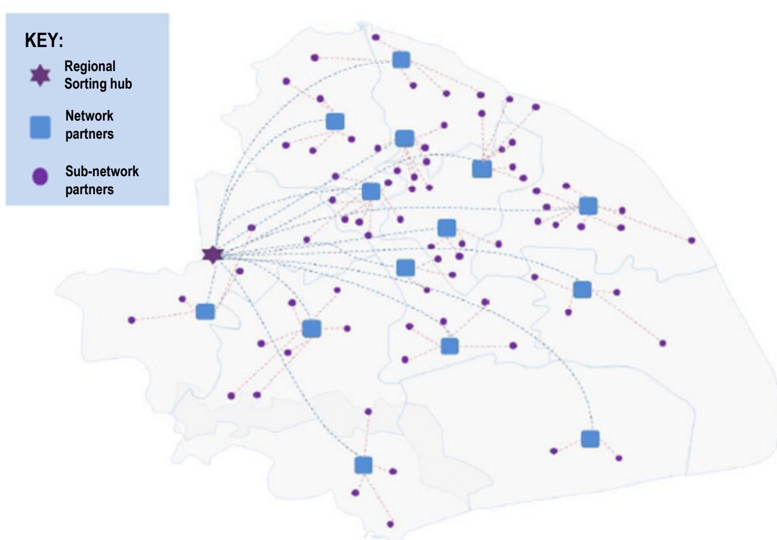
YTO Express is one of China's largest express delivery companies, second after ZTO Express by parcel volumes in 2016.

- In Dec 2016, YTO announced its plan to spend Rmb1bn in building a self-operated intra-city parcel network, on top of its current nationwide franchise model that currently handles both inter- and intra-city parcels. Management expects intra-city operations to be taken over by its self-operated within-city network.
- The purpose of the investment is to address the weaker competitiveness of Tongda players in same-city high speed deliveries, due to the large number of franchise partners, where parcels generally are sent outside of the city to go through centralized sorting, before parcels are then sent back into the city for delivery by another franchise partner.
- Such an intra-city delivery system targets the O2O market, direct warehouse-to-home deliveries and cold-chain deliveries.
- While we believe such move may make sense if the company aims to capture the future growth of intra-city FMCG parcels, we believe the company will need to manage its existing franchise partners well to reduce conflicts in responsibilities.

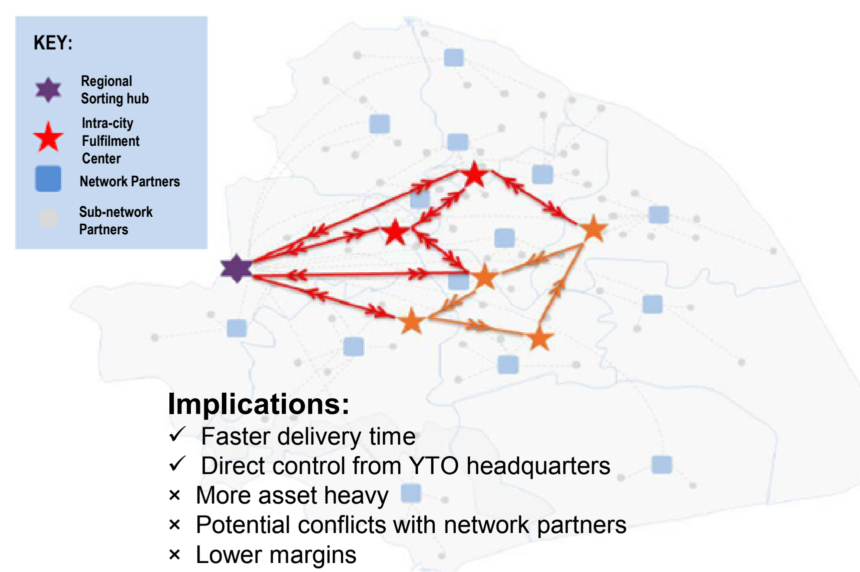
For ZTO Express, management has not stated any plans to modify its business model, and we expect the company to continue to focus on the longer-haul inter-city parcels and continue to gain share in that slower growing segment driven by its cost leadership and strong execution track record.

Exhibit 34: YTO's plan to self-operate intra-city parcels may compete/conflict with its network partners; but such move may make sense if the company aims to capture the future growth of intra-city FMCG parcels

The current YTO parcel flow under franchise model



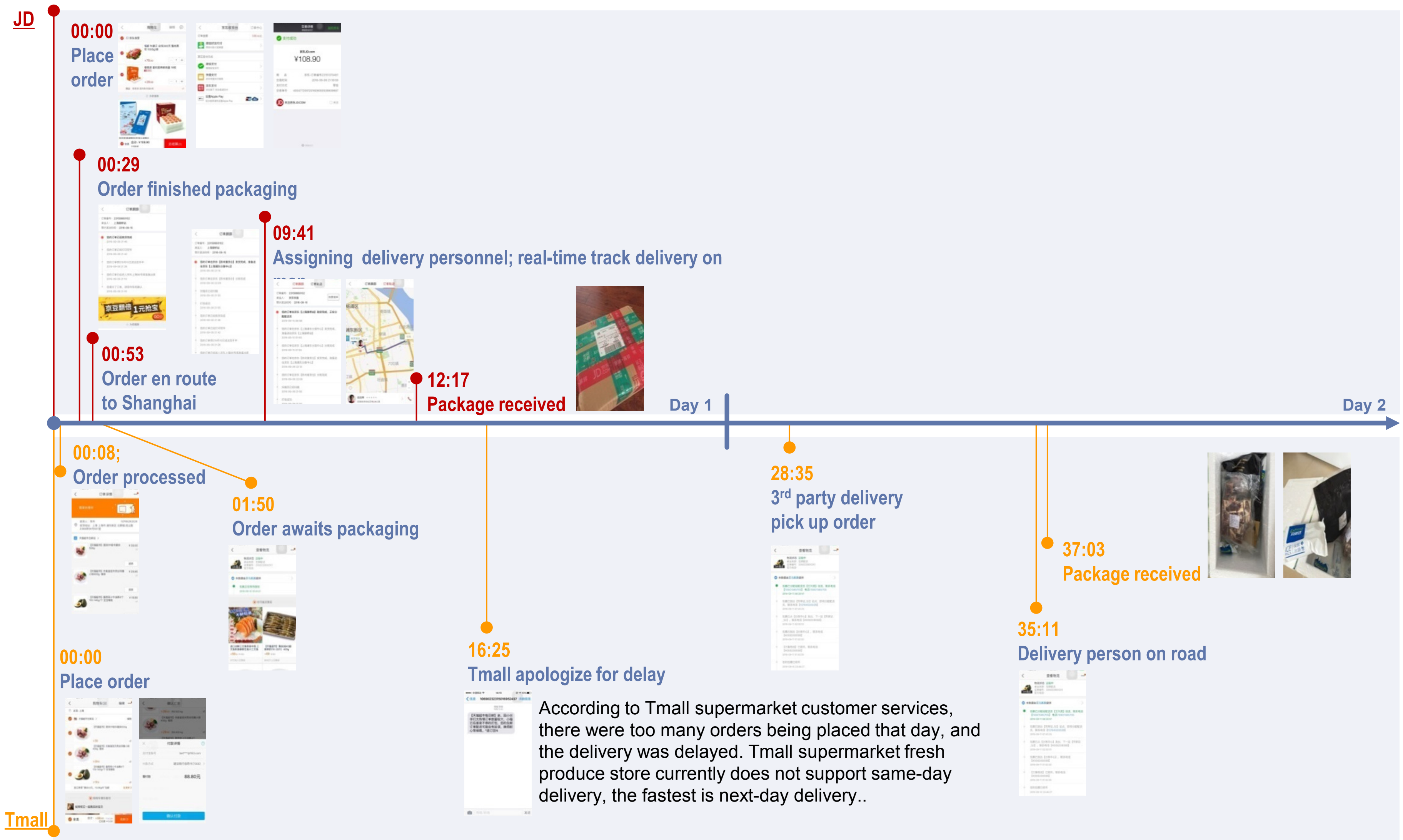
The future YTO self-operated parcel flow for intra-city parcels



Source: Company data, Goldman Sachs Global Investment Research.

A case study on purchasing on JD Supermarket/Tmall Supermarket

Exhibit 35: Case study: purchasing on JD/Tmall supermarket in August 2016. We believe Tmall Supermarket's delivery capabilities have lifted following the opening of more fulfilment centers (19 in total by end-2016)



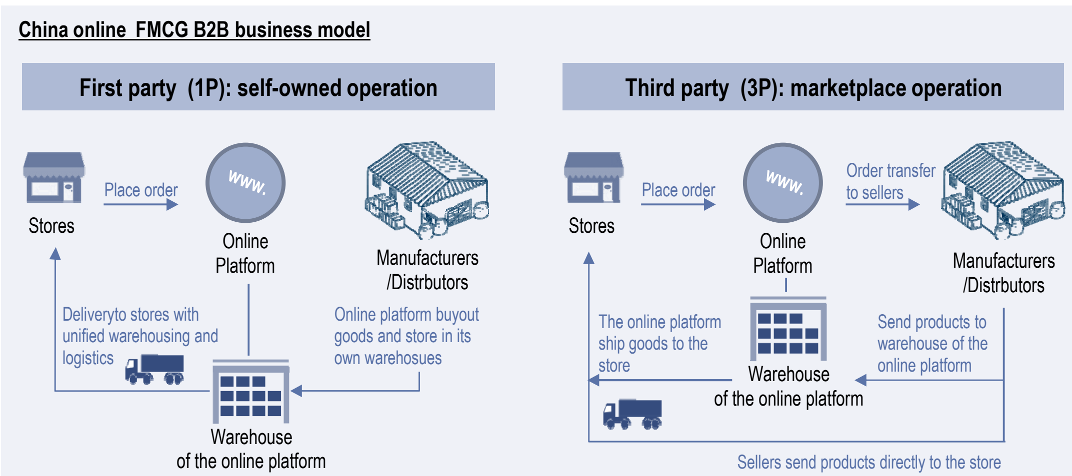
Source: Goldman Sachs Global Investment Research.

Combined online+offline supply chains: Transforming FMCG from its sources

Besides targeting FMCG consumers, both Alibaba and JD began their FMCG B2B strategies in 2015 — helping offline supermarkets/grocery stores/Mom & Pop stores move their sourcing online. Alibaba's 1688.com has expanded further with coverage of over 200k stores nationwide, while JD's Xingtonglu has expanded rapidly to already cover 50k-100k stores over the past year under a revolutionary 1P model, connecting stores directly with brands, fulfilled by JD Logistics. B2B platform such as these alienate traditional FMCG distributors, and could help JD tap both the offline and online FMCG market via its B2B & B2C platforms.

- **Alibaba:** BABA's B2B business group announced City Partner Program on 'Global B2B Eco Summit' in Hangzhou in January last year (2016). The program targets to provide sourcing, distribution, retail and other services for community retail stores in urban cities in China. BABA also launched its County Partner Program earlier; its B2B platform, 1688.com, was founded as early as 1999, and BABA has participated in a round of funding of Zhanghetianxia.com in 2015.
- **JD:** Its B2B business department Xingtonglu (新通路, meaning New Pathway in English) was launched at the end of 2015, aiming to serve c.6mn small to medium size retail stores in 3rd-6th tier cities in China. On Dec 16, 2016, JD announced Xingtonglu's 2017 target of covering 500k small to medium stores in China, and the B2B department will also launch "Huiyan", a big data platform built to serve its B2B clients by providing inventory management and other services.

Exhibit 36: Online platforms, including from Alibaba and JD, have emerged to establish direct supply chains for merchants/mum-and-pop stores



Coverage of Stores	First party (1P): self-owned operation	Third party (3P): marketplace operation
>400k	Huimin.com	Zhanghetianxia.com
200k-400k		list.1688.com (Alibaba) DS365.com
100-200k	JinHuoBao.com 123123g.com yijiupi.com	ccoop.com.cn
50-100k	zgb.m.jd.com (JD)	51dh.com.cn zallgo.com yunmayi.com yunpos.com
10-50k		yishenghuo.com bestbang.com 51bxd.com (Best Bang)
>10k	quanshihu.cn (D&N Hut)	Kuaixiaobang.com onesgo.cn piduoduo88.com ttmai.com

Source: Kantar, Bain, Sina News reports.

Cold-chain: Tmall Supermarket and JD Supermarket's logistics eco-systems

We believe logistics will be a strength for JD in the FMCG category (similar to the successes in 3Cs), together with its cold-chain infrastructure build out that already covers 100+ cities (fresh accounted for only c.1% of GMV back in 1H16). Meanwhile, we believe Tmall Supermarket's unique strategy in building its own fulfilment center (via Cainiao) using consignment model with brands will make both players equally competitive in the fulfilment process (i.e. gathering multiple SKUs and packing them into boxes in the shortest time, closest to consumers). **On third-party cold-chain** logistics, players like S.F. Express (Not Covered) are relatively early movers into the B2C cold-chain segment, while Rokin Logistics (under CJ Korea Express), Sinotrans and Kerry Logistics are some of the key players in the B2B segment that could cooperate with Cainiao's existing fresh produce partners like Winshine Logistics.

Exhibit 37: Cainiao's Tmall Supermarket fulfilment centers are co-developed with Guangzhou-based ALOG Technology Logistics, while last-mile delivery partners include primarily intra-city fulfilment companies like Winshine Logistics. For JD, its cold-chain logistics build-out covers 100+ cities

Cainiao Logistics for Tmall Supermarket

FMCG

Cainiao provides FMCG services in four areas: 1) warehousing (incl. value-added services such as packaging); 2) Product dispatching; 3) Customer settlement (e.g. key account services); 4) Data analysis and insights.

The network has **15** warehouses with GFA of 2.5mn sqm, supporting next-day delivery in **45** cities.

Warehouse partners:	Logistics partners :		
Feng Wang (蜂网)	Winshine Logistics (万象物流)	Rufengda (如风达)	Life Express (黄马甲)
YHGlobal (越海全球物流)	ZTO Express (中通快递)	Yunda Express (韵达快递)	

Cold chain Logistics from fresh produce

Logistics partners for Fresh produce:

- Winshine Logistics (万象物流)
- Chengbang Logistics (晟邦物流)
- Dongjun Fast Logistics (东骏快捷物流)
- Zhongnuo Express (中诺配送)

- **5** cold chain warehouses
- Supporting within 24h delivery in **36** cities

JD Logistics for JD Supermarket

FMCG

Shelf life expiration date (SLED) management is achieved by

- ✓ First in first out
- ✓ Storage by expiration dates
- ✓ Early warning on expiration
- ✓ Expired goods locked up

Packaging within the warehouse

Cold chain logistics for fresh produce

- JD's logistics network has **7** level 1 cold chain fulfillment centers + end cold chain warehouse in $2^{nd}/3^{rd}$ tier cities
- Cold chain coverage in China as of 2017 Chinese New Year: **69** cities from 25 a year ago; Same-day / next-day delivery in 15 core cities.
- **3,300+** delivery storefronts that supports fresh produce delivery
- JD's cold chain logistics supports direct shipment from place of production
- Currently fresh contributes <1% of JD's sales.

Source: Company data, Goldman Sachs Global Investment Research.

Technology: an ongoing shift towards Just-in-time (JIT) inventory via Artificial Intelligence (AI)

With Alibaba and JD's FMCG initiatives across B2B and B2C, and the increasing use of Big Data/AI to improve supply-chain logistics in China, we see significant room for further improvements in inventory management in China. In line with Richard Liu's (Founder and Chief Executive of JD) comments on a CCTV interview, July 2016, "*Goods in China are on average moved /transported seven times before reaching the consumer. We want to reduce that to two times. This generates significant social value, and will not be able to be done by a normal express delivery company*", we believe Cainiao and JD Logistics will continue to transform and improve China's businesses' inventory management.

Recent commentaries from FMCG/global brands have suggested concrete progress in this front:

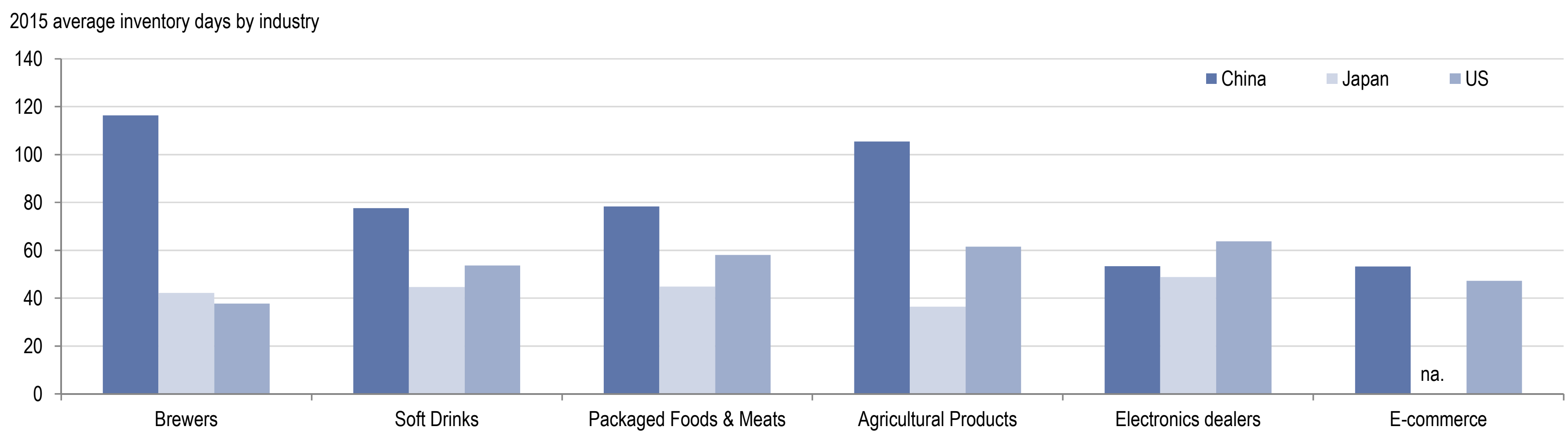
- **Colgate at its recent results briefing**: "*The China situation is very much a continuation of what we described on the last call which is again a slowdown in the traditional purchasing behavior of consumers and a sharp increase in online purchasing which has led to a destocking process from an inventory point of view that is underway.* "
- **Kimberly Clark:** "*We have a pretty big e-com presence in China and that business tends to be relative -- for us at least relatively efficient, low inventory and it flows pretty directly to the consumer.*"

We also believe factory automation, delivery by drones will be the mid-long term focuses by logistics companies.

For more details on logistics and warehouse Automation, see "*Back to the Factory of the Future: Six Innovations gaining traction in 2017*", January 11, 2017.

For more details on Artificial Intelligence, see "*Profiles in Innovation: Artificial Intelligence - AI, Machine Learning and Data Fuel the Future of Productivity*", Nov. 14, 2016.

Exhibit 38: 2008-2015 Inventory turnover days comparison by industry for China/Japan/US: We see room for further improvement in inventory management in China vs. the developed countries



Source: Factset, Wind, Goldman Sachs Global Investment Research.

A recap on Alibaba's Cainiao Network – stretching far and wide

Exhibit 39: An introduction to Cainiao Network, 47% affiliate of Alibaba Group – Alibaba's answer to JD's in-house logistics via. a more asset light and open platform strategy

Background of Cainiao

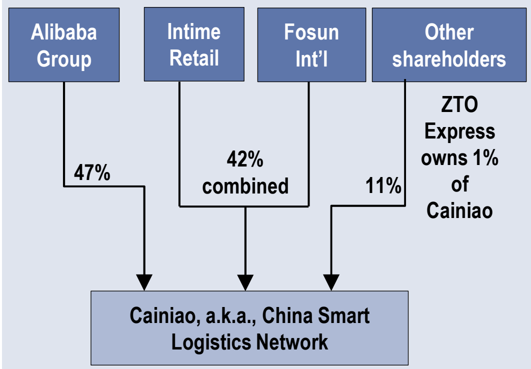
In May 2013, Alibaba co-founded Cainiao and made a commitment to invest RMB2,150 mn for 43% of its share. Cainiao was established aiming to become a nation-wide logistics infrastructure and information sharing system in China instead of a delivery company that owns trucks and delivers parcels by itself.

Leveraging its 49 partners around the globe, Cainiao currently has the capacity to handle 4 mn cross-border orders per day. As cross border has been a key theme in the recent Singles' Day global shopping festival (Nov 11 of each year), Alibaba continues to extend Cainiao's capability and its partners' logistics network in delivering orders in China

Cainiao by numbers

Daily average package volume (as of Dec 16):	57,000,000+
Delivery personnel (as of Jun 16):	1,700,000+
Delivery stations(as of Jun 16):	180,000+
Global Cainiao Partners (CPI) (as of Mar 16):	90+
Domestic coverage (with partners)	
Covered Cities (current):	250+
Delivery routes(current):	90,000+
Rural coverage of counties/villages (current):	450+/19k+
Daily order volume growth yoy in FY16:	2.5x+
Global coverage (with partners)	
Countries and regions (current):	224
Cross-border warehouses (current):	74
Bonded warehouse connected(as of May 16):	13
Overseas warehouse connected(as of May 16):	16

Ownership structure (Mar'16)



Global network

Cainiao's dedicated cross-border business currently covers 224 countries and regions in Asia, Oceania, Europe and the Americas.

Key partners of Cainiao

16 key domestic logistics partners of Cainiao:

顺丰速运 S.F. Express	申通快递 STO Express	韵达快递 Yunda Express	中通快递 ZTO Express	百世快递 Best Express	宅急送 ZJS Express	全峰快递 QuanFeng Express
圆通速递 YTO Express	德邦物流 Deppon	中国邮政快递 China Post EMS	中国邮政 China Post	国通快递 GTO Express	天天快递 TTK Express	优速快地 UC Express
如风达 Rufengda Express	快捷快递 Fast Express					

5 key global logistics partners of Cainiao:

Singapore Post	USPS	Royal Mail	Russian Post	Lazada

Source: Company data.

WHO?

200 million new online shoppers by 2020

- About 75% of China's **467mn online shoppers** are urban Millennials, mostly in top-tier cities; we expect 200mn new shoppers to come online by 2020 — 71% of which will come from lower-tier cities.
- Shoppers in China **spend c.US$1,300 online** each year. We expect spend per shopper to grow further at 10% CAGR 2016-2020E as the incomes of today's online shoppers grow and as consumers buy more categories and more branded goods
- Rural has long-term growth potential, but is unlikely to be the biggest driver of GMV growth by 2020E, given it represents just 14% of retail sales and is challenged by its older demographic and lower digital literacy.
- JD still well positioned in the **key regions of growth — lower-tier cities** — as its in-house logistics can benefit from economies of scale.

200 million new online shoppers by 2020, mostly from lower tier cities

We believe lower tier cities will be the biggest source of online GMV growth over the next few years, adding Rmb3.6 trillion in online spending by 2020E (representing 78% of the incremental growth) vs. Rmb0.65 trillion from rural. Consequently, we expect JD's in-house logistics approach will still be well positioned as economies of scale are more effective in urban (vs rural) areas.

Urban Millennials were early adopters; next 200mn online shoppers to come more from lower tier cities

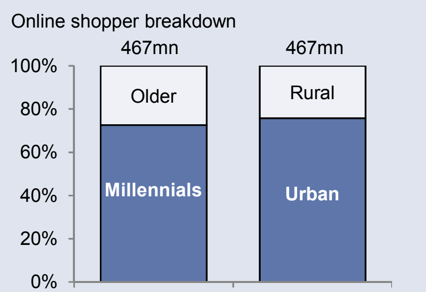
About 75% of China's online shoppers are Millennials; the generation aged 18-37. In particular, netizens living in tier 1 cities were early adopters; we estimate that c.80% of adults in tier-1 cities aged 15-64 are now already shopping online.

Looking forward, we expect 200mn more shoppers will shift online by 2020, with 71% of new users coming from lower tier cites. The catch up will be most marked in tier 2 cities, where college graduates are increasingly choosing to live given the relatively lower cost of living and competition compared with tier 1 cities.

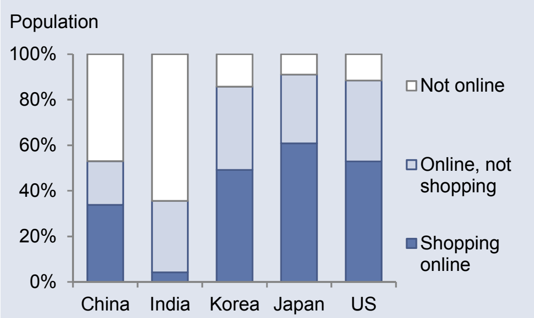
For more background on Chinese Millennials, *see The Asian Consumer: Chinese Millennials* report, Sep 8, 2015.

Exhibit 40: China's 415mn Millennials represent c.75% of online shoppers; next 200mn online shoppers to come more from lower tier cities

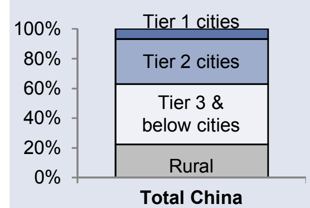
China's 467mn online shoppers: mostly young and urban



Opportunity for further penetration growth as ½ China still offline

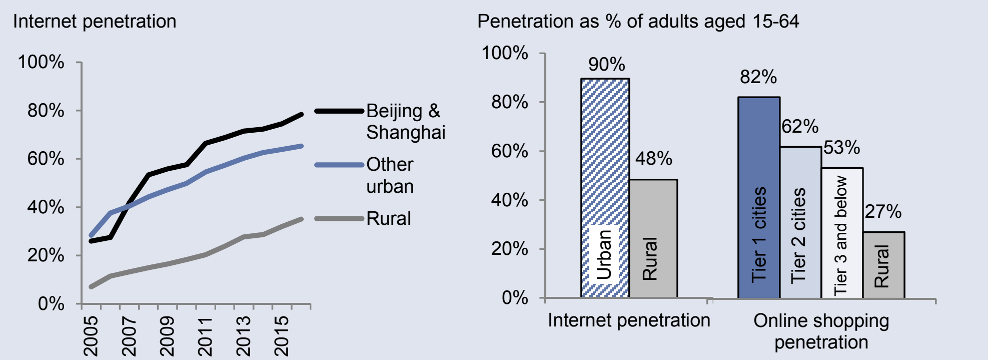


200mn new online shoppers by 2020E, 71% from tier 2 and lower tier cities

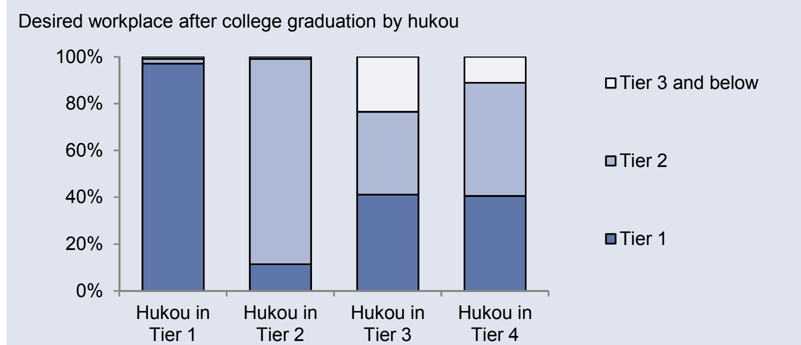


New online shoppers by 2020E	New online shoppers, mn	Online shopper penetration 2016E	2020E	Delta, ppts
Tier 1 cities	14	65%	76%	11%
Tier 2 cities	61	48%	67%	19%
Tier 3 & below cities	82	40%	53%	13%
Rural	45	19%	29%	10%
Total China	202mn	34%	48%	14%

Tier 1 city penetration already relatively mature with c.80% of adults shopping online



Graduates now also wishing to live in Tier 2 cities, spurring penetration increase



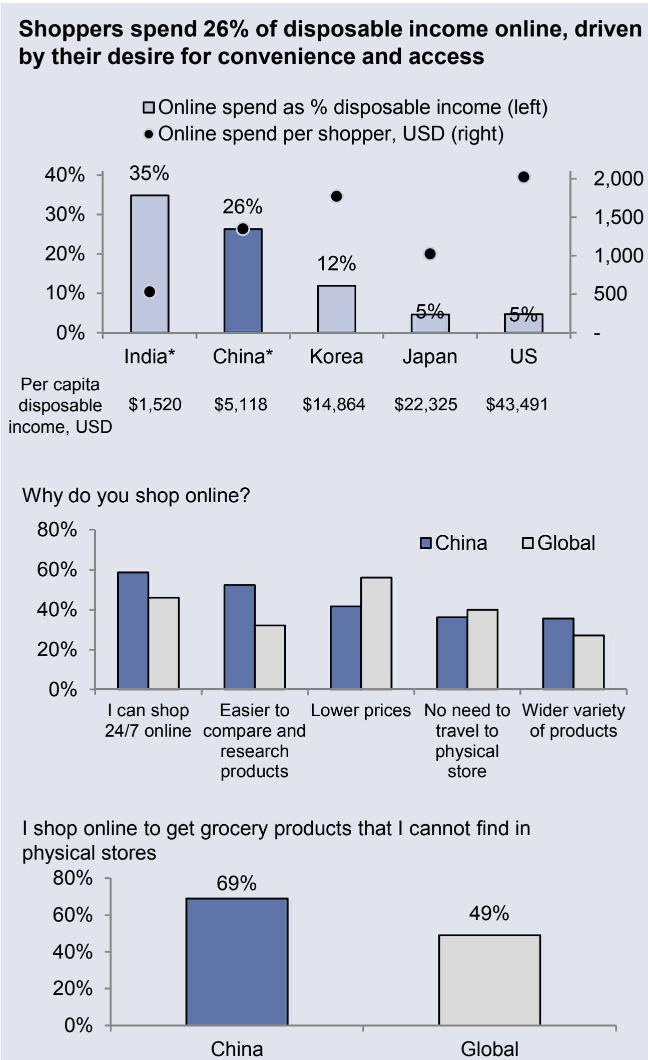
Source: Company data, 100ec.com, Nielsen, NBS, CNNIC, CEIC, Euromonitor, zhaopin.com, Goldman Sachs Global Investment Research.

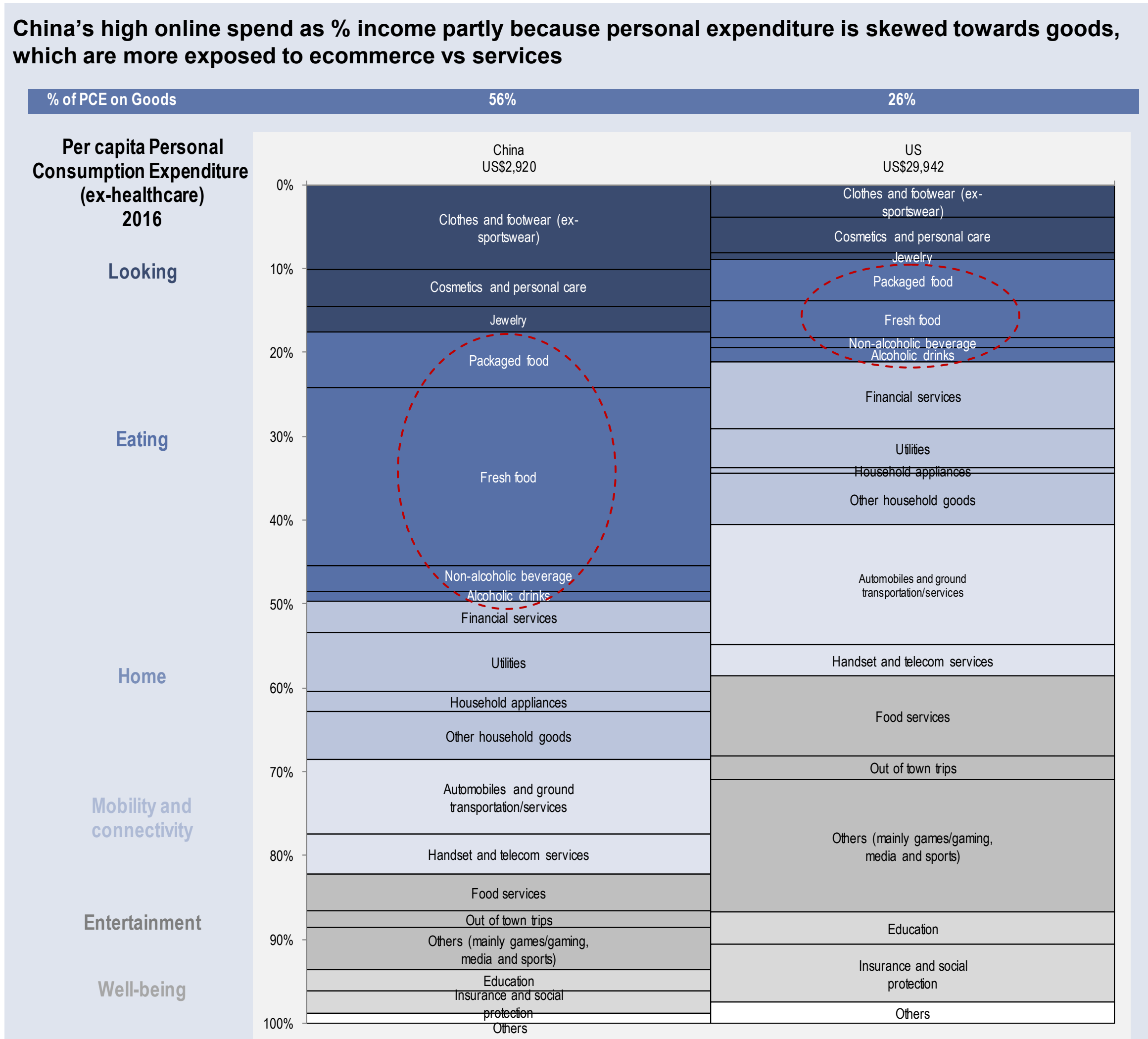
"Today customers use ecommerce first for quality, second for service and third for price. Chinese consumers are demanding more and more quality products."
Richard Liu, JD.com (Forbes, Nov 2016)

Online shoppers spend c.US$1,300 per year on ecommerce as they seek access and convenience

While online shoppers in China spend a considerable proportion of their income online, driven by their desire for convenience and access, we believe China's high online spend as % of income is partly because personal expenditure is currently skewed more towards goods at current income levels. We expect online spending to grow at 11% CAGR 2016-2020E as consumers see their income growing faster and will continue to buy more branded goods, particular those they can't find offline.

Exhibit 41: Half of China still offline, but online shoppers spend c.26% of disposable income online, as they seek access to more products and 24/7 convenience





Note: Online spend refers to online spend per online shopper; China and India disposable income per capita refers to urban population only, where most online shoppers are.

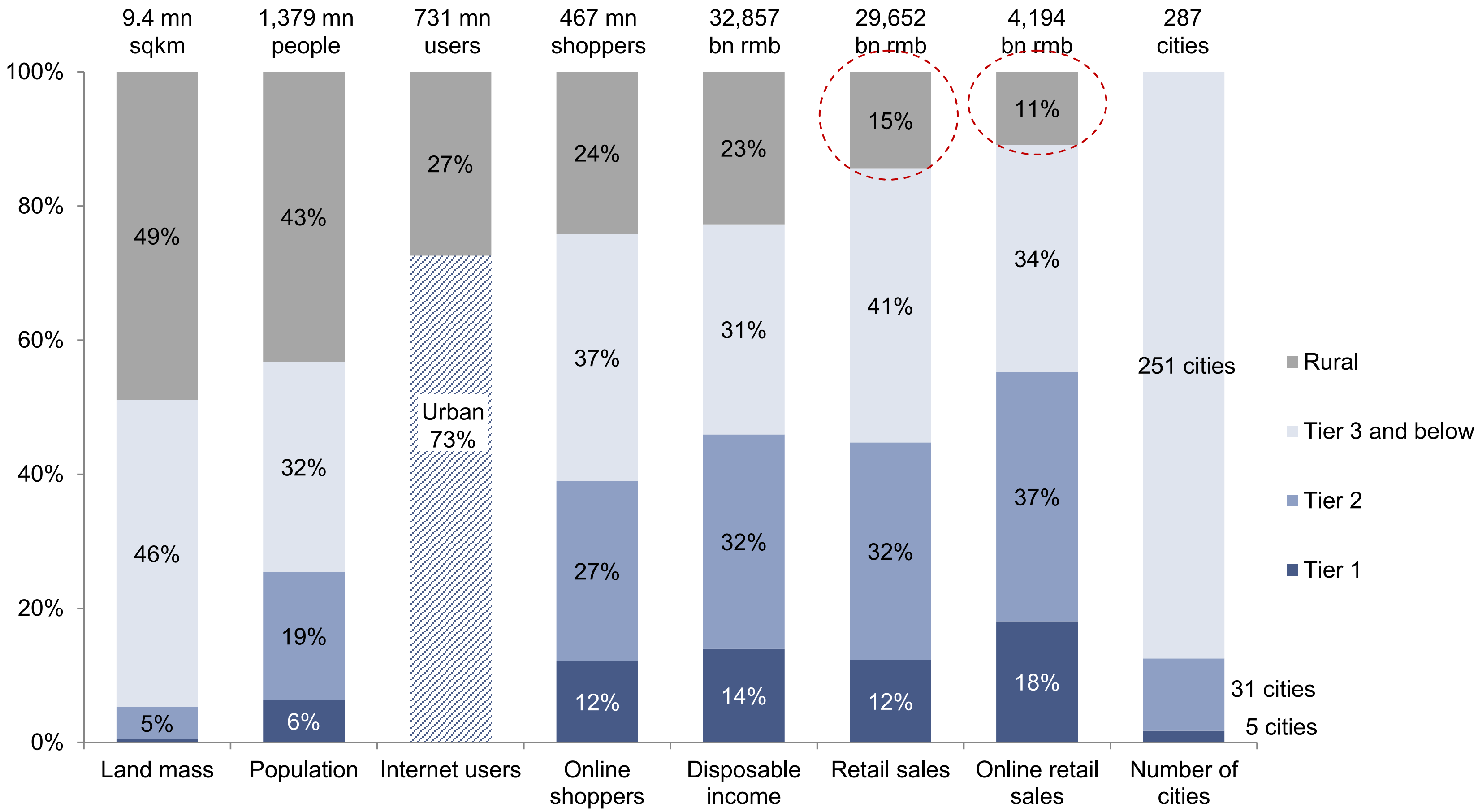
Source: eMarketer, Euromonitor, CNNIC, KPMG, VII Pay Commission report, Capitaline, PwC, Nielsen, Assocham, NBS, CEIC, Euromonitor, Goldman Sachs Global Investment Research.

Rural: Important, with long-term growth potential, but not the biggest lever of GMV growth by 2020

Rural is one of Alibaba's top-3 growth priorities, along with internationalization and Tmall supermarket. JD has also made efforts to expand its logistics coverage; in December 2016, JD successfully delivered a refrigerator to an online buyer in Motuo County (Linzhi, Tibet), marking JD's full logistics coverage of large appliances delivery to all cities, counties and 530,000 villages. Importantly, the government is also investing alongside ecommerce players to bring rural online.

Indeed, rural China is home to 43% of the population and is poised for long-term growth as its per capita disposable income was less than a quarter that of tier 1 cities and internet penetration was just half that in urban areas. But, considering that rural contributes only 14% of total retail sales, we think that it is unlikely to be the biggest contributor yet to GMV growth by 2020E.

Exhibit 42: Rural – 43% of population but only 15% of retail sales. While income, retail sales and ecommerce penetration will continue to grow from low base, rural appears unlikely to be the biggest lever for ecommerce growth; instead, tier 2 and below cities to become key engines



Note: retail sales and online retail sales refer to goods only, not services; number of cities represents prefecture level cities.

Source: NBS, CEIC, CNNIC, Company data, Goldman Sachs Global Investment Research.

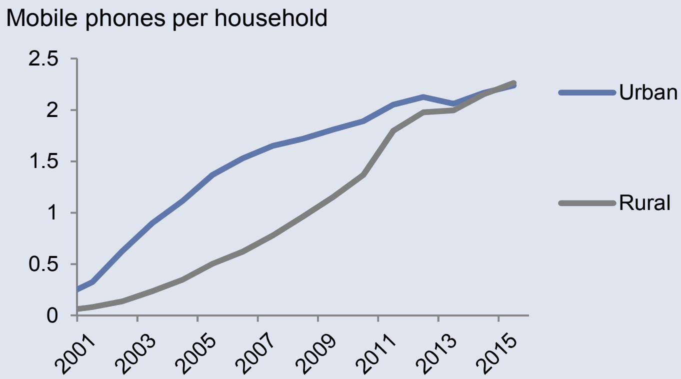
Rural infrastructure continues to improve – a boon for both rural buyers and sellers

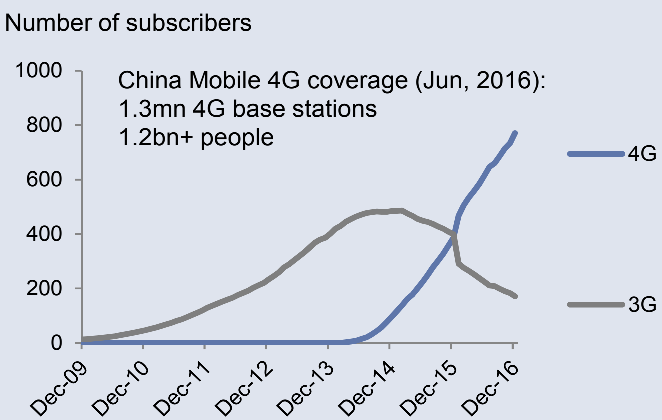
We expect both Alibaba and JD to continue to expand their rural coverage, and the pick-up in 4G subscribers has been the catalyst in rural China. The benefits of bringing rural online also include better channels for rural people to sell their products, e.g. fresh food, apparel, manufactured items, which could help drive a more balanced logistics network between cities and rural counties/villages.

The Chinese government expects 90% express delivery network coverage of rural China by 2020, while largest express player ZTO has targeted 80% township coverage by 2020 (from 65% in 2016).

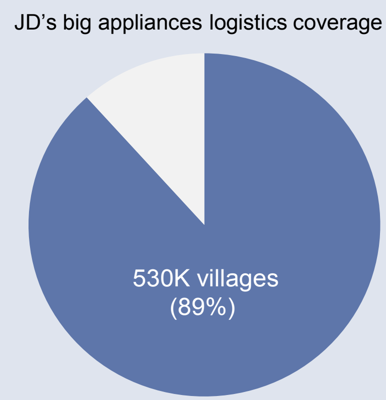
Exhibit 43: Rural – Infrastructure bottlenecks are easing with the rise of connected smartphones (each rural household now has 2.3 mobile phones, on par with urban households); last mile logistics improving with target to reach 80% coverage

Internet access improving with growing penetration of connected smartphones





Logistics and last mile delivery improving



- Express delivery network by 2020E: Chinese government expects 100% rural coverage. ZTO, largest express delivery player, targeting 80% township coverage.
- Singles Day 2016: Rural accounted for 70% of large fridges and 50%+ of large TVs and drum washing machines

Best selling items via Taobao Rural

	Best selling items bought via Taobao rural service centers (1H 2015)
1	Home appliances
2	Mobile top-up
3	Women's apparel
4	Kitchen appliances
5	Men's apparel
6	Mobile phones
7	Personal care e.g., feminine hygiene
8	Flowers, artificial plants
9	Women's shoes
10	Furniture

	Best selling items sold by Taobao's rural villages (2015)
1	Apparel
2	Furniture
3	Shoes
4	Auto supplies
5	Suitcases, bags and leather products
6	Toys
7	Household commodities
8	Bedding
9	Outdoor supplies
10	Main home decoration materials

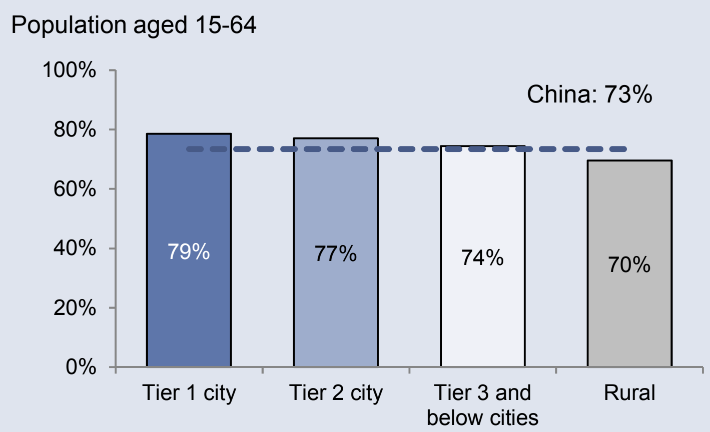
Source: CEIC, NBS, Company data, Goldman Sachs Global Investment Research.

Rural digital literacy is a challenge; service centers could help bridge the gap

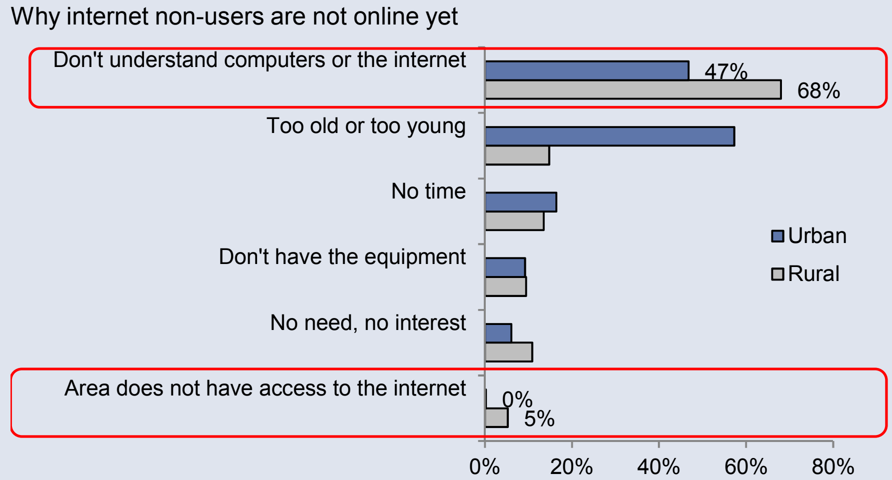
Meanwhile, we acknowledge the challenges for rural, from more difficult logistics to its older demographics, which is a result of China's persistent urbanization (c.21mn mostly young people urbanize per year) and lagging digital literacy are challenges. We believe service centers with agents who can help consumers browse and order online and offer cash payment may help bridge the gap.

Exhibit 44: Rural – Older demographics and digital literacy are key barriers to the online shift, which is why rural internet users have grown at 8% CAGR 2016-2016E, similar to the urban growth rate despite the lower base in rural; service centers could better leverage the small but savvy pool of online agents

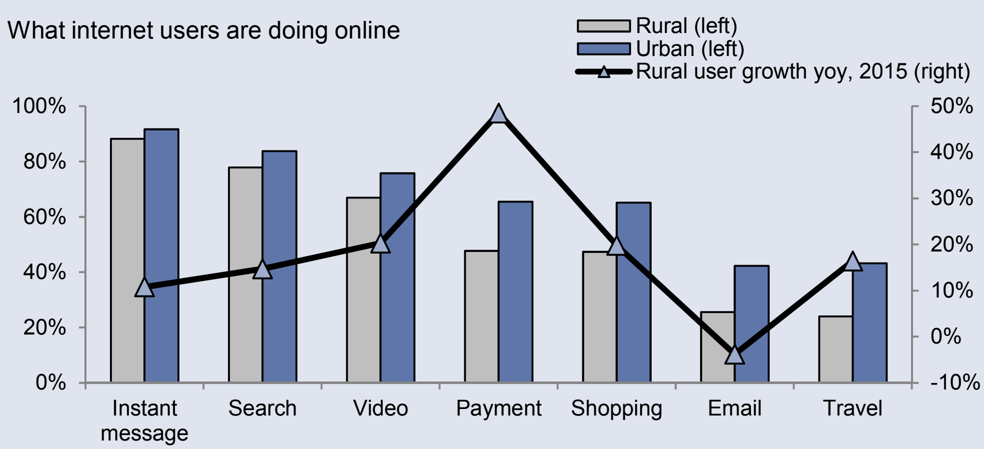
Urban China benefits from younger demographics



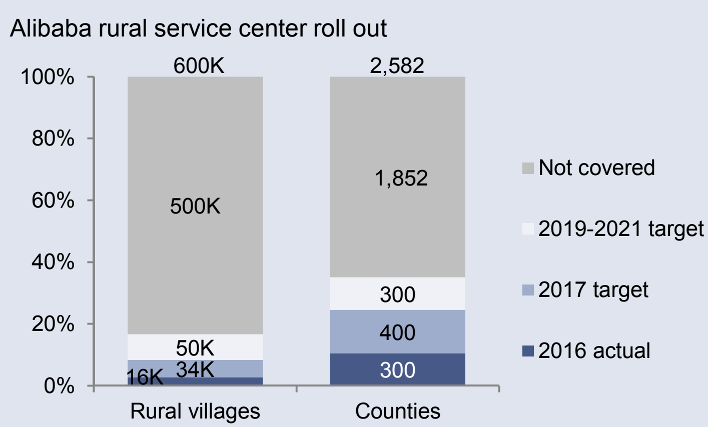
Digital literacy is the key barrier to internet adoption



People who are already online are relatively savvy; 47% shop digitally



Service centers can leverage agents for broader reach



Source: CNNIC, NBS, CEIC, Company data, Goldman Sachs Global Investment Research.

Rewarding their best customers

In addition to attracting new customers, Alibaba and JD have both launched programs to engage and reward their best customers.

Alibaba APASS (Alibaba Passport) is an exclusive invite-only club for its high spenders and trend influencers. According to the company, APASS members each spend US$45,000 per year on their platform and interact frequently with the online community. Exclusive events have also featured as marketing for the company; for example, an Italy vacation for 10 APASS members was streamed live on Youku Tudou and the Tmall app.

JD Plus loyalty program is focused on delivery and rewards, similar to Amazon Prime. For an annual fee of Rmb149, members receive 5 free deliveries per month as well as access to special discounts. A year after the launch of JD Plus, Amazon launched Amazon Prime in China in September 2016, offering unlimited free cross-border shipping on eligible orders over Rmb200 and free domestic shipping for an annual fee of Rmb388.

	Alibaba	JD
Program name	APASS	JD Plus
Program type	Exclusive membership for high spenders and trend influencers	Delivery and loyalty program
Similar to	American Express Black Card	Amazon Prime
How to join	Invitation only	Invitation only
Fee	None	149 rmb
Number of members	100,000	Unknown
Average spend per member	US$45,000+	Unknown
Benefits	❶ Personal account managers ❶ Exclusive events e.g., all-expenses paid, 9-day vacation to Italy with visits to Maserati factory and vineyards.	❶ Free shipping, 5 deliveries per month ❶ Unlimited digital ebooks ❶ Special discounts and rewards ❶ VIP customer service

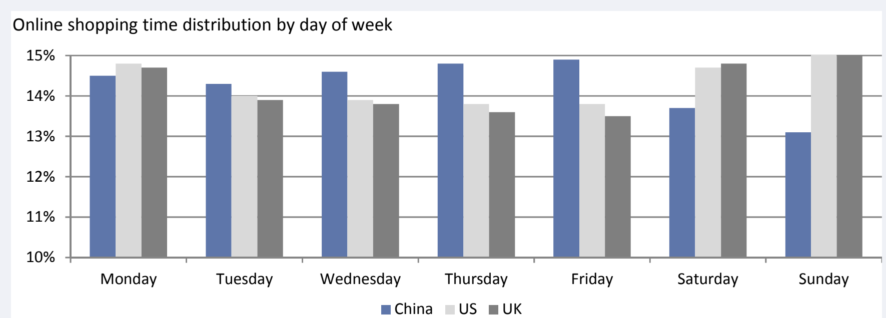
Source: Company data

Online shopping – a weekday time-filler

Unlike consumers in the US and the UK, online shoppers in China browse, review and buy more on weekdays than on weekends. The convenience of ecommerce, particularly on mobile, has given consumers an alternative to 'the shopping trip'. Instead of taking a bus to the hypermarket or mall on the weekends, consumers are clicking / tapping into their shopping carts during their lunch breaks, while they're waiting for/traveling on their traffic congested ride home and in the late hours before they go to sleep.

This new way of shopping is most marked in China: Alibaba reported that their active users launch the Taobao app 7 times per day. Convenience-at-my-fingertips is important because many Chinese are 'time-poor'. The average person in China has 2.6 hours of leisure time per day vs 5.3 hours in the US (CCTV study, US Bureau of Labor Statistics). In top tier cities, where housing costs are high, young workers often have to live further from the city center; 45% of young workers commute for more than 1 hour everyday on top of long working hours (China Communist Youth League).

With the incorporation of social (e.g., Alibaba's livestreaming) and treasure-hunting (e.g., VIP Shop's flash sales model) elements, shopping becomes an increasingly engaging activity – increasingly filling Chinese consumers' fragmented down-time.



Source: iwshang.com, Similarweb.

STOCK IMPLICATIONS:
ALIBABA, JD, VIP SHOP, ZTO EXPRESS

Our Buy case on Alibaba (on Conviction List)

Exhibit 45: Our Buy case on Alibaba at a glance

Alibaba Group (BABA, 12-month TP: US$135) –Buy (on Conviction List)

Background and our thesis

- ✓ **We have a Conviction Buy on Alibaba.** Alibaba operates the largest ecommerce platform in China, and runs the world's fourth largest cloud services after AWS, Microsoft, Google.
- ✓ **Our 12-month SOTP based target price is US$135,** as we expect BABA's:

  (1) Personalization technology continue to drive online marketing revenue growth through CTR and conversion rate increase, also benefitting GMV. Online marketing services generates over 60% EBITA margins, highest amongst its core businesses;

  (2) New Retail initiative to reformat department stores in China over time, creating value for merchants and consumers, and providing further monetization growth potential for BABA;

  (3) Digital media and entertainment drag to improve gradually, despite recent heavy content spending - according to management.

Investor concerns and weaknesses

- × **Slower GMV growth:** As BABA no longer discloses GMV on a quarterly basis, concerns are centered around whether the growth has continued to slow (particularly on apparel , BABA's largest category), whether Tmall's 3P model is suitable for the Supermarket category (which is JD's largest initiatives), and how much can monetization rate increase. Despite such concerns, we see room for further growth in online apparel driven by lower-tier cities, technology (e.g. AR) and Tmall Supermarket's consignment model with Cainiao fulfilment centers to help Tmall grow hand-in-hand with FMCG brands.
- × **Capital allocation** will remain a concern for a business generating over US$40bn operating cash in the next 3 years, as evident by the holco. discount in our SOTP.
- × **Drag from new businesses:** High content spending costs at Youku Tudou, losses at growth markets e.g. Lazada, and not-yet-proven omni-channel retail.

Revenue model for its China retail business (FY2018E)

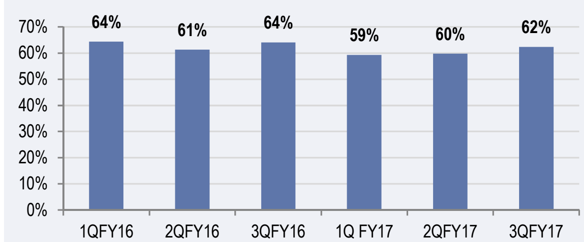
Total marketplace GMV FY2018E: Rmb4,425bn

FY2018E China retail segment revenue: Rmb144bn

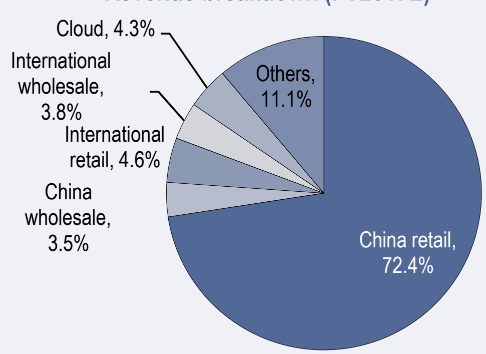
Online marketing FY2018E: Rmb101bn	Commissions & others FY2018E: Rmb43bn
Effective 2.3% monetization on overall GMV	Commissions: 2% take rate on Tmall GMV

EBIT margin trend for its core commerce segment

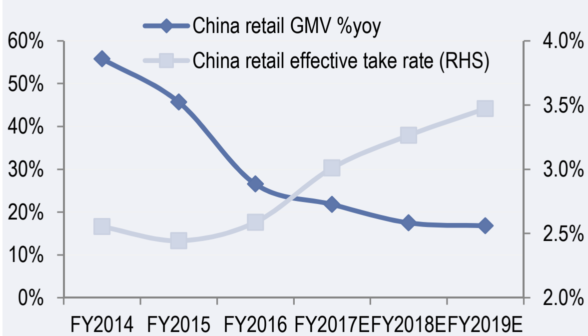
(China and international retail + wholesale businesses)



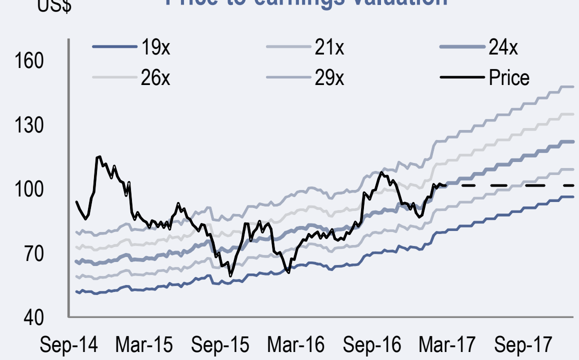
Revenue breakdown (FY2017E)



China Retail GMV growth and take rate trend



Price-to-earnings valuation



Source: Company data, Bloomberg, Goldman Sachs Global Investment Research.

Our Buy case on JD

Exhibit 46: Our Buy case on JD at a glance

JD.com Inc (JD, 12-month TP: US$38) – Buy

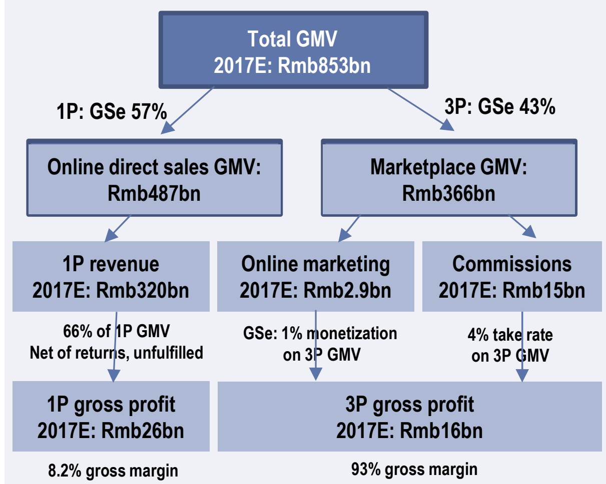
Background and our thesis

- ✓ **We have a Buy on JD.com**, China's second largest e-commerce platform by GMV, after Alibaba, and the largest online direct sales retailer
- ✓ **We expect GMV growth to continue to outpace the industry** driven by consolidation of Yihaodian since late-2016, ongoing market share gains in appliances particularly in lower-tier cities and progress made in JD Supermarket, underpinned by its 1P model + JD Logistics' fulfilment strengths.
- ✓ **We see ongoing support from shareholders**, including Walmart's ongoing stake increases over the past year. We expect **JD and Walmart to leverage each other further** in supply chain, sourcing & O2O (Walmart + Xindada).
- ✓ **We expect JD Logistics' recent delivery charge hikes, and reducing earnings drag at JD Finance**, to lead to further margin expansion over 2017E-2020E.

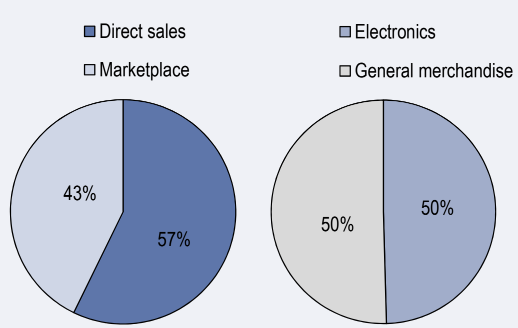
Investor concerns and weaknesses

- × **Concerns on whether JD Supermarket GMV will take off or not, given competition with Tmall Supermarket,** and underlying profitability, as FMCG requires ongoing logistics investments and gross margins are relatively low vs. categories like apparel. Without FMCG, our GMV growth forecast for JD would fall to 23% over 2017E-18E vs. base case of 27%.
- × **Concerns on slowdown of 3Cs given high penetration:** As online penetration of 3C is already over 40% in 2016, there are concerns whether this largest segment of JD will slow dramatically over the next few years. We expect appliances to grow faster and that JD will continue to maintain its lead.
- × **Concerns on the announced JD Finance spin off:** given lack of full disclosures yet for investors to assess the proposal by management.
- × **Capital allocation (investments)** given strong free cash flow accumulation over the next few years.

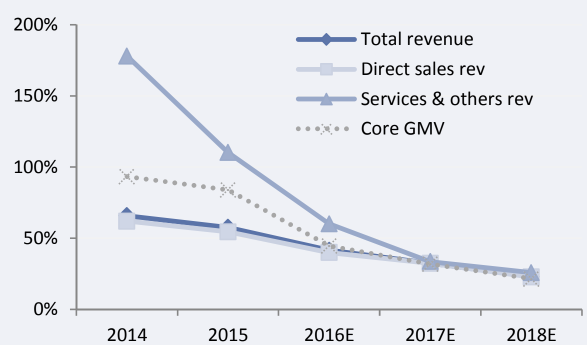
Revenue and profit model for its China retail business



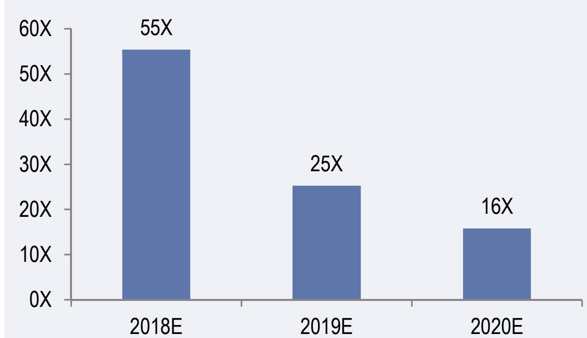
GMV breakdown (2016E)



Revenue and GMV yoy growth



Price-to-earnings valuation (current price)



Source: Company data, Bloomberg, Goldman Sachs Global Investment Research.

Our Buy case on Vipshop

Exhibit 47: Our thesis on Vipshop

Vipshop Holdings (VIPS, 12-month TP: US$20.00) – Buy

Background and our thesis

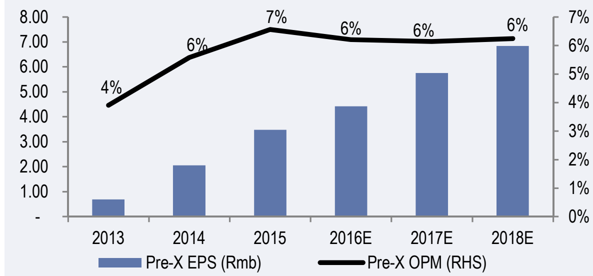
- ✓ **We have a Buy on Vipshop**, a China online discount retailer in China for brands, focusing on flash sales.
- ✓ **No longer at growth multiples, valuations attractive as an online discount retail leader:** While revenue growth has decelerated to 41% in 2016 and we expect 25% growth in 2017E (vs. 122% / 74% growth in 2014/2015), we believe apparel and maternity/infant will continue to grow steadily in China driven by Millennials and new moms, and the discount market for off-season items. We believe VIPS' **16X 2017E P/E** is attractive given 2017E-2018E average EPS growth outlook of 19%.
- ✓ **We fine-tune our earning estimates** and raise 2017E-19E revenue and EPADS by 0-6% on our revised higher industry 2020E GMV outlook. Our 12-m TP based on 85%/15% blend of Fundamental/M&A valuation at 20X/25X 2018E P/E is thus increased by 2% to US$20. With this report, we transfer coverage of VIPS to Ronald Keung from Piyush Mubayi.

Investor concerns and weaknesses

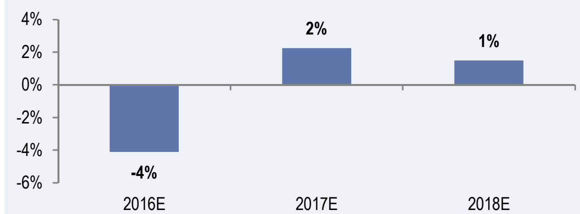
- × **Potential refinancing of convertible notes due in March 2017:** VIPS' US$632.5mn convertible notes, issued in March 2014, have a conversion price of US$20.124 per ADS that matures in March 2019, with a put option due in March 2017. VIPS has Rmb4.9bn cash on hand by end-Sep 2016 (>US$700mn) but most of its cash are onshore in Rmb, while we expect VIPS will have to raise US$ debt offshore in 1Q17 for the potential refinancing.
- × **Lack of operating leverage seen so far:** despite top line growth, VIPS margins have declined in 2016 on ongoing marketing spending to acquire new customers. We expect such customer acquisition investments to continue and have already factored in no operating leverage in 2017E (flat margins).
- × **Business model:** The flash sales (treasure hunt-style) model works well for apparels, but limits VIPS further expansion into broader FMCG-style categories.

Earnings outlook and vs. consensus

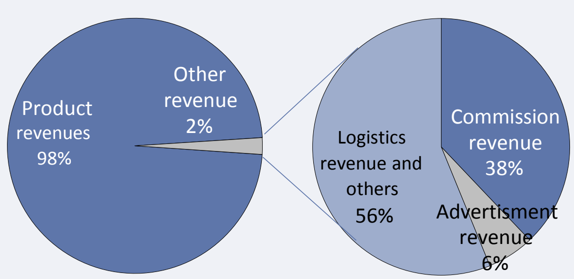
Non – GAAP EPS and operating margin trend



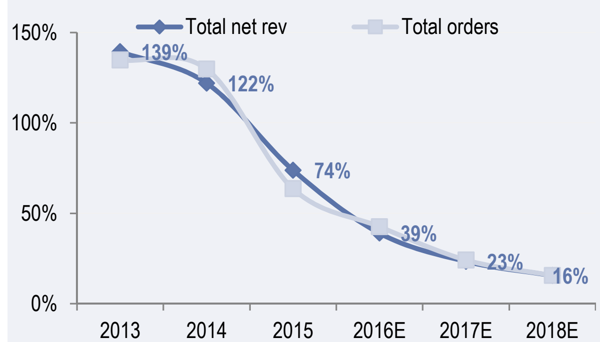
Our forecasts vs. consensus



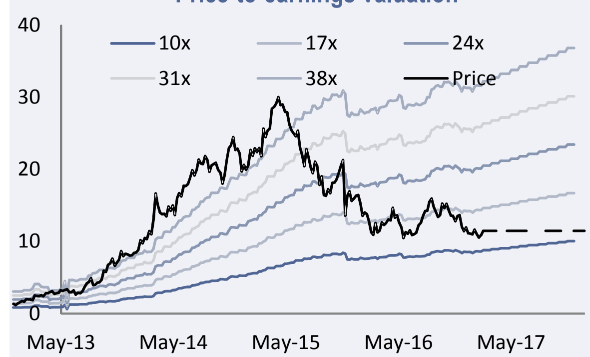
Revenue breakdown (2016E)



Total revenue and total orders yoy growth



Price-to-earnings valuation



Source: Company data, Bloomberg, Goldman Sachs Global Investment Research.

Our Buy case on ZTO Express

Exhibit 48: Our thesis on ZTO Express

ZTO Express (ZTO, 12-month TP: US$18.00) – Buy

Background and our thesis

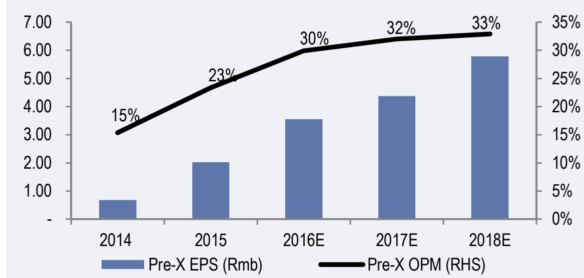
- ✓ **ZTO Express** is one of China's largest express delivery companies, ranked number 1 in parcel volumes handled in 2016 with >14% market share. ZTO focuses on inter-city parcels, where c.95% of its parcels are mid-long haul, and are handled via ZTO's sorting hubs/line-haul trucks and first/last-mile are fulfilled by its over 8,500 network partners.
- ✓ **We expect ZTO to continue to gain share in the inter-city parcel market:** While we expect intra-city parcels (+41%) to grow faster than inter-city (+21%) over 2017-2020E, we believe ZTO will continue to focus on the mid-long haul inter-city parcel market given its network partner model, and will continue to gain share (with parcel growth of +29% over 2017-2020E) driven by its stronger-than-peer service level.
- ✓ **We expect EBIT per parcel to steady** at Rmb0.63 over 2017E-2019E (vs. 0.62/0.54 in 2016E/2015) as it continues to cut cost faster than peers and sustain unit profitability.

Investor concerns and weaknesses

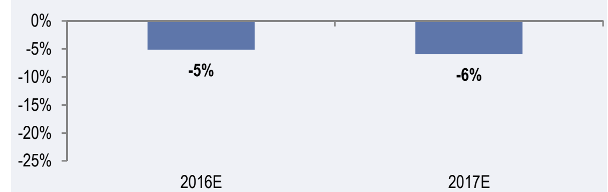
- × **Slowdown in e-commerce growth and ultimate convergence of parcel growth with GMV growth:** While express parcel growth showed no signs of slowdown in 2015-2016 (50% p.a.) despite the deceleration in online GMV to mid-20% in 2016, concerns surround when will growth converge when GMV per parcel (i.e. ticket size) stabilizes. We have factored in gradual convergence as e-commerce ticket size falls to Rmb110 by 2020E (from Rmb135 in 2016).
- × **ASP pressures from competition:** ongoing capital raisings by ZTO's peers, like YTO and Best could continue to drive unit costs and thus ASP lower. We have factored in -6%/-3% ASP declines for 2017E/18E.
- × **Lock-up period ends in late-April 2017:** Pre-IPO shareholders are subject to six-month lock up that will end in late-April 2017, including sorting hub regional managers (previously network partners) and PE funds.

Earnings outlook and vs. consensus

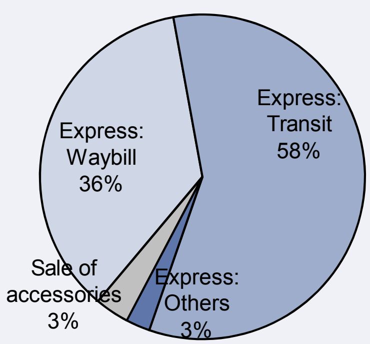
Non – GAAP EPS and operating margin trend



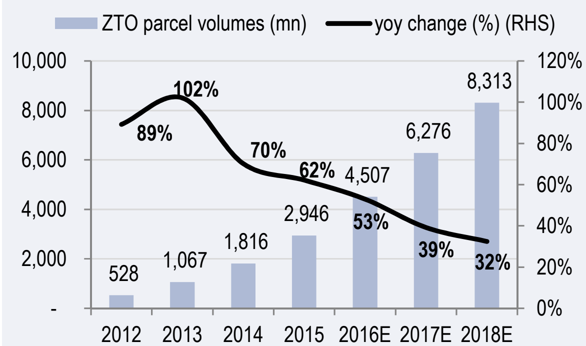
Our forecasts vs. consensus



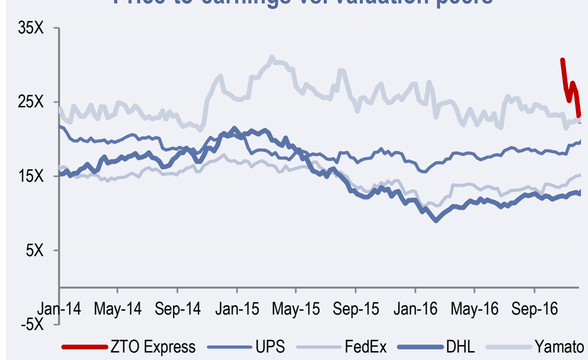
Revenue breakdown (2016E)



ZTO delivery parcel volume



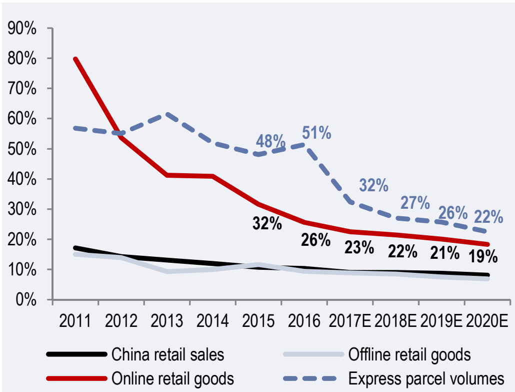
Price-to-earnings vs. valuation peers



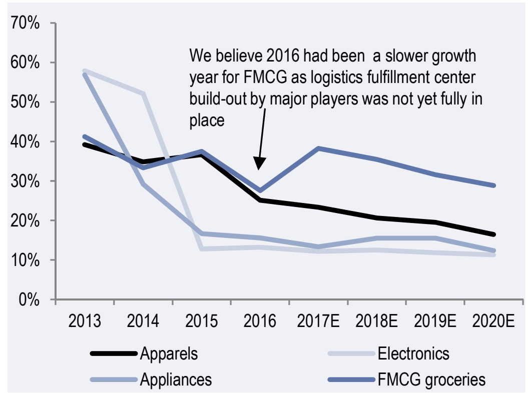
Source: Company data, Bloomberg, Goldman Sachs Global Investment Research.

Exhibit 49: Overall growth mostly sloping down– but gradual and stabilizing. JD's gross margin to improve on scale, stable margins at VIPS

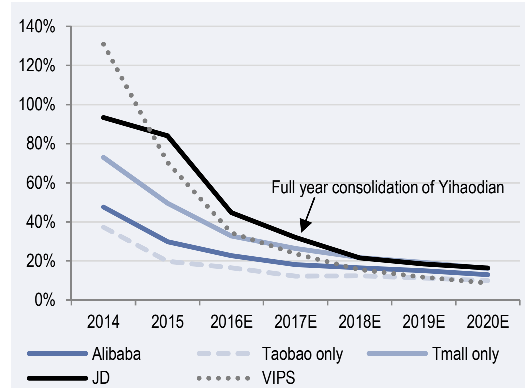
China retail sales growth, online and offline



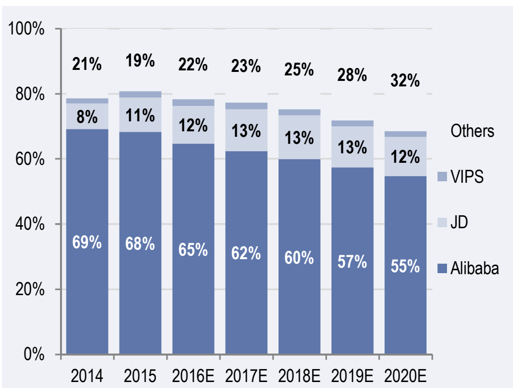
Online retail sales growth by categories



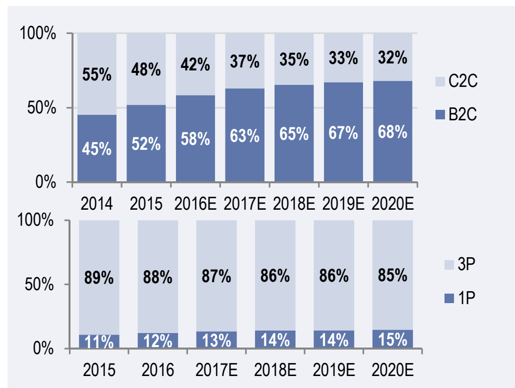
Our GMV growth forecasts by platforms



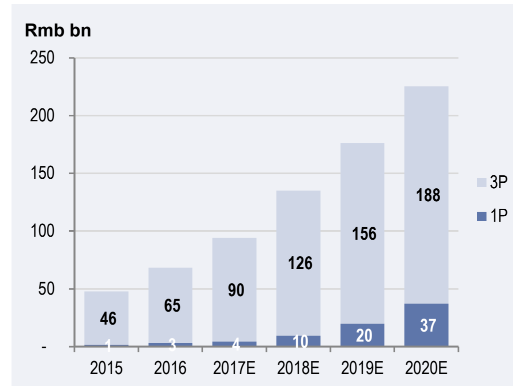
Market share and split of B2C, C2C



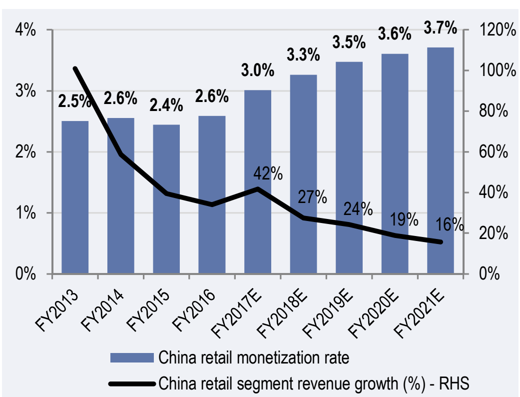
Market share and split of B2C/C2C and 1P/3P



Profit pool of China online retail (Rmb bn)

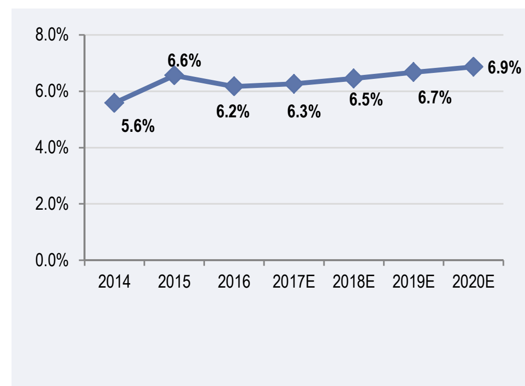


Our Alibaba China retail forecasts



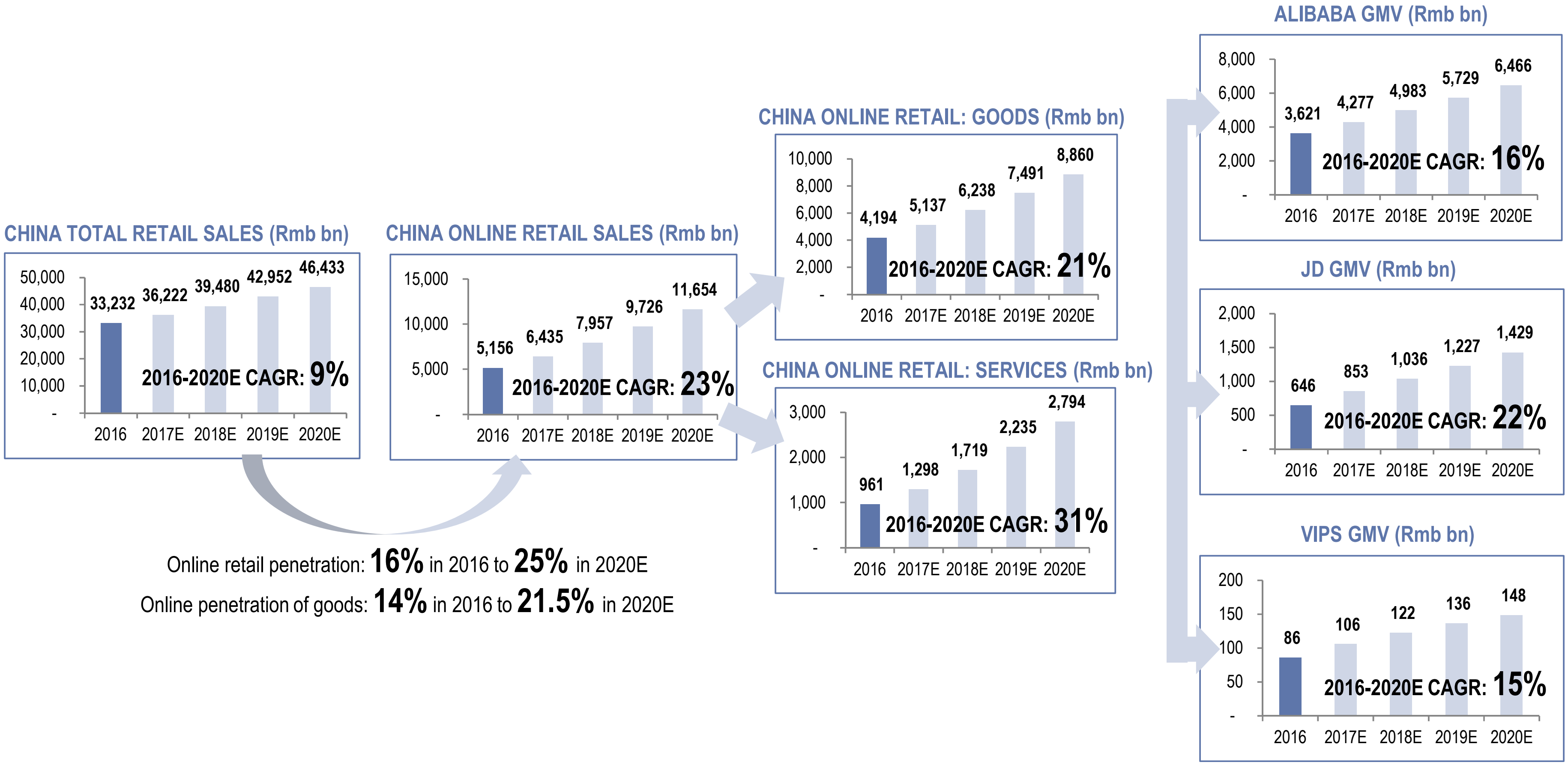
Our JD gross margin forecasts

Our VIPS EBIT margin forecasts



Source: Company data, Goldman Sachs Global Investment Research.

Exhibit 50: Summary table of our China retail forecasts



Note: Calendar year adjusted for Alibaba GMV

Source: Goldman Sachs Global Investment Research.

Target prices, methodology and risks

BABA: 12-month SOTP based TP: US$135; Risks: Slower GMV growth, lower monetization, more intense competition.

JD: 12-month SOTP based TP: US$38; Risks: Online GMV slowdown, capital allocation, margin ramp-up trajectory

VIPS: 12-month P/E-based TP: US$20; Risks: Competition or new entrants (both online/offline), GMV slowdown, higher-than-expected fulfilment costs/capex and inventory write-down risks.

ZTO: 12-month P/E-based TP: US$18; Risks: Ecommerce growth slowdown, ASP pressure, competition.

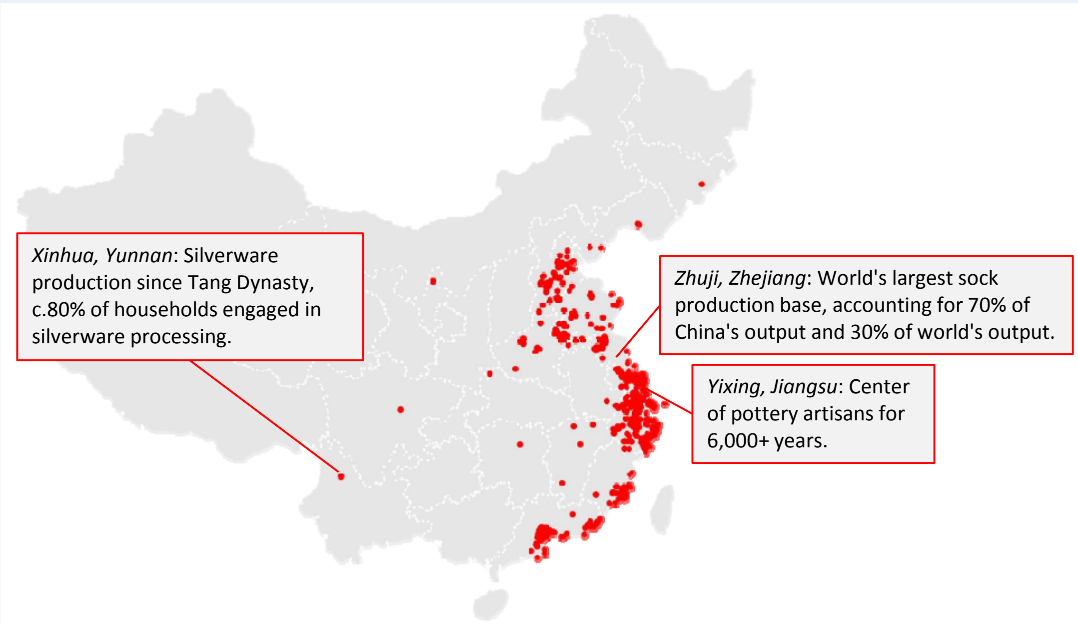
Appendix

Case study on rural: Alibaba's rural strategy: Selling, as important as buying

Rural is one of three key strategic imperatives for Alibaba; the company has pledged to invest Rmb10bn into rural expansion over the next 3 years. While we think there are challenges to rural online penetration (see above), that is just one side of the story. Alibaba's rural push is as much about tapping rural consumers as it is about tapping rural merchants.

According to Alibaba, there are over 1,300 Taobao villages and 135 Taobao towns, rural clusters of online merchants who generate over Rmb10mn per year. More than 11,000 online merchants in Taobao villages generate Rmb1+mn per year. The rural-to-urban sales have generated c.700mn packages in 2016. Villages and towns that have traditional handicrafts and artisanal goods now have access to a much larger customer base. In the longer term, sales can further boost incomes and hence spending power.

Exhibit 51: Key Taobao villages / towns



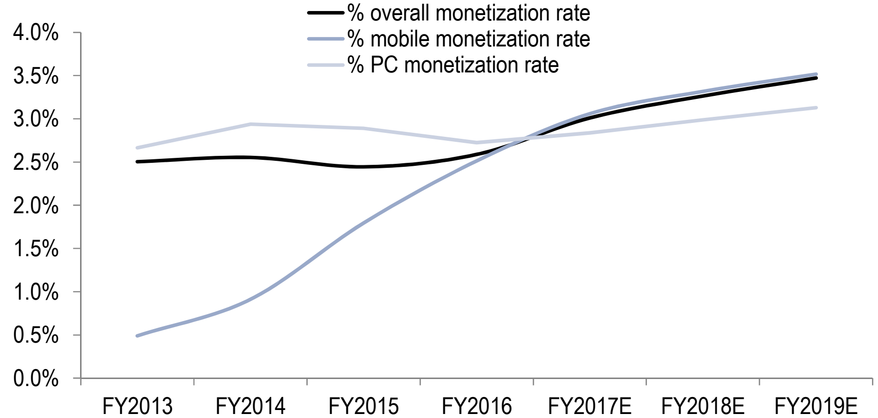
Source: Alibaba.

How does advertising work in Alibaba and JD?

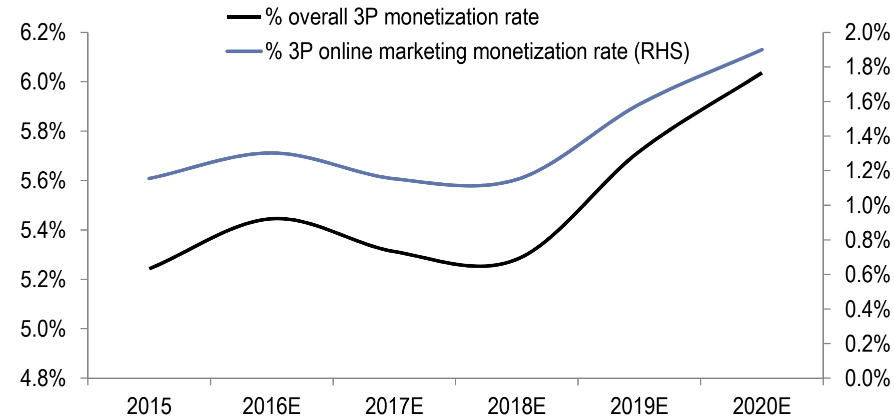
Our forecasts for advertising/monetization

Exhibit 52: Our forecasts for Alibaba and JD's marketplace monetization; key demand side and supply-side advertising platforms

Our projection for Alibaba China Retail's monetization rate



Our projection for JD's effective monetization rate



Alimama and Alibaba's big data marketing applications

► **Alimama's Demand-side platform (DSP)** (not exhaustive)

– **Taobao/Tmall Zhi Tong Che (淘宝/天猫直通车) :** search based ads and targeted ads. Ad sources include Taobao, Tmall, and other websites such as NetEase and iQiyi. Cost based on CPC.

– **Smart Diamond (智钻):** include targeted display ads in BABA's ecosystem and external sites, mobile ads on Apps, and video ads on Youku, PPS and iQiyi.

► **Alimama's Supply-side platform (SSP)**

– Tanx SSP (Taobao Ad Network & Exchange), AFP (Alimama for Publishers), Taobao League (淘宝联盟).

► **Big data**

– **Alimama's DMP (达摩盘):** customer profiling and precise marketing strategy.

– **Ju Xing Tai (聚星台):** personalizing store fronts, product descriptions and Weitao feeds.

– **Yu Shan Fang (御膳房):** big data analytics platform to assist merchants in products innovation and research, precise marketing, and marketing strategy.

JD's strategic partnership and JZT (京准通)

► **Strategic partnership**

– **JD-Tencent Project (京腾计划):** Leveraging Tencent's social data and JD's shopping & transaction data to conduct user profiling and precise marketing.

– **JD-Toutiao Project (京条计划):** Utilizing Toutiao's ad loads and AI technology to conduct precise marketing.

► **JZT's DSP**

– **JD Kuai Che (京东快车):** search-based ads with JD's internal ad sources and Tencent's social network ad sources (WeChat Moments, Q-Zone etc.). Cost based on CPC.

– **Jing Xuan Zhan Wei (京选展位):** display ads with JD internal ad sources. Cost based on CPM or CPD (cost per day).

– **Jing Tiao Ke (京挑客):** ads on 3rd party online shopping recommendation sites, such as Baidu VIP. Cost based on CPS (cost per sale).

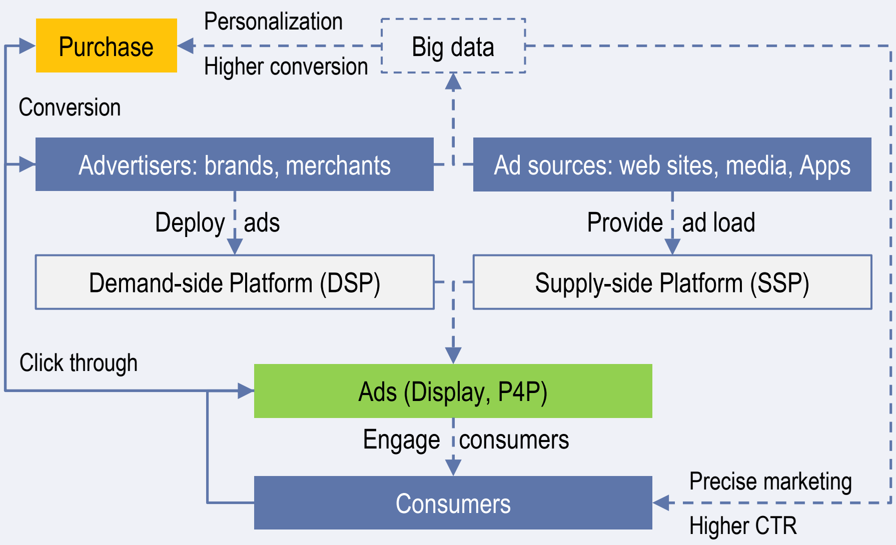
► **Big data**

– **JD Shang Zhi (京东商智):** customer profiling and precise marketing strategy.

Source: Company data, Goldman Sachs Global Investment Reseaarch.

Exhibit 53: How does advertising work at Alibaba and JD? Brands continue to spend on marketing, where we expect online (or omni-channel) to continue to take share in advertising dollars

Online marketing ecosystem



Online marketing: how it works

► Demand-side Platform

- Serves advertisers, such as brands and merchants on Tmall, Taobao, and JD.
- For advertisers to deploy ads, manage ads inventory, budgeting, and evaluate effectiveness.

► Supply-side Platform

- Serves traffic sources, including internal sources such as PC/mobile sites of Tmall, Taobao and JD, as well as external sources such as search engine, video sites, news portal, and mobile Apps.
- For traffic sources to monetize their traffic through providing ad loads.

► Big data

- Includes data management platform (DMP), which helps advertisers analyze customer profile and setup precise marketing strategy.
- Enable precise marketing and personalized shopping experience, which improves click-through rate (CTR) and conversion rate.

Brands' spending on sales & marketing

Sales & Marketing as % of Revenue														
	2012	2013	2014	2015		2012	2013	2014	2015		2012	2013	2014	2015
Electronics and appliances					FMCG					Apparel				
LG	3.6%	3.4%	3.4%	3.2%	Unilever	6.4%	6.3%	14.8%	15.0%	Adidas	15.1%	12.6%	13.2%	13.9%
Samsung	5.8%	5.3%	5.6%	5.5%	Church & Dwight	12.2%	12.5%	12.6%	12.3%	Skechers	8.6%	8.3%	7.6%	7.5%
Daikin	2.7%	2.4%	2.4%	2.4%	Shanghai Jahwa	34.9%	32.5%	32.0%	34.1%	Puma	35.2%	32.7%	33.6%	33.7%
Haier	8.2%	7.1%	7.0%	8.5%	Want Want	11.6%	11.9%	12.9%	14.5%	Esprit	10.0%	9.6%	8.7%	9.6%
Midea	9.2%	10.3%	10.4%	10.7%	Dali Foods	6.8%	6.6%	7.4%	12.1%	Li Ning	39.1%	45.9%	45.7%	38.4%
Gree	14.7%	18.9%	20.8%	15.5%	Hengan	17.4%	18.3%	20.3%	18.2%	Anta Sports	13.6%	16.5%	19.0%	19.9%

Source: Company data, Goldman Sachs Global Investment Research.

Payment and Internet Finance: we value Ant / JD Finance at US$62bn / US$8.2bn

Exhibit 54: Ant financial, JD Finance and Vipshop's internet finance business

Ant financial: GSe valuation US$62bn (FY2019E)

► Financing product

1. Ant Check Later (Huabei – 花呗): month-to-month consumer loans b/w Rmb1k-Rmb30k, functioning as credit cards, delayed payments are subject to 0.05% daily interest rates.
2. Ant micro loan (Xiaodai –小贷): 3mn cumulative users as of March 31, 2016.

► Other products:

- Alipay payment business: 451mn active users in 2015, 153 daily average transactions in 1Q16.
- Yu'e Bao：Money market fund with 152mn annual active users, AUM if Rmb760bn as of end-Mar, 2016.

JD Finance: GSe valuation US$8.2bn (2018E)

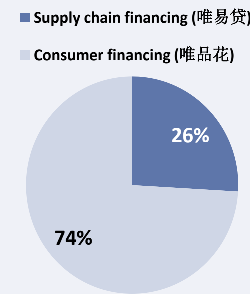
► JD Finance has operated as a stand-alone arm of JD since 2013. By 2016, JD Finance had seven product segments: Supply chain financing, Consumer financing, Crowd funding, Wealth management, Payment, Insurance and Securities.

► According to JD CEO Richard Liu:

- In 2016, JD Finance served >100mn users and >200k enterprises.
- Total transactions through JD Payment (since inception) reached Rmb1trn by 2016.
- Consumer credit business transaction volume reached Rmb200bn in 2016.
- Crowd funding business market share >50%.

Vipshop

► As of end September 2016, Vipshop has a total loan balance of Rmb2bn. Supply chain financing has turned profitable, and Consumer financing default rate is kept low at 0.2%-0.5%.

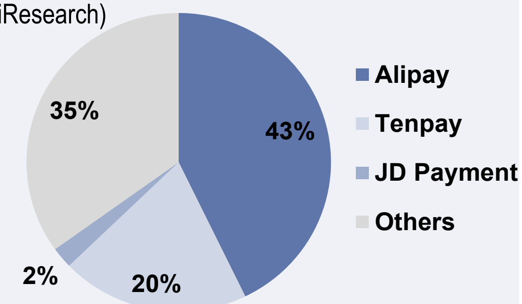


Internet finance Cash flow impact

	1Q16	2Q16	3Q16
Net cash from operating activities	153.2	1,227.1	649.6
Add: Impact from Internet financing activities	309.2	490.6	450.1
Cash from operating activities incl. Internet financing	462.4	1,717.7	1,099.7
Less: Capital expenditures	(660.6)	(587.9)	(830.5)
Free cash flow	**(198.2)**	**1,129.8**	**269.2**

3rd party payment Market share

(2Q16, iResearch)



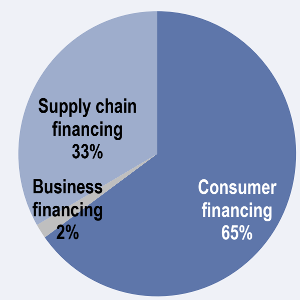
JD Finance reorganization

JD announced its plan to spin off JD Finance (**68.6%** owned currently). Post spin-off, JD Finance will become a Chinese domestic entity that JD will not have legal ownership/effective control. JD will enter into a series agreements through which it will be able to receive cash from the spin off and **40% of the pretax profit of JD Finance** when JD Finance has a positive pretax income on a cumulative basis.

The mix of cash and profit sharing is yet to be determined. JD will be entitled to convert its profit rights into 40% of equity interest in JD Finance, subject to regulatory approval.

JD Finance balance by vertical

► Rm30.3bn balance as of Sep'16



Seven key product segments of JD Finance

JD Finance

- Supply chain financing
- Consumer financing
- Crowd Funding
- Wealth Management
- Payment
- Insurance
- Securities

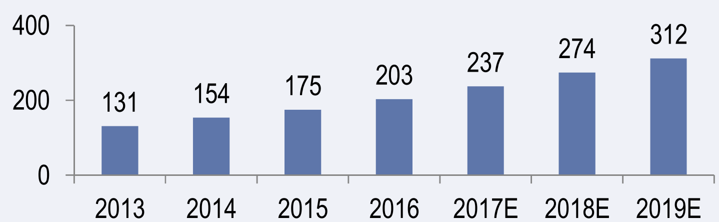
Source: Company data, Goldman Sachs Global Investment Research.

Cloud computing: we are bullish on AliCloud; JD Cloud still at an early stage

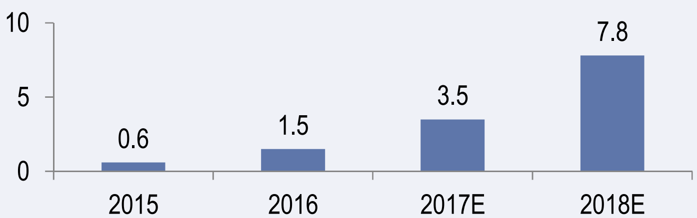
Exhibit 55: AliCloud and JD Cloud: We value AliCloud at US$38.8bn (FY2019E) under our Alibaba SOTP

Cloud computing: market overview

► Global cloud market sizing (US$bn)

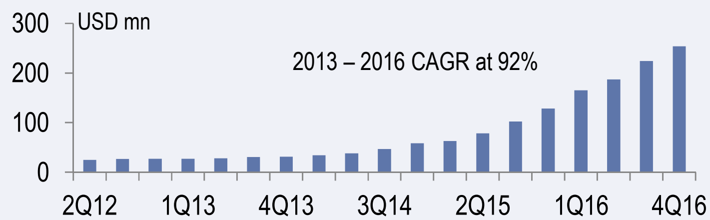


► China IaaS market sizing (US$bn)



AliCloud: #4 player in the world and dominant in China (14 global data centers)

► Established in 2009 and reached US$800mn rev. in 2016



► Expanding global reach

1. Added 4 new global data centers in November 2016
2. Official cloud computing provider for Olympic games

JDCloud: early stage but will keep investing

► JD's focus of future investment

– Management mentioned that "in terms of capital allocation, …, one of the major new areas will be cloud computing"

► Align with JD's "Open" strategy

– JD has also opened its logistics and marketing capability to 3rd parties

JDCloud: history and services/products offerings

May 2012: JD Open Services (JOS)

Connect sellers, ISV (independent software vendor), and JD's promotion, supply chain, logistics and service system

Jun 2013: JOS

Yunding (云鼎) | Yunqing (云擎)

E-comm app hosting | Web app hosting

Mobile app developing | Developer community

Yunfeng (云峰) | Yunhui (云汇)

April 2016:

IaaS (Infrastructure-as-a-service)		Big data analytics	
Elastic computing	Networking	Developer tools	Auto modeling
Storage and CDN	Database services	User profiling	OCR

Industry solutions and products		
Ecommerce	Logistics	Wanxiang Data Market
Smart devices	Public services	Shuzhi Data Analytics

Source: Gartner, Company data, Goldman Sachs Global Investment Research.

Mindcraft: Our Thematic Deep Dives

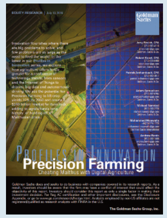
Innovation & Disruption

Virtual Reality

Drones

Factory of the Future

Precision Farming



Advanced Materials

Artifical Intelligence

5G

Cars

Internet of Things

Music's Return to Growth

Opportunity

Risk

Rise of the Asian Consumer

Chinese Consumer

Chinese Millennials

Chinese Tourist Boom

China Logistics

India Consumer

India Internet

The Future of Finance

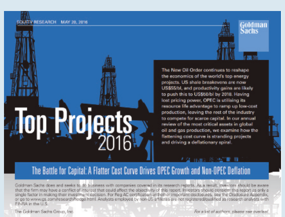
Future of Finance

Blockchain

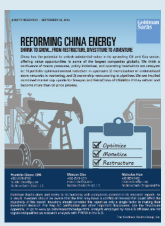
Asia Digital Banking

Old China Commodities

Top Oil & Gas Projects



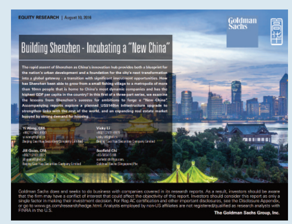
Reforming China Energy



Chinese Demand & The Copper Supply Glut

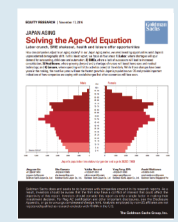
New Old China: 4R's Beyond 2016

Shenzhen: Incubating a 'New China'



Apple Suppliers' Dilemma

Japan Aging



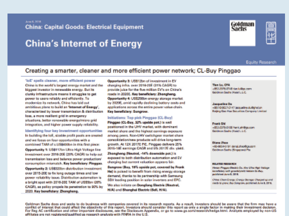
The Low Carbon Economy

Tech in the Driver's Seat

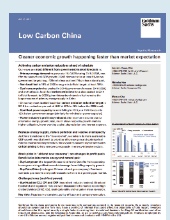
China's Battery Challenge

China Environment

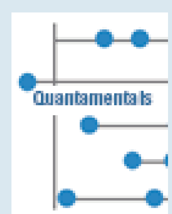
China Internet of Energy



Low Carbon China



Asian Quantamental



SUSTAIN

Corporates' Strategic Challenge

Credit

China's Domestic Bond Market

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A household member of one of the analysts on the coverage team is employed by Alibaba Group Holding Limited, and receives equity compensation as a result of that employment.

Disclosure Appendix

Reg AC

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Growth is a composite of next year's estimate over current year's estimate, e.g. EPS, EBITDA, Revenue. **Return** is a year one prospective aggregate of various return on capital measures, e.g. CROCI, ROACE, and ROE. **Multiple** is a composite of one-year forward valuation ratios, e.g. P/E, dividend yield, EV/FCF, EV/EBITDA, EV/DACF, Price/Book. **Volatility** is measured as trailing twelve-month volatility adjusted for dividends.

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China Internet: 58.com Inc., Alibaba Group, Baidu.com Inc., Ctrip.com International, Gridsum, JD.com Inc., NetEase Inc., New Oriental Education & Technology, SINA Corp., TAL Education Group, Tarena International Inc., Tencent Holdings, Vipshop Holdings, Weibo Corp..

China Logistics: Kerry Logistics Network Ltd., Sinotrans Air Transportation Dev, Sinotrans Ltd., ZTO Express (Cayman) Inc..

Europe-Beverages: Anheuser-Busch InBev, Britvic Plc, Carlsberg, Coca-Cola HBC AG, Davide Campari, Diageo, Heineken, Pernod Ricard, Remy Cointreau.

Europe-Food: Agrana, Aryzta, Barry Callebaut, Chr Hansen, Danone, Kerry, Lindt & Sprungli, Nestle, Novozymes, Orkla ASA, Suedzucker AG, Tate & Lyle, Unilever, Unilever Plc.

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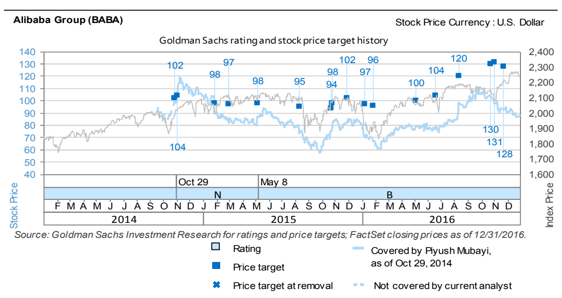

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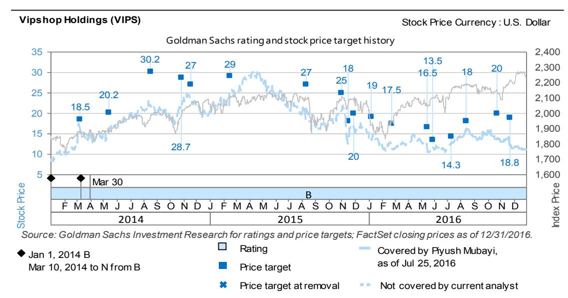

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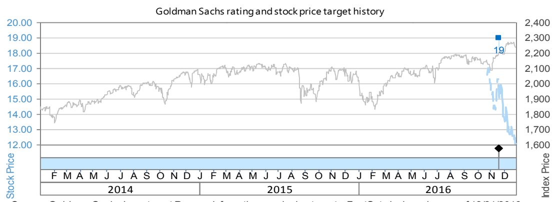
ZTO Express (Cayman) Inc. (ZTO) Stock Price Currency : U.S. Dollar



Source: Goldman Sachs Investment Research for ratings and price targets; FactSet closing prices as of 12/31/2016.

◆ Nov 21, 2016 B

- Rating
- Price target
- Price target at removal
- S&P 500
- Covered by Ronald Keung, CFA, as of Nov 21, 2016
- Not covered by current analyst

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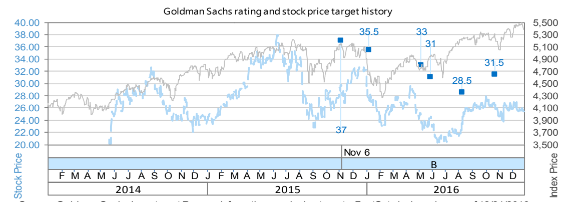
JD.com Inc. (JD) Stock Price Currency : U.S. Dollar



Source: Goldman Sachs Investment Research for ratings and price targets; FactSet closing prices as of 12/31/2016.

- Rating
- Price target
- Price target at removal
- NASDAQ Composite
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