UBS

Longer Term Investments

E-commerce

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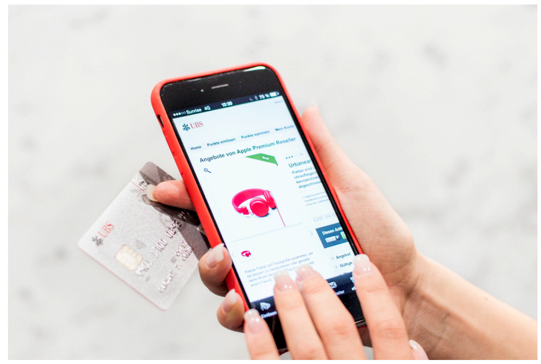
- The global e-commerce market is worth an estimated USD 4.1trn worldwide, or almost 16% of total consumer retail sales.
- Long-term population growth and urbanization trends, combined with an expanding emerging market middle class support retail sales and fuel e-commerce. High urban population densities make it easier to deliver goods, with faster delivery times increasing the consumer convenience.
- We expect e-commerce to grow around 15% annually over the next 10 years thanks to rising smartphone and internet penetration, technological advances, and improving consumer convenience.
- In our view, the e-commerce theme offers attractive long-term investment opportunities. Investors can benefit via a diversified portfolio of companies like online marketplaces, online retailers, payment service providers and logistics companies.



Source: UBS Photo Database

Our view

Consumer behavior is changing as goods are increasingly bought online. Greater smartphone penetration has dissolved boundaries of time and place, enabling consumers to buy products whenever, and wherever, they choose. Manufacturers and retailers can offer a larger range of goods online without having to invest in new stores. Large urban areas lend themselves to efficient product delivery.

Emerging market (EM) population growth is boosting sales volumes, with the growing EM middle class providing an attractive sales tailwind for consumer companies. The rising number of internet and mobile users is accelerating consumer companies' online revenue.

Urbanization fuels consumption growth as well, since urban consumers benefit from the greater availability of goods and services. Higher population density also catalyzes e-commerce by making it easier, faster, and cheaper to distribute products and services to customers. Access to better internet connectivity is combining with urbanization trends to foster the boom in online sales.

E-commerce is growing across all age groups. It offers those with limited mobility the chance to shop online and receive deliveries at home. Moreover, as consumers become more familiar with buying products online, positive feedback should result in long-term e-commerce growth.

Key growth drivers of e-commerce

E-commerce revenues are currently USD 4.1trn per annum worldwide, according to eMarketer. Along with population growth, urbanization, and aging, this structural trend is fueled by technological evolution, increased consumer convenience, and companies expanding their online channel offering. We expect e-commerce to grow by around 15% annually over the next 10 years (see Fig. 1). It will claim an ever-greater percentage of total sales, and gain market share from traditional retailers that rely only on physical stores.

Evolution of technology

As the performance and functionality of personal computers and mobile phones have improved, their prices have fallen. So internet and smartphone penetration rates have continually climbed, particularly in emerging markets (see Fig. 2). Consumers benefit from faster internet speeds due to 4G and the upcoming 5G standard and other tech advances, as well as user-friendly mobile applications. Virtual and augmented reality (VR/AR) features facilitate a new e-commerce experience via simulation and visualization, which reduce product returns and raise sales conversion ratios. Artificial intelligence (AI) enhances the consumer experience by boosting website performance and enabling greater personalization, e.g., search rankings based on individual needs. AI also makes the delivery process more efficient. Such technology will only keep improving the online sales experience and deepening online sales penetration.

Consumer convenience

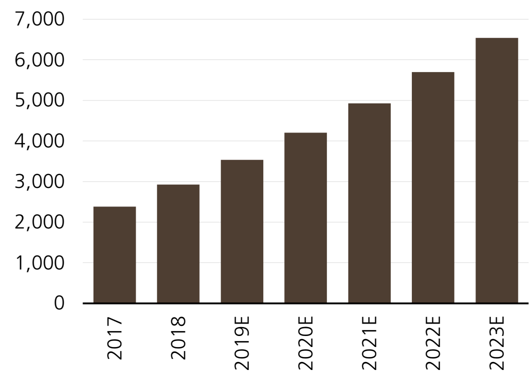
Convenience is a key reason why consumers shop online. They can buy desired goods and services whenever and wherever they want. Unlimited availability should also lead to more impulse transactions: shopping is not restricted by opening hours, nor do customers have to leave their home to engage in it. Greater price transparency, with easier price comparisons without visiting a physical store, also increase the appeal of online shopping. Delivery options, too, are becoming faster and cheaper. Consumers need not venture beyond their doorstep to pick up and return the products they ordered. Technology has eased the payment process (e.g., in-App payment opportunity): entering a credit card number is no longer necessary for every transaction.

Increasing availability and growing product offering

Online stores and marketplaces enable companies to increase their revenue by expanding their product offering without having to rent or build new physical stores. For example, food retailers can offer third-party toys, gardening tools, etc. on their webpage without having to display them on shelves. While e-commerce penetration rates vary by country, they remain low overall, at slightly over 10% of total retail sales in most countries (see Fig. 3). Online offers consumer companies an entry point into new markets on an asset-light basis. We expect cross-border trade to gain in importance, especially given the global ambitions of the e-commerce giants Alibaba and Amazon. Consumers benefit from an extended offering in online marketplaces, where products not available in local stores can be bought. New regulations and increased import duties levied to protect domestic economies represent the biggest threat to cross-border trade growth.

Fig. 1: Global e-commerce is expected to grow around 15% annually over the next 10 years

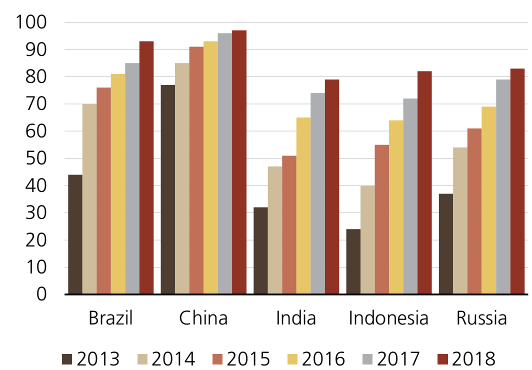
Global retail sales generated online, in USD billion



Source: eMarketer, UBS, as of July 2019

Fig. 2: Rising EM smartphone penetration

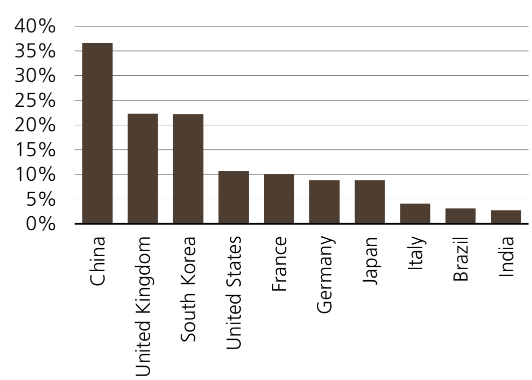
Smartphone penetration rate by country in emerging markets, in %



Source: Credit Suisse Emerging Consumer Survey 2019, UBS, as of July 2019

Fig. 3: Share of online retail sales varies by country

Expected e-commerce penetration rate by country in 2019, in %



Source: eMarketer, UBS, as of August 2019

Barriers to entry

Building an online store does not require a great deal of investment. Costs associated with setting up a website are relatively low. But successful e-commerce companies have to spend heavily to gain consumer traction. So online companies sacrifice earnings growth in the short term to establish their business model and turn profitable long term. In our view, the highest barriers to entry result from economies of scale, brand recognition, product differentiation, technology, logistics, and delivery options.

Economies of scale

Large companies benefit from lower costs per unit as fixed costs are spread over more units. So the higher the volume, the lower the costs, which should result in lower prices and greater demand. New competitors entering the market will have to underprice existing competitors or offer better quality at a good price. Due to lack of scale, they need the financial capability to accept losses in the start-up phase.

Brand recognition

Well-established online market platforms, which benefit from consumer recognition and a positive reputation, are usually consumers' first choice for comparing or buying products. New competitors have to build up strong brand recognition to attract customers, which requires capital investment. Consumers generally compare services and prices at well-established marketplaces, pressuring new contenders to offer better deals.

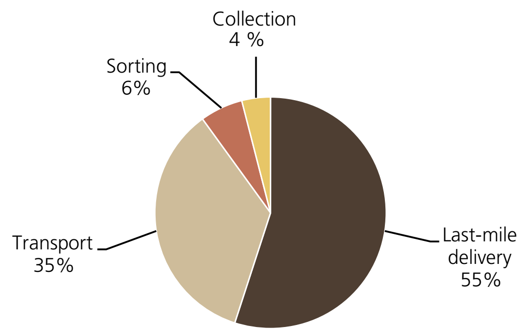
Product differentiation

Consumer companies need to offer a wide variety of products to attract customer interest. Online marketplaces try to establish a good relationship with manufacturers to provide this variety. Because the size of orders matters to manufacturers, considerable expenditure is needed at the outset by such marketplaces to attract enough consumers to become a relevant partner for brand manufacturers. To protect their brand equity, manufacturers may refrain from selling their products in a marketplace without a clear, well-established profile.

Technology

Ease of use is a main differentiator for online marketplaces. Since technology changes fast and can be copied, an interface alone is usually not a key hurdle for new challengers. But knowing clients well can set marketplaces apart. Existing e-commerce companies use big data to target users with personalized offers. Highlighting products that might interest consumers based on their online traces increases both the probability of transactions and basket sizes.

Fig. 4: Last-mile delivery is expensive
Cost structure per parcel, in %



Source: Citigroup Research, UBS, as of November 2014

Logistics and delivery options
The last mile of delivery, in which products are efficiently delivered to store networks and homes and offices, is critical and expensive (see Fig. 4). Global e-commerce firms are testing new technologies to deliver goods faster and more efficiently, e.g., using AI, drones, and robots. The same-day delivery option is gaining in importance as consumers expect to receive the goods they ordered rapidly. New competitors need to build up a delivery network or else rely on local distributors. Pricing power vis-à-vis delivery companies is a prime issue early on. So new entrants have to subsidize deliveries to drive sales growth. The two largest global players are building their own logistics networks to gain more flexibility and exert control over the fulfillment process.

Largest e-commerce markets

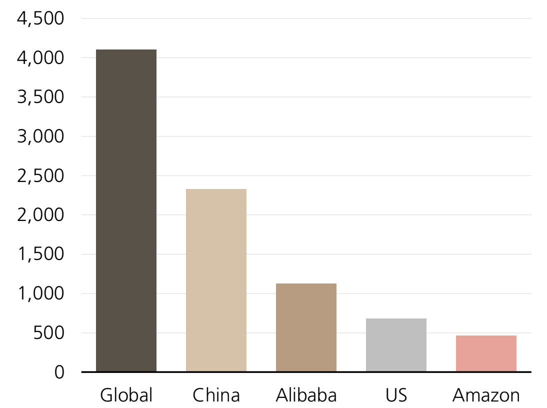
Global
Global e-commerce is currently a market of around USD 4.1trn worldwide and accounts for almost 16% of total consumer retail sales. More than half of these transactions are processed through mobile phones and applications, defined as m-commerce. We expect m-commerce's share of sales to rise due to increasing smartphone penetration, the improving mobile experience, and the fact that millennials primarily use this channel. Growth of retail sales in emerging markets (e.g., China and India) is especially fueled by m-commerce. More than two-thirds of the gross merchandise value (GMV) of China's e-commerce market leader stems from mobile transactions.

Successful e-commerce companies have to adjust to local preferences and culture in terms of the products, delivery options, payment techniques, and local language websites they offer. E-commerce companies are expanding their reach in emerging markets. At the moment, the global e-commerce market is heavily dominated by two regions, namely China and US, and two companies, Alibaba and Amazon (see Fig. 5). Both companies continue to invest to extend their offering and are capturing material market share in their local regions.

China
China is the largest e-commerce market and makes up around 57% of the global e-commerce market at USD 2.3trn. The online penetration rate in China is expected to further rise from the current 37% to 64% in 2023, according to eMarketer. The market is dominated by the local e-commerce giant Alibaba, which offers online marketplaces, online payment, financial services, logistics, video and content, cloud services, etc.

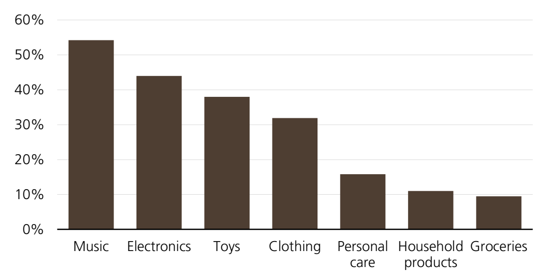
The Chinese government wants to stimulate the rise of the technology sector and is supporting it by, for example, giving 5G licenses for free to stimulate innovation and development. Furthermore, AI companies have an advantage as there is a huge pool of collected data from the big domestic market of around 660 million online shoppers. Growing e-commerce penetration in lower-tier cities and new marketing channels, such as WeChat mini programs, social networks,

Fig. 5: Global e-commerce is dominated by two companies and two regions
Gross merchandise value (sales), in USD billion



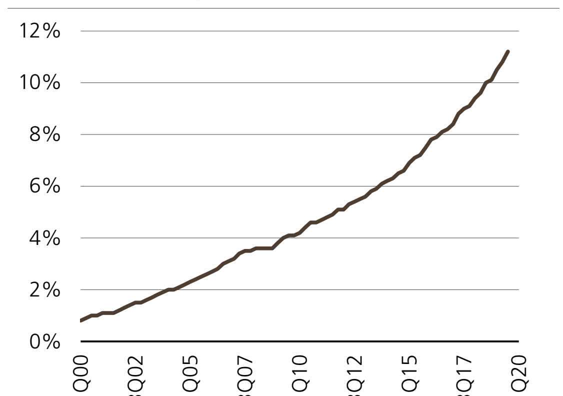
Source: eMarketer, company reports, UBS, as of February 2020

Fig. 6: US online penetration by category
US online sales in % of total retail sales



Source: UBS Evidence Lab (Survey 2018), as of January 2019

Fig. 7: Growing e-commerce share in the US
US online sales in % of total US retail sales



Source: US Census Bureau, UBS, as of January 2020 and videos, drive market growth. Mini programs are simple apps in WeChat that users can open without first installing software.

US
While well established in the US, online shopping still accounts for only around 11% of total retail sales (see Figs. 6 and 7). But in the past five years total US e-commerce has grown at a 13% compound annual growth rate, almost five times faster than total retail sales. The foundation for even broader adoption is in place.

Looking ahead, faster shipping speeds will be a key enabler of e-commerce growth.

According to the Pew Research Center, almost 70% of US adults subscribe to home broadband services; 81% of Americans owned a smartphone in 2018, up from just 35% in 2011. Mobile commerce continues to rise in popularity and, in fact, a recent survey from Deloitte found that more online shoppers will purchase back-to-school items on their mobile device than desktop this year.

India
India's e-commerce potential is among the highest (see Fig. 8) worldwide. It is stimulated by increasing affordability, better logistics, improving payment options, and greater product offerings. Online shopping growth on the subcontinent is being fueled by greater smartphone penetration, evolving consumer behavior (e.g., people buying online or on a smartphone while on the road), and rising wealth. The rapid rise of online payment systems has further boosted growth. The largest digital wallet company has more than a 50% market share in India payments. Although the internet has penetrated to only one-third of it, the country has the second-largest number of internet users after China. Its demographics are also favorable: 65% of its population is under 35, according to the UN.

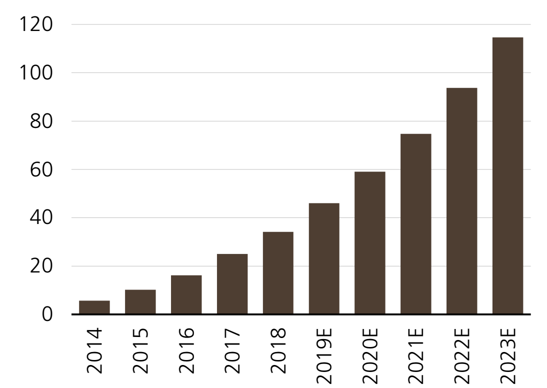
So global internet giants like Amazon, Alibaba, Naspers, Softbank, and Tencent are pouring funds into India's internet market through direct investment in local start-ups and through subsidiaries. The Indian e-commerce market is currently dominated by Flipkart, backed by Walmart, which competes heavily with Amazon. Alibaba is active in the space through the online payment provider PayTM, which could also start to enter the online retail space in the future.

What is omni-channel retailing?

Given the growth of e-commerce spending, most retailers have looked to integrate their brick-and-mortar and online operations. These efforts are known as omni-channel initiatives. Essentially, a true omni-channel retailer is one unconcerned about how, where, and when a consumer shops or interacts with its brand. The goal of such retailing is to make stores an extension of the supply chain, in which purchases may be made in-store but are researched in various ways.

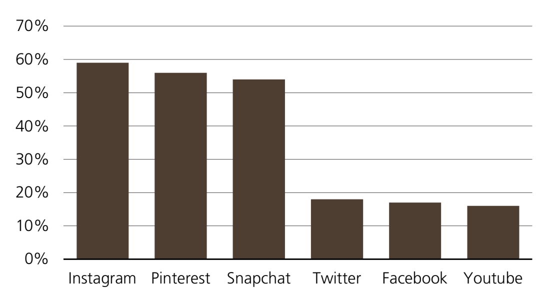
All purchase channels at an omni-channel retailer are designed to connect effortlessly and provide a seamless way to shop. Pricing is typically consistent across all channels, and purchases made online can easily be returned in-store and vice versa. In our view, a retailer or brand must invest in several areas to ensure its long-term omni-

Fig. 8: Indian e-commerce to reach USD 115bn in sales by 2023
Estimated gross merchandise value (sales), in USD billion



Source: eMarketer, UBS, as of July 2019

Fig. 9: Effectiveness of ads varies by platform
% of monthly US users taking action upon seeing an ad



Source: UBS Evidence Lab, Report "Examining Consumer Usage & Ad Engagement Across Digital Platforms (10th edition)", UBS, as of May 2019 channel success. These areas include fulfillment capabilities, service, and search and consumer engagement through the use of big data.

With e-commerce becoming an important avenue of growth for traditional brick-and-mortar retailers, logistics and fulfillment emerge as determinants of whether their omni-channel initiatives succeed. Traditional retailers begin at a competitive disadvantage to online pureplays, which can invest some of the money they save by not having physical store locations in free shipping. Unlike several years ago, however, when some investors were calling for their demise, physical store locations are now viewed as playing a key role in e-commerce fulfillment, and retailers need to leverage their existing store bases to offer convenient pickup options for the consumer.

Smartphones can be used for an omni-channel experience. They offer the possibility to shop on the go, compare prices and features in the stores, and can be used as marketing instruments by the retailers that advertise their offering on mobile apps like Facebook or Instagram (see Fig. 9). In addition, you can track your order online in real time over your smartphone. Social networks are increasingly engaging users to shop directly on their platforms. Social commerce refers to e-commerce that involves social networks, online media, and social interaction. It has grown more popular in recent last years and amounts to around 12% (vs. 4% in 2015) of total e-commerce GMV.

Investment opportunities in the e-commerce market

The global e-commerce market is comprehensive, with companies offering a variety of products and services. We see the following primary long-term investment opportunities in this theme (see Fig. 10), although sector and theme exposure can change quickly due to industry trends:

Online marketplaces
Companies that are online platforms that connect buyers and sellers of products and services. The marketplace operator processes transactions, and multiple third-parties provide products and services offered on the platforms. Generally, marketplaces aggregate products from many providers, which results in a wide selection, high availability, and more competitive pricing than in vendor-specific online retail stores.

Online retailers

Companies that sell their products to customers online and use no other channel. Online retailers set up webshops where consumers can buy their products online, offering online payment as well as other payment options and home delivery. In addition, several business models have completely moved online, e.g. video streaming. There is no longer a need to ship a DVD. Gaming has also moved online.

Multi-channel retailers

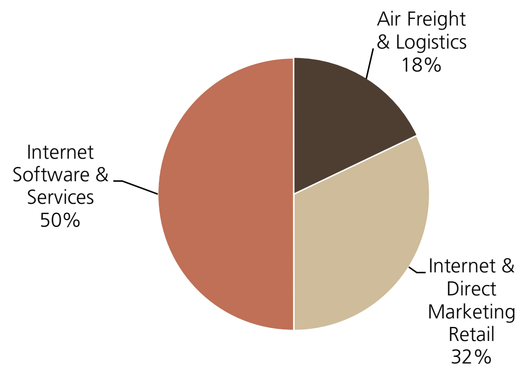
Companies that use an omni-channel strategy to sell their goods via physical stores and online and mobile platforms. Consumers can order online, have the clothes delivered to their home, and go to the nearest store to return or exchange their purchase.

Logistic operators

Logistics companies benefit from the rise in e-commerce as more and more goods are ordered online and need to be delivered to shoppers' homes. They establish efficient distribution and storage networks to ensure fast delivery at low cost. E-commerce increases the demand for warehouses and storage facilities near the big cities and within them. So real estate companies that own, operate, and develop industrial real estate can benefit. Companies such as express or parcel carriers like Deutsche Post benefit from the growing number of parcels shipped. But competition is increasing since Amazon entered this market.

Fig. 10: E-commerce theme is currently dominated by retail and services sector

Industry mix in the reference list



Source: Bloomberg, UBS, as of February 2020

Payment facilitators
In addition to credit card operators companies that facilitate payment for online transactions. The rising number of online and mobile transactions is of course positive for them. Payment facilitators make online payment safer and cheaper and could start to offer other services such as consumer credit.

Price comparison platforms
Companies that increase price transparency by enabling the prices different providers charge for services like travel to be researched and compared to ensure shoppers receive the cheapest offer for each purchase. These companies generate revenue through transfer or advertising fees.

Network providers
Telecom companies provide the technology and infrastructure that underpins e-commerce. In doing so they gain considerable information about their clients' spending behavior and preferences. Knowing clients is a key to targeting them with personalized offers. Telecoms are not the main beneficiaries of e-commerce in the short term, though. They have to invest heavily in infrastructure to increase speed connectivity and network stability.

Cyber security
The success of e-commerce growth also depends on hardware manufacturers and software companies, since clients want to execute transactions online without being the victim of cyber-crime. For further information, please refer to our Longer Term Investments theme Security and safety, published on 16 January, and our publication "A practical guide to cyber security for the entrepreneur", published on 25 July.

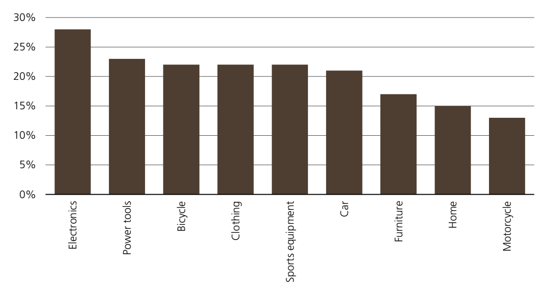
Sharing economy

The sharing economy is based on the idea of better asset utilization. The changing lifestyle of the younger generation seems to be shifting consumer preferences from the concept of ownership to that of access and rental. Many people now favor hiring what they need at the time they need it rather than owning it (see Fig. 11). In the age of smartphones and big data, consumer-to-consumer rental and lending have become easier, less time-consuming, and less costly through electronic platforms. This trend will continue and has the potential to disrupt traditional, asset-heavy business models in several industries (e.g., car manufacturing, tourism and hotels, and real estate). The most popular concepts are currently property and room sharing, transportation and car sharing. But people also share offices, parking spaces, self-storage space, and jewelry.

Sharing-economy platforms often leverage social networks, e.g., Facebook and LinkedIn, to recruit users who want to access their services. As trust is key in this economy, social networks could help build connections and link users while rating the trustworthiness of users.

As highlighted in our LTI report "Smart mobility" (published on March 11), the combination of electrification, autonomous driving, and connectivity will play a major role in spreading shared-mobility models, with autonomous driving serving as the ultimate trigger. Greater use

Fig. 11: People prefer to share many things
Percentage of people willing to share a particular product category



Source: Havas, Credit Suisse, UBS, as of March 2016 of car-sharing concepts and, ultimately, robo-taxis should lower costs to consumers and generate a viable business model for providers. The underlying long-term growth in car demand has been 2%–3% a year, but urban areas are becoming denser, which supports car-sharing concepts. Given the low estimated 4% average utilization per vehicle (i.e., around 1% per seat), privately owned cars are an inefficient asset, and each car used by a car-sharing service could in theory replace up to 25 private automobiles.

In the US, millennials (individuals born between 1980 and 1999) are an influential segment of the economy akin to the aging baby boomers. They often need to live close to metropolitan areas that offer employment. This should benefit sharing-economy businesses that tend to flourish in metropolitan areas where the internet and mobile devices can conveniently provide services and goods on demand without the need for any ownership commitment.

The sharing economy has already disrupted several industries and will continue to grow rapidly worldwide. While there have been several high- profile IPOs in the space, namely Lyft and Uber, many of the key players are private, though they could pursue an IPO in coming years. For now investment in this segment is primarily undertaken through private equity funds or direct investments.

Investment risks

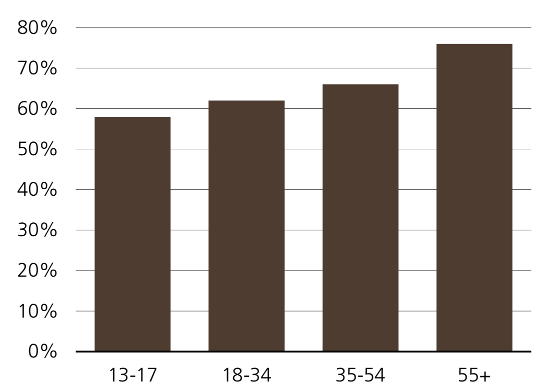
We recommend well-diversified exposure to minimize stock-specific risk in e-commerce. We see the following major risks to investing in the e-commerce long-term investment theme.

Regulatory and tax risk
E-commerce is evolving constantly and growing market share worldwide. Regulations and taxes still focus on traditional business models. Unfavorable regulations and taxes could alter the e-commerce framework. For example, governments could limit cross-border trade via taxes and regulations. In the US, the big technology conglomerates face the risk of a break-up due to regulatory concerns. In Europe, governments are debating how to tax the tech companies, and General Data Protection Regulation (GDPR) and data privacy laws also affect the outlook for the companies.

Margin risk
E-commerce enables consumers to compare prices online easily. So companies are always competing to offer the best price or the best service (e.g., shortest delivery time). While shoppers are the big beneficiaries, manufacturers and retailers suffer lower margins from price deflation.

Currency risk
E-commerce companies increasingly operate internationally. Products are shipped to customers around the world. So the companies are exposed to greater currency risks. In particular, weak emerging market currencies can offset the strong sales growth expected in these regions.

Fig. 12: Privacy concerns
Percentage of Facebook users (by age group) concerned about sharing personal information on the platform



Source: UBS Evidence Lab, Report "Examining Consumer Usage & Ad Engagement Across Digital Platforms (10th edition)", UBS, as of May 2019

Technology risk

The risk of cyber-criminal attacks during the purchasing process is a chief reason consumers avoid buying online. Any large cyber-attack could weigh on consumer trust and lead to declining online sales. In particular, companies that have demonstrable security deficiencies can quickly lose their customer base.

Winner-takes-all risk

Scale matters in e-commerce. Companies unable to attain it disappear because they cannot compete on price and service. There is a risk that the e-commerce market will be dominated by only a few large players.

Data privacy/cyber security risk

People share a lot of personal data on social media. But concerns regarding the protection of private information are rising (see Fig. 12). Data breaches could reduce the willingness of people to spend time on social media. Data protection and constant access to servers are essential for the success of online business models, including e-commerce.

What does this mean for entrepreneurs?

E-commerce offers new business opportunities for innovative companies. We cover big structural trends in the e-commerce space, which is growing as consumers change the way they shop. This theme is driven by advances in technology and the disruption of traditional retail models.

Entrepreneurs have to fulfill consumer expectations to remain relevant. Consumers want to buy their goods online 24/7 and expect fast delivery of their orders, ideally in one day. Modern logistics are needed to meet these expectations. Urban logistics, which support last-mile delivery near the big consumption centers, are in high demand. Entrepreneurs should try to benefit from the structural growth in this sector, invest in it in key locations, and leverage the new technology of robots and AI to increase efficiency.

E-commerce helps to boost the effectiveness of product offerings and marketing spending for entrepreneurs thanks to potential consumers' data trace on the internet. On the one hand, companies like Facebook and Alphabet (Google) have the capability (data) to offer third parties the opportunity to approach a specific target group. For example, if you are selling sports cars, Instagram can advertise specifically to those who follow and like particular car brands. On the other hand, companies can analyze the interest in and success of particular products better. In bricks-and-mortar stores, data is mainly limited to inventory and products sold. The situation is different online. Thanks to click statistics, entrepreneurs can analyze detailed customer patterns. For example, a high number of clicks on a dress but few purchases may indicate that the price is too high.

Smartphone penetration is rising in emerging markets and is already high in developed countries. Entrepreneurs can benefit from the increased time spent on smartphones. Time of day and location no longer limit consumers from buying/ordering a product. The mobile phone also plays an essential role in the advertising process of brands

External view: insights from business owners

Meetings with private-business-owning clients confirm that e-commerce is an increasingly important part of doing business, opening up a number of growth opportunities. They are increasing investment in e-commerce platforms to meet rising consumer demand. However, their attitudes to e-commerce differ across regions and industries.

Based on conversations with members of the UBS Industry Leader Network* the biggest e-commerce growth opportunities appear to be in emerging markets as consumer shopping behavior evolves in response to rising internet access (often through smartphones). But consumer-facing businesses here are using local online e-commerce platforms rather than the global giants'. They say they want to tap local consumers first and identify local platforms as being best placed to grow their business to consumer (B2C) sales. Some Industry Leaders are also moving onto global platforms as well.

Industry Leaders in developed markets say the balance of sales (and investment) between physical and online stores is more complex. They observe that consumers increasingly want online sales platforms as a way to shop conveniently. These platforms are also faster than physical stores in responding to changes in consumer behavior and seasonal spending patterns. For example, they enable customers to buy summer clothes online in spring or fall during a heatwave, when they may not be available in bricks-and-mortar stores that follow traditional seasonal procurement patterns. But consumers still appreciate access to physical stores for special, one-off purchases, when searching for niche products, or if they are looking for an "experience."

Industry Leaders do not think that e-commerce will necessarily replace physical stores entirely. In fact they think that some of the advantages enjoyed by e-commerce businesses are likely to erode over time (such as preferential tax treatment and online delivery subsidization by parent companies in the case of some grocery companies). Government policies and consumer preferences may lead, say some Industry Leaders, to a "more level playing field" between physical and online shopping. This trend potentially speaks to a diversified "omni-channel" sales strategy to meet shifting customer demand.

**The UBS Industry Leader Network is a global group of UBS clients and prospects who are private business owners and executives. Their views may differ from those of UBS.*

Matthew Carter and Vishakha Rajput (CIO Entrepreneurs Network) on social media, e.g., Instagram, Facebook, and WeChat, as well as in tracking deliveries of purchases.

Existing businesses owners are being compelled to join the online world or at least combine their physical stores with online ones. Companies with limited in-house expertise often work together with tech giants like Google. Innovations like m-commerce, online payment systems, AI, big data enable better marketing of products to consumers in a customized manner and increase sales and market efficiency. AR/VR features can support purchases by giving customers an idea of the products they can buy online.

Appendix

Terms and Abbreviations

Term / Abbreviation	Description / Definition	Term / Abbreviation	Description / Definition
A	actual i.e. 2010A	COM	Common shares
E	expected i.e. 2011E	Shares o/s	Shares outstanding
UP	Underperform: The stock is expected to underperform the sector benchmark	CIO	UBS WM Chief Investment Office

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