Global Equity Themes
Disruptive forces in Europe: A Primer

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Executive Summary

- As part of our thematic work, we have focussed regularly on the disruption risk posed to many prevailing business models and its specific relevance for stock performance. The contrast between the “disrupted” and the “un-disruptable” has reflected a marked dividing line between outperformance and underperformance. Examples of these reports are *The Age of Disruption* and *Appetite for disruption*, as well as from our Global Equity Strategy team, *Stick with I.T.*

- For the purpose of this report we provide more context around the specific disruptive forces faced by each of the major industries. Our analysts provide summaries for what they see as the key disruptive forces in their industries and which companies or sub-sectors have the most sensitivity to them, whether as one of the disrupted or a source of the disruption.

- We argue that disruption is nothing new but that the speed, complexity and global nature of it is. In fact, it is clear that a number of sectors are currently impacted by multiple disruptive forces simultaneously. Sectors our analysts see as being at the epicentre of disruption include Autos, Oil & Gas, Utilities, Financials and Food Retail. Sectors that relatively speaking appear to be in much calmer waters include Technology (Hardware and Software) and Staples.

- A number of the disruptive themes are played out across inter-sector relationships as entire supply chains are impacted (both positively and negatively). For example, Electrification of Vehicles puts tremendous pressure on auto OEMs with follow-through pressure on traditional internal combustion engine focussed suppliers. At the same time, this development benefits mining and chemical companies through rising battery demand and demand for their input commodities as well as for technology companies (hardware and software).

- Despite all the perceived ‘negativity’ regarding disruption, we note all is not lost for incumbents, especially those that have the means to diversify their offering. M&A activity is likely to increase further in our view as companies with spending power decide to buy rather than build (see also: *European M&A - Getting Active*). One example here would be M&A activity adopted by some of the European oil majors designed to rapidly expand their ‘renewable’ offering.

- We hope that this ‘primer’ on disruption helps readers in understanding these developments and navigating the landscape for potential winners and losers.

Table of contents

- Disruption overview ......................... 3
- Sector impact ................................. 5
- Stock impact ................................. 6
- Sector overviews .............................. 7
- Appendix: Analyst Contacts ............. 45

Sectors

- Autos
- Banks
- Building
- Capital Goods
- Chemicals
- Div Financials
- Employment Agencies
- Food Retail
- General Retail
- Insurance
- Leisure – Gaming
- Leisure – Hotels, Media
- Mining
- Oil & Gas
- Pharmaceuticals
- Real Estate
- Staples
- Steel
- Tech Hardware
- Tech Software
- Telecoms
- Transport
- Utilities
Disruption: Nothing new…

- **Disruption is popular** There has been a lot of media attention on the topic of disruption during the past few years. However,

- **Disruption is not new**: Our Global Investment Returns Yearbook (e.g. Investment Returns Yearbook 2016) illustrates that 80% of industries that existed in the US in 1900 no longer exist or are small today. Around 67% of current industries did not exist in 1900.

- **And the pace is not changing**: Finally, we would point out that the average age of a company listed on the S&P500 has fallen from almost 60 years old in the 1950s to less than 20 years currently.

... 80% of US industries that existed in 1900 are now small or non-existent…

...as a result, the average lifespan of a S&P500 company is now less than 20 years, from c60 years in the 1950s

Source: James Davies, Rodrigo Lluberas and Athony Shorrocks, Credit Suisse Global Wealth Report 2015
...but very relevant

- **Disruption – why now?** There are currently multiple drivers that impact sectors simultaneously with significant consequences.
- **Technological disruption:** The speed and complexity of technological progress is accelerating, which implies a greater impact on affected industries and heightened risk of labour displacement.
- **The impact of globalisation** cannot be underestimated. China is the second-largest R&D spender globally while India’s 10 largest universities alone have more than 7 million students (24x that of the UK, 15x the US). See also *Getting over Globalization*
- **Regulation** is becoming a bigger issue as governments increase their focus on financial market regulation, environmental regulation and consumer health regulation.
- Personal wealth creation is likely to become ever more challenging, resulting in more polarised (‘angry’) societies. The potential fallout raises uncertainty over economic and corporate profit growth.

**Government regulation increasingly impacts various industries: financials is a case in point**

**Technological advances into areas such as automation/robotics may disrupt c50% of the global workforce**

**Challenging economic conditions give rise to growing discontent and more political risk**

Source: James Davies, Rodrigo Lluberas and Athony Shorrocks, Credit Suisse Global Wealth Report 2015, Credit Suisse HOLT®, Frey & Osborne, 2013: "The future of employment: How susceptible are jobs to computerisation"
Disruptive factors that our analysts worry about

- **The disruptive forces most frequently mentioned by our analysts are:** Automation, Regulation, Digitisation, Rising competition and the move to “New Energy”. The table below shows which of these factors disrupt the various sectors.
- **Regulation:** Includes financial regulation, environmental/emissions regulation and regulation affecting consumers (e.g. sugar tax, tobacco, housing)
- **Technological innovation:** Covers process automation & robotics (“upstream efficiency”) as well as increased use of online or internet-based solutions (“downstream efficiency”). We have included data analytics, Artificial Intelligence and 3D printing in Process Automation
- **Rising competition:** Analysts refer to either an increase in companies offering similar products (“new entrants”) or competitive threats through the launch of product alternatives designed to replace existing offerings (e.g. ETFs, online estate agents, unlimited mobile data plans).
- **New Energy:** for a number of sectors, analysts referred to the continued switch into wind and solar as renewable technologies. Related to this (not least connected to the development of Vehicle Electrification) is the concept of Energy Storage. We group these under “New Energy”

<table>
<thead>
<tr>
<th>Least impacted</th>
<th>Most impacted</th>
<th>Regulation</th>
<th>Technological Innovation</th>
<th>Rising Competition</th>
<th>New Energy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autos</td>
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<td>Oil &amp; Gas</td>
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<td>Utilities</td>
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<td>Diversified Financials</td>
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<td>Retail Food</td>
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<td>Aerospace &amp; Defence</td>
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<td>Homebuilding / Agents</td>
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<td>Real Estate</td>
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<td>Retail non-food</td>
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<td>Chemicals</td>
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<td>Cap Goods</td>
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<td>Media</td>
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<td>Tech Hardware</td>
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<tr>
<td>Tech Software</td>
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<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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</tbody>
</table>

Source: Company data, Credit Suisse research * Sector ranking based on the cumulative number of disruptive factors impacting a sector
Disruption: Key European names

Below we highlight for each of our main sectors the companies that our analysts view as most impacted by this theme (both positively and negatively)

<table>
<thead>
<tr>
<th>Sector</th>
<th>Least Impacted / Potential Beneficiaries</th>
<th>Most Impacted / Potentially at Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerospace &amp; Defence</td>
<td>Airbus (O), Boeing (O), Dassault Systemes (O), Thales (O)</td>
<td>Aero structure suppliers</td>
</tr>
<tr>
<td>Airlines</td>
<td>EasyJet (O), Ryanair (O)</td>
<td>Amadeus (U)</td>
</tr>
<tr>
<td>Autos</td>
<td>Premium Brand Focused companies</td>
<td>OEMs, Auto traders / dealers, ICE-dependant suppliers</td>
</tr>
<tr>
<td>Banks</td>
<td>BBVA (N), Credit Agricole (O), HSBC (N), ING (N), Swedbank (N), UBS (N)</td>
<td>ABN (O), Barclays (O), Deutsche Bank (U), Natixis (N), SEB (U), SocGen (N), SHB (U)</td>
</tr>
<tr>
<td>Building</td>
<td>UK Builders: Berkeley Group (U) / Estate Agents: Savills (O)</td>
<td>UK Builders: Persimmon (N), Taylor Wimpey (N) / Estate Agents: Foxtons (N) Countrywide (N)</td>
</tr>
<tr>
<td>Employment Agencies</td>
<td>DKSH (N), Logista (N), Rentokil (O)</td>
<td>Staffing companies: Adecco (U), Distribution companies: Electrocomponents: (U)</td>
</tr>
<tr>
<td>Cap Goods</td>
<td>Assa Abloy (O), Prysmian (O)</td>
<td>BASF (U), Johnson Matthey (O)</td>
</tr>
<tr>
<td>Chemicals</td>
<td>Umicore (N)</td>
<td>Hargreaves Lansdown (N), Jupiter Fund Management (U), Schroders (O)</td>
</tr>
<tr>
<td>Diversified Financials</td>
<td>LSE (O)</td>
<td>Admiral Group (U), Direct Line (O), Esure Group (N), Hastings (O)</td>
</tr>
<tr>
<td>Insurance</td>
<td>Allianz (N), Munich Re (U)</td>
<td>Atresmedia (O), Interpublic Group (O), ITV (O), Mediaset (N), Mediaset Espana (O), Omnicom (N),</td>
</tr>
<tr>
<td>Media</td>
<td></td>
<td>Publicis (N), RTL (U), SKYB.L (N), TF1 (U), VIV.PA (U), WPP (O)</td>
</tr>
<tr>
<td>Metals &amp; Mining</td>
<td>ArcelorMittal (O), SSAB (O), Voestalpine (N)</td>
<td>Salzgitter (U)</td>
</tr>
<tr>
<td>Oil &amp; Gas</td>
<td>European Majors, Lundin Petroleum (U), E&amp;C companies</td>
<td>Drillers, US Majors</td>
</tr>
<tr>
<td>Pharma</td>
<td>Novartis (U)</td>
<td>Roche (O)</td>
</tr>
<tr>
<td>Real Estate</td>
<td>ADO Properties (O), British Land (N), Derwent London (N), Deutsche Wohnen (O), Grand City (N), Great</td>
<td>Hammerson (O), INTU Properties (U), Klépierre (O), Unibail-Rodamco (N)</td>
</tr>
<tr>
<td>Retail Food</td>
<td>Ocado (O)</td>
<td>J Sainsbury (O), Tesco (U), Wm Morrison (N)</td>
</tr>
<tr>
<td>Retail non-food</td>
<td>Primark - parent: Associated British Foods (O), Adidas (N)</td>
<td>Hennes &amp; Mauritz (U), Marks &amp; Spencer (N)</td>
</tr>
<tr>
<td>Staples</td>
<td>British American Tobacco (O)</td>
<td>Imperial Brands (O), Philip Morris International (N)</td>
</tr>
<tr>
<td>Tech Hardware</td>
<td>Infineon (O), STMicroelectronics NV (N)</td>
<td>Gemalto (U)</td>
</tr>
<tr>
<td>Tech Software</td>
<td>SAP (O)</td>
<td>Iliad (N), KPN (N)</td>
</tr>
<tr>
<td>Telecoms</td>
<td>Unlimited Mobile: Bouygues (O), Deutsche Telekom (O), Tele2 AB (N), Vodafone Group (O); Fibre: Orange (O), Telefonica (N)</td>
<td></td>
</tr>
<tr>
<td>Travel &amp; Leisure - Hotels</td>
<td>Paddy Power Betfair (O), Playtech (O)</td>
<td>Accor (U); IHG (N)</td>
</tr>
<tr>
<td>Travel &amp; Leisure - Gaming</td>
<td>DONG Energy (O), Enel (O), Engie (N)</td>
<td>Ladbrokes Coral (U)</td>
</tr>
<tr>
<td>Utilities</td>
<td></td>
<td>CEZ (U), Uniper (O), Coal / Nuclear generators</td>
</tr>
</tbody>
</table>

Source: Credit Suisse estimates; Note: O=Outperform, N=Neutral, U=Underperform
Aerospace & Defence – Supply chain disruption

**What are the key disruptive developments?**

- **Automation, additive manufacturing and digitalisation** are the key disruptive developments in the Aerospace & Defence sector in our view. These changes will enable a gradual but substantial transformation of the relationship between airframers and suppliers in civil aerospace with three consequences (explored in our Ideas Engine Winter Is Coming):

  1. A boost to airframers’ profitability and valuation
  2. A disintermediation of part of the supply chain, with pressure on margins across the board
  3. Opportunities for leaders in the disruptive technologies

- **Competition** remains a factor as airframers are likely to remain under pressure from airlines and new Chinese competitors.

**Aircraft equipment suppliers (excluding engines): Top 10 equipment suppliers =>60% of revenues today vs 10-20% in the 1980s**

In USDm, 2016 revenues

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**Operating margin gap between airframers and suppliers:** c.800bp in recent years, vs. 400-450bp in the early 2000s

- **Gap suppliers / airframers - rhs**
- **Engine makers (5)**
- **Airframers (A+B)**
- **Suppliers (26)**

Source: Company data, Credit Suisse research
Aerospace & Defence – Supply chain disruption

- **Airframers vs suppliers**: We see three main drivers for airframers to reduce the margin gap vs their suppliers:
  1. Improving their own operational performance through a) Automation as it helps to reduce fixed costs and b) Insourcing of production from the supply chain.
  2. Cutting costs from their suppliers (purchases account for 70-75% of costs). This can be done through the use of 3D printing and increased digitalisation.
  3. Capturing some aftermarket / service profits through a change in contract terms (royalties, cap on aftermarket escalation, new GTAs etc.) and better leverage of internal IP.

Who stands to be impacted most?

The table below highlights areas of risk and some of the companies exposed to them. Companies that benefit from these trends include Airbus & Boeing while Dassault Systemes and Thales should benefit from the trend towards further digitalisation.

### Disruption risk by segment: Lower IP content areas – Aerostructures, Seats, and Cabin Equipment – will likely suffer most

<table>
<thead>
<tr>
<th></th>
<th>3D printing</th>
<th>Automation</th>
<th>Digitalisation</th>
<th>Examples of key Tier 1s &amp; Tier 2s</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aerostructures and parts</strong></td>
<td></td>
<td></td>
<td></td>
<td>Spirit, GKN, Senior, Latecoere, Daher, Triumph, MHI, IHI, Figeac Aerospace, Orbital ATK, Sonaca, PCP, ATI, Hexcel</td>
</tr>
<tr>
<td><strong>Cabin equipment</strong></td>
<td></td>
<td>=</td>
<td></td>
<td>Rockwell Collins, Zodiac, FACC, Astronics, Heico, Jamco</td>
</tr>
<tr>
<td><strong>Seats</strong></td>
<td></td>
<td></td>
<td></td>
<td>Rockwell Collins, Zodiac, Recaro</td>
</tr>
<tr>
<td><strong>Engines and parts</strong></td>
<td>+</td>
<td>=</td>
<td></td>
<td>GE, Rolls-Royce, United Technologies, Safran, MTU, Barnes, Woodward, Meggitt, Heico, Esterline, PCP, ATI</td>
</tr>
<tr>
<td><strong>Avionics and parts</strong></td>
<td>=</td>
<td>=</td>
<td></td>
<td>Rockwell Collins, Honeywell, Thales, GE, Esterline</td>
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<tr>
<td><strong>Flight systems (fuel, etc.) and parts</strong></td>
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<td></td>
<td></td>
<td>Safran, Zodiac, Eaton, Parker Hannifin, Honeywell, United Technologies, Heico, Curtiss-Wright, Esterline, Moog</td>
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<tr>
<td><strong>Landing systems, wheels &amp; brakes</strong></td>
<td></td>
<td></td>
<td></td>
<td>Safran, United Technologies, Heroux Devtek, Meggitt</td>
</tr>
</tbody>
</table>

Source: Company data, Avitas, AeroDynamic Advisory, Credit Suisse analysis
What are the key disruptive developments?

- **Regulation:** Vehicle regulation continues to tighten. To date, OEMs have been mostly concerned with meeting increasingly tight emissions standards. Given the exponential nature of the cost curve associated with tighter emission standards this has increased production costs for OEMs.

However, we believe that a second, and potentially more fundamental, regulatory challenge is emerging; i.e., the total ban of petrol and diesel cars. France and the UK recently announced that from 2040 onwards, the sale of new petrol and diesel cars will be banned.

Such a development places extreme pressure on OEMs to accelerate the development of EVs at the expense of traditional Internal Combustion Engines (ICE). It requires a complete overhaul of their Internal Combustion-focused production processes.

**Emission targets imply exponential increase in costs to OEMs**

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**Global CO2 regulations for new passenger cars**

- **Europe: required CO2 reduction by OEM, 2016-21**
  - **2020/21 Target**
    - Toyota: 93
    - PSA: 91
    - RNO: 92
    - Average: 95
    - FCA: 90
    - Ford: 94
    - VW: 96
    - BMW: 101
    - DAI: 102
  - **Delta 2016-21**
    - Toyota: 12
    - PSA: 19
    - RNO: 19
    - Average: 23
    - FCA: 30
    - Ford: 26
    - VW: 24
    - BMW: 22
    - DAI: 23

**Source:** ICCT
**Electrification**: the disruptive impact of electrification on OEMs cannot be overestimated, in our view. First, they might face write-downs of existing assets and staff (e.g. the number of moving parts in an EV is estimated at less than 20 compared to 1,500 for an ICE). Second, EVs remain too expensive as battery costs are currently too high to compete with ICE vehicles on price. Third, it increases the reliance on technology hardware and software, which in turn might strengthen the position of some suppliers. As a result, EV sales rely on government subsidies and OEMs cross-subsidies from ICE vehicles. As a growing number of EVs are sold, it will be difficult to sustain subsidies. It will therefore be imperative for EVs to reach cost parity with ICE cars. This is likely to happen first in China and Europe and only later in the US.

**Autonomous driving** aided by changing consumer behaviour towards car ownership, especially in larger urban areas, might present OEMs with additional challenges as it further increases the share of technology in capex (including that provided by third parties).

The net impact of autonomous driving on car sales is unknown. It should increase a vehicle’s utilisation rate considerably, which therefore should imply more rapid vehicle turnover, thereby increasing car sales. However, car sharing through autonomous vehicles could reduce the number of cars per person dramatically, which would sharply reduce the total car fleet.

**Who stands to be impacted most?**

Regulation and the subsequent shift towards more technologically advanced cars benefits certain car suppliers, larger technology groups as well as certain chemical and mining companies as suppliers for car batteries (see respective sector sections elsewhere) most in our view. The opposite could be true for OEMs. In a negative scenario cars become commodities and brands obsolete. In a positive scenario consumers remain brand loyal while producing cars becomes more asset light and ROCE and cash conversion rates structurally higher.
Banks – Regulation has been, and remains, key

What are the key disruptive developments?

- Regulation, and specifically minimum capital requirements, has been the key driver of reduced bank profitability over the last decade. Incremental capital rules (Basel 4) remain a potential headwind to the industry.

POP’s failure in Spain despite passing stress tests showed that the EBA controls might be too light on collateral for non-performing exposures. Resolutions around the Venetian banks have also triggered debates/possible amendments around resolution mechanisms and sovereignty for local authorities.

- Competition from non-bank financial and retail companies in certain products. Examples include insurers offering mortgages, supermarkets offering mortgages, loans, cards and deposits, telco companies are getting ready to launch online banking platforms and airlines that offer credit cards in partnership with acquirer banks and card networks.

… But have paid a high price doing so

European banks have come a long way…

Net Basel 4 RWAs inflation, % of group RWAs

Source: European Banking Authority (EBA)

Source: Bloomberg, Credit Suisse research. *Includes current SX7P Index constituents. RoTE is computed using adjusted net income available to common equity holders.
Digitalisation is ubiquitous in bank presentations (e.g. mobile banking, contactless payments), as is reducing overall operating costs (closing branches, running efficient IT systems).

Blockchain innovations continue to be widely tested, but with the banks as seeding partners in the initiatives. IT spending by banks in Europe looks set to hit €62bn in 2018 with 25% on new projects. (for an overview of blockchain see: Blockchain - The Trust Disrupter)

In 2015 the European Parliament voted on the Payment Services Directive 2 (PSD2), under which merchants will be able to contact customers’ banks directly instead of going through intermediate acquirers who currently liaise between merchants and banks for each transaction. Third parties will also be able to consolidate banking/transaction information. This could see the tech industry (e.g. Amazon or Facebook) control interfaces for banking & transactions.

Who is likely to be impacted most?

- **Least impacted by tightening regulation** are banks with strong capital levels, low NPLs and structurally higher profitability in their home markets - including Scandinavian and Benelux banks.

- **At risk from further RWA inflation** in our view are Barclays, Deutsche Bank, Natixis, Societe Generale, SHB, ABN AMRO and SEB

- **Less “disruptable” in the digital world** banks will have a less commoditised product, a diversity of revenues and/or an advanced digital banking platform: Examples might include UBS, HSBC, Credit Agricole, ING, Swedbank and BBVA.

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**Banks – Competition & technological disruption**

**New entrants – Dutch insurers taking market share**

**Payment Services Directive 2 – A revolution for banking?**

Source: Company data, IG&H Consulting, Kadaster, Credit Suisse research.

Source: European Commission, Credit Suisse research. AISP: Account Information Service Provider, PISP: Payment Initiation Service Provider.
Building – UK Housebuilders: Tapering of Help to Buy scheme

What are the key disruptive developments?

- **Regulation:** 40% of new build homes in England are sold to customers using the Help to Buy: Equity Loan scheme. We therefore cite regulatory tapering of this scheme as a significant potential disruptor to the sector.

Under the scheme, a homebuyer can purchase a house with as little as a 5% deposit – the government then gives the homebuyer a 20% equity loan which is interest free for the first 5 years, meaning a mortgage of just 75% is required.

Who stands to be impacted most?

Tapering of Help to Buy counts as regulatory disruption and would present severe downside risk to sector volumes and Persimmon and Taylor Wimpey in particular, in our view. In addition, UK banks with above-average mortgage exposure would also be impacted. (see: Help to buy – the potential tapering and Brexit base case supportive, but tail risks widened)

HtB has supported over 100k home purchases since inception

<table>
<thead>
<tr>
<th>Housebuilder</th>
<th>% of units sold to “Help to Buy” customers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barratt Developments</td>
<td>c.40%</td>
</tr>
<tr>
<td>Bellway</td>
<td>c.37% regional/c.42% London</td>
</tr>
<tr>
<td>Berkeley Group</td>
<td>&lt;5%</td>
</tr>
<tr>
<td>Persimmon</td>
<td>c.50%</td>
</tr>
<tr>
<td>Taylor Wimpey</td>
<td>C.45%</td>
</tr>
</tbody>
</table>

Source: Company data

Cumulative use of help to buy equity loan scheme

The average loan to value of the help to buy scheme

Source: DCLG

Exposure to Help to Buy scheme in our coverage universe

Help to Buy scheme has supported those with just 5% deposits

Source: DCLG

Cumulative use of help to buy equity loan scheme

Source: DCLG

The average loan to value of the help to buy scheme

Source: DCLG
Building – Estate Agents: The shift to online

What are the key disruptive developments?

- **Digitisation**: With over 90% of all property searches now taking place online, digital advertising has become the dominant advertising avenue in the real estate domain (*Rightmove* and *ZPG* clearly benefit from this).

This trend has, however, led to the creation of a new category of estate agents who operate entirely online. By avoiding the need to advertise through a traditional 'shop window' approach, they can effectively operate on a smaller scale with reduced staffing and significantly lower office overheads due to their lack of physical branches.

Who stands to be impacted most?

Traditional estate agents such as *Foxtons* and *Countrywide* are negatively impacted from growing market share of online estate agents. We view *Savills* as a more insulated from this disruption.

The financial incentive to sell online is compelling

![Digital and Print Advertising Expenditure Growth](chart)

**Property classified advertising expenditure is set to grow**

Source: *Credit Suisse Media Team*, WARCC/AA, Forecasts from *Zoopla Group*

Online estate agents are continuing to gain market share

![Market Share Growth](chart)

Source: *Rightmove*
Capital Goods – A relative winner from disruptive technologies

What are the key disruptive developments?

- China competitive threat
- Increased use of renewable energy (battery storage)
- Drive towards energy efficiency
- Rising Automation & Robotics penetration
- Digitisation and Connectivity push

Most at risk

- Competition: SKF (UP), ABB (N) from China, Rexel (UP) from e-commerce;
- Renewables: Siemens PG (N), Wartsil (N), IMI (OP);
- Technology: Sandvik (N) from additive manufacturing and EVs, Weir from Vorteq.

Key potential beneficiaries

- Technology: Assa Abloy (OP) from el-mech / digital, Bodycote from additive manufacturing, Wartsila from switch to gas in Marine;
- Renewables: Prysmian (OP) & Nexans (N) in Submarine, Siemens (N) Wind; Recent detailed Global Offshore Wind report
- Automation: Siemens (N) in Digital Factory, ABB (N) in Robotics Schneider (OP) in Industry; Automation Industry Primer

Cap Goods as facilitator of disruption elsewhere

- Aerospace & Defence – Structural supply chain changes looming
- Grocery Retail – Warehouse Automation technology deep dive
- Generalist Staffing – Automation impact underestimated

Assessing risks and opportunities...

Source: Credit Suisse estimates

Relative winners and losers...

Source: Credit Suisse estimates
Capital Goods – A relative winner from disruptive technologies

Automation – out-pacing the broader market growth, especially in Automation Software

Growing electronic access control market – Assa Abloy derives 26% of revenues from disruptive technologies

Robotics penetration potential remains substantial

Solar capacity is expected to grow at 12% 2015-35 CAGR
What are the key disruptive developments?

- **Chinese Capacity Additions**: Chinese build rates are slowing, but S/D across commodity chemicals does not improve until 2019E. Tier 1 Chinese producer products overlap with 100% of BASF’s chemicals and are adding capacity to over 75% of the portfolio.

- **Electrification of cars**: The increasing market penetration of electric vehicles has widespread implications for the chemicals supply chain (Battery Cathode). See: Ideas Engine: A Positive (Supply Chain) Reaction

Who stands to be impacted most?

- **Key winners**: Battery Material suppliers (Umicore #1 market share), polymer producers (polymers that operate in a high temperature environment).

- **Longer-term challenges** exist for vehicle catalyst manufacturers as diesel/gasoline car production loses share to electric vehicles (JMAT, Umicore, and BASF).

**Battery Cathode Market Revenue ($mn)**

![Battery Cathode Market Revenue Chart]

**Global Capacity Additions**

![Global Capacity Additions Chart]

**Split of the Global Catalyst Market by Revenue**

![Split of the Global Catalyst Market by Revenue Chart]
Diversified Financials – The rise of passive investments

What are the key disruptive developments?

- **Passive vs Active management:** The rise of low-cost, passive investment vehicles, including ETFs, will continue to be the dominant disrupting force in asset management.

- Vanguard, the world’s second-largest asset manager, is a highly disruptive force in the industry, given its mutual ownership structure (increased scale leads inevitably to lower costs, not operating leverage) and a business model that is highly consistent with the objectives of policymakers (more transparency, lower cost).

Who stands to be impacted most?

- Adjacent to this, the ETF structure poses a particular threat to the active managers in the mutual fund industry reflecting: (1) lower cost; (2) tax efficiency (in the US), (3) liquidity and (4) transparency. (Global Asset Managers: It’s Always Darkest Before Dawn)

- Traditional active managers e.g. Jupiter, Schroders and fund platforms e.g. Hargreaves Lansdown.

Global ETF AUM and forecast ($tn)

US mutual fund & ETF flows ($bn)

Source: Credit Suisse Asset Manager Research, State Street Global Advisors (Forecasts)

Source: Credit Suisse Asset Manager Research, Simfund, Forecasts provided by Credit Suisse Asset Manager Research

Mutual fund flows by fee rate (2016 + 1Q17)

Source: Credit Suisse Asset Manager Research, Simfund, Fee rate in basis points, Flows in $B
Employment Agencies & Services

What are the key disruptive developments?

- **Past disruption**: We previously flagged the threat of disintermediation in the professional staffing market as a disruptive threat. This continues to hold, although self-help, a buoyant marketplace and technological investments provide some near-term support. (see Ideas Engine: Professional Staffing - The Direct Approach)

- **Greatest source of future disruption**: The risk of automation poses a significant challenge to generalist staffers (Adecco and Randstad) with our analysis suggesting that 67% of temp occupations are at a high risk of automation. (see Ideas Engine: Generalist Staffing – Automation’s impact underestimated)

Who stands to be impacted most?

“Undisruptables”: Companies least at risk include; **DKSH** and **Logista** which hold market-leading niche positions and utilise physical distribution networks. We also highlight **testing companies** which benefit from enhanced standards and compliance requirements and **Rentokil** as the need for pest control is unlikely to disappear, in our view.

Proportion of temps at a high risk of automation (2015)

Source: CS estimates based on Bureau of Labor Statistics data. MRI is Maintenance, Repair & Installations

True Blues revenues/EBITDA from Amazon following Amazon’s decision to in-source/crowdsource recruitment

Source: Company data

Spending allocation to agencies had fallen and we continue to see disintermediation as a risk to professional staffers

Source: Bersin by Deloitte
Food Retail – Competition through a growing discount channel

What are the key disruptive developments?

- **Competition**: We expect the discounters to grow their market share in the UK. Both Aldi and Lidl have renewed their growth plans, with each adding ~1 store per week in the UK. We expect this to continue for at least the next three years. Others are gaining too (Waitrose, M&S, Ocado, the high street discounters). We see this as the group of overall ‘winners’ in the near and medium term.

- **Digitisation**: A continued rise of online retail sales, not least with a further expansion of Amazon into food delivery, including the development of driverless delivery, is set to add more pressure on incumbent retailers in our view.

Who stands to be impacted most?

Companies most at risk include **Tesco, Sainsbury, Morrison** and **Asda**. We view **Ocado** as a likely beneficiary of the digitisation move.

**Big 4 disrupted from ‘above’ and ‘below’…**
General Retail – e-commerce in apparel

What are the key disruptive developments?

- **The shift to online** will continue to be the dominant disrupting force in apparel retail, posing a challenge to mature retailers.
- **Ecommerce** - through own-platform or third-party distribution channels (e.g. Zalando, Amazon, ASOS) is allowing brands to expand across borders and reach more customers through a smaller store and logistics footprint. We expect pure-play apparel retailers to continue to take share away from traditional retailers.
- The growth of global brands, fast fashion retailers and instant visibility of pricing across markets is impacting traditional models and forcing retailers to reexamine their sourcing, distribution and pricing.

Who stands to be impacted most?

- The channel shift requires mature retailers to address excess space, few are doing it and that too not fast enough, in our view. We see Adidas as an exception (strong product, pricing power and focused channel strategy)

Online penetration in Europe increased five-fold in 10 years

![Graph showing online penetration in Europe increased five-fold in 10 years](source: Euromonitor)

very limited space reduction in Western Europe at specialist retailers

![Graph showing very limited space reduction in Western Europe at specialist retailers](source: Euromonitor)
**General Retail – Discount / value retail in GM and clothing**

**What are the key disruptive developments?**

- Discounters and value retailers are the other main source of disruption in retail and have been experiencing strong growth in both general merchandise (GM) and clothing categories.

- The discount GM sector, with limited SKU formats and tight store operating models, continues to be one of the very few sub-sectors in retail adding space. The US experience shows that there is room for significant growth in this segment. We think the European opportunity is substantial as there are very few like competitors on the continent apart from Action.

**Who stands to be impacted most?**

- In apparel, value retailers focused on fast-fashion have generally done well. Boohoo in the pure-play segment and Primark in the store-only segment operate successful models and have been growing strongly. However, we think a discount multi-channel model may not work given the basket size.

**UK GM discount store numbers continue to grow**

**Action’s growth in France, Germany highlights European opportunity**

**Source:** Euromonitor, Company data, Credit Suisse estimates (2015/16)
Insurance – Solvency II: Regulation forces change

What are the key disruptive developments?

- **Regulation**: Following the introduction of the Solvency II regime in 2016, higher levels of regulatory capital are required for new policies with embedded guarantees. Companies with weaker balance sheets may need to raise capital or even become consolidation targets; for example, Delta Lloyd was acquired by NN.

We expect greater market concentration going forward as smaller firms and mutual insurers face a high regulatory burden. Recently, Allianz partnered with the UK mutual insurer LV=, providing growth for the former and capital for the latter.

We expect firms to continue to reassess their portfolio of existing businesses with disposals of non-core or capital intensive lines such as life books that are largely in run-off. Prudential is considering selling part of its £45bn UK annuity back-book while Generali is looking to dispose part of its German life book which is in run-off (source: Thomson Reuters).

### Last reported Solvency II ratio rankings (regulatory view for UK Life stocks)

<table>
<thead>
<tr>
<th>Company</th>
<th>SII Ratio</th>
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<tbody>
<tr>
<td>Munich Re</td>
<td>275%</td>
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<tr>
<td>PZU</td>
<td>253%</td>
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<tr>
<td>NN Group</td>
<td>238%</td>
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<tr>
<td>Hannover Re</td>
<td>230%</td>
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<tr>
<td>SCOR</td>
<td>224%</td>
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<tr>
<td>Admira</td>
<td>212%</td>
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<tr>
<td>Allianz</td>
<td>202%</td>
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<tr>
<td>Una</td>
<td>195%</td>
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<td>Axa</td>
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<tr>
<td>Vienna</td>
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<td>A.S. Nl</td>
<td>184%</td>
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<tr>
<td>Tegernsee</td>
<td>181%</td>
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<td>Aotema</td>
<td>178%</td>
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<tr>
<td>Generali</td>
<td>177%</td>
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<tr>
<td>Cigna</td>
<td>177%</td>
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<tr>
<td>Standard Life</td>
<td>176%</td>
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<td>Aviva</td>
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<td>Unigo</td>
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<td>Prudential</td>
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<td>Euler Hermes</td>
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<td>L&amp;G</td>
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<td>Aegon</td>
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<tr>
<td>Storebrand</td>
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<tr>
<td>Cofi</td>
<td>141%</td>
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<tr>
<td>Delta Lloyd</td>
<td>141%</td>
</tr>
<tr>
<td>SJP</td>
<td>141%</td>
</tr>
<tr>
<td>Phoenix Group</td>
<td>141%</td>
</tr>
</tbody>
</table>

Source: Company data, Credit Suisse estimates
Insurance – Technological disruption through driverless cars

**Technological disruption:** Motor premiums currently represent around 20% of total Life and Non-Life insurance revenues. This could decrease by half to as little as 10% as automated cars lead to fewer accidents and lower aggregate claims.

Bodily injury claims represent around 45% of motor claim settlements, which are likely to trend down considerably over the long term as frequency of accidents could reduce by a quarter. According to studies, human error is the cause of 90% of accidents currently. However, in the event of an accident the cost (severity) of replacement parts could double as cars are increasingly packed with expensive technology.

We expect premiums for personal motor to reduce by ~50%. However, there are likely to be other revenue opportunities arising from insuring manufacturers for the risk of malfunction or from product development that addresses emerging risks such as cyber insurance, for example.

**Who stands to be impacted most?**

- Insurers with agile or variable cost bases will be better placed to contend with the premium reduction. We would also expect consolidation across the motor insurance space given the expectation of lower premiums going forwards as well as an increasing level of partnerships with manufacturers as they become owners of valuable data – there is the risk that car manufacturers could become the motor insurers of the future or at least take a significant share of the value chain.

- Insurers with a non-life focus on personal motor lines are potentially at greatest risk of disruption; this includes Admiral, Hastings, Esure, and Direct Line.
Media – Agencies at risk from competition & transparency

What are the key disruptive developments?

- **Competition** in Digital from consultants such as Deloitte, Accenture and IBM, which are investing heavily in creative capability and data insights.
- **Disintermediation** by Facebook and Google, which both have direct relationships with large advertisers and have their own platforms for trading media inventory in competition with the agencies. Disintermediation by in-house marketing departments especially by taking programmatic trading in-house.
- **Pricing pressure**: Concerns over lack of transparency in media buying practices which is leading to re-auditing of contracts to eliminate hidden charges. Agencies are likely to lose out in the transition, in our view. Structural pressure on key clients such as FMCG and autos may also add to pressure on fees.

Who stands to be impacted most?

The major global agencies (WPP, Publicis, Omnicom and IPG) all stand to be potentially impacted by these disruptive threats.

Facebook and Google have been growing their share of total advertising spending and now stand at a combined 16%

Facebook and Google now have a 60% share of all incremental advertising spending globally and c.100% of incremental digital

Consultants have a c.8% share of the global agency market

What are the key disruptive developments?

- **Declining linear TV minutes may cause ad spend to shift away from traditional TV:** Audience share of core FTA broadcasting channels has slowly decreased as audiences have fragmented over an increasing number of platforms/channels. We believe the industry is facing a long-term structural challenge as fragmentation continues. However, the shift will be slow (UK minutes of linear TV viewed are down just 4% over the past four years). See Targeted TV advertising and Rise of the Machines.

- **TV advertising could hold share, helped by the impact of targeted TV advertising:** In the long term, we expect targeted TV to be additive, taking share from below the line spend on telemarketing and direct mail. However, we expect the impact in Europe to be far lower than in the US.

- **New OTT platforms (e.g. Netflix) may cause ‘cord cutting’ or cancellation of traditional pay TV subscriptions:** Investors are concerned that consumers may cancel their pay TV subscription in favour of an OTT product. However, ‘cord cutting’ is actually occurring at a very slow rate with more consumers adding OTT products onto their traditional bundle. Nevertheless, there are an increasing number of ‘cord nevers’ who have never taken up a traditional subscription.

Who stands to be impacted most?

- **All European FTA broadcasters (including ITV, Atresmedia, Mediaset España, Mediaset, TF1 and RTL) are at risk from shifting ad spend if linear TV minutes do meaningfully decline.**

- **Sky and Vivendi (Canal+) are at risk of falling subscriber numbers as consumers switch to OTT products such as Netflix.**

Proportion of time spent watching linear TV in the UK has fallen 5ppts since 2014 as VOD and online clips have gained share

There is currently a high overlap of pay TV and OTT subscriptions
Mining – Regulation positives & negatives

What are the key disruptive developments?

Environmental regulation shaping the future

- **Environmental regulation positive for some**: as it should support demand for metals used in batteries and solar equipment. Key examples include copper, cobalt and lithium, which are critical components of batteries (used in Electric Vehicles and for storing solar-generated electricity).
  - **Copper impact**: There are varying estimates, but each EV could use >100kg of copper per vehicle compared to a conventional car of 15 kg. This incremental copper demand could add ~3% to global demand by 2025 under our EV penetration estimates.
  - **Cobalt impact**: This is just a ~100kt market and EV adoption could result in a very material short-term deficit (before recycling cycles begin) with batteries accounting for ~50% of global cobalt demand currently. Glencore is one of the only listed companies with meaningful exposure.

- **Environmental regulation negative for some**: Considering that it will likely have a negative impact on coal producers with energy sourced from more environmentally friendly energy sources. In addition, we think that Platinum producers will be negatively impacted as tighter fuel emission targets will reduce the share of diesel cars on the road.

Who stands to be impacted most?

- Those companies with commodity exposures geared to late cycle commodities look best positioned. Glencore amongst the large caps and KAZ Minerals are our preferred names.
- Companies that we believe look most at risk include Anglo American with high coal and PGM exposure.
Leisure – Gaming

What are the key disruptive developments?

- **The move to online:** Future disruption is likely to come from technology especially the move to online and how it drives brands across travel and leisure. Weak brands and especially those with poor on-line distribution and lack of scale have been most affected.

In gaming, the online operators are well placed. Paddy Power Betfair has c.90% of its EBIT exposed to online, and Playtech, a primarily online gaming software supplier. However, market share gains continue to accrue to private companies like Sky Bet and Bet365.

Elsewhere in the sector, Domino’s has capitalised on its online presence to increase volume and revenue. Whilst its growth has slowed in a fast changing market influenced by Just Eat, Deliveroo and UberEats, the overall organic growth story remains compelling.

Who stands to be impacted most?

Positive: Paddy Power Betfair, Playtech
Mixed: Domino’s Pizza
Negative: Ladbrokes Coral

GGR split for UK Retail market (2016)

UK stakes placed online vs OTC in licensed betting offices, 2012-26E (£m)

Source: Credit Suisse estimates. Aggregate of Paddy Power Betfair, Ladbrokes Coral, and William Hill

NGR split for UK Online market (2016)

Source: Company data, Credit Suisse estimates
Leisure – Hotels

What are the key disruptive developments?

- The internet as a disruptor: The key issue for the sector is changing technology both in terms of distribution, e.g. OTAs and increasingly alternative accommodation (e.g. Airbnb).

There are clear structural differences in favour of the OTAs: they have estimated CAGRs of 18% vs hotels at 8%; generate c2x the EBIT per room of asset light hoteliers; and are expected to outspend the hotel industry marketing by 13x by 2019 to impact hotel margins by 340 bps by 2017 on 2009 levels.

Airbnb represents incremental supply and is having significantly greater success in Europe, where hotels are more skewed to leisure travel.

See: European Hotels - Sharing Economy risk not shared equally

Who stands to be impacted most?

Positive: IHG; At risk: Accor

Airbnb penetration is higher in Europe than the US

Disaggregating system revenues: % of rooms nights from true IHG distribution vs that of OTAs and GDS. OTAs mix 16% vs 3% in 2006.

Margin impact of rising OTA influence – mostly borne by those operating an owned and leased model.

Source: Credit Suisse estimates

Source: Company data, Credit Suisse estimates

Source: Company data
What are the key disruptive developments?

- **Moving towards a lower carbon world** is likely to shape the long-term outlook for the oil and gas sector; however, when this is likely to impact the sector is far from clear. We see three developments that are likely to shape the outlook for the sector:

1) **Competition.** We view intra-sector competition (e.g. the impact of shale and OPEC) as more relevant to the near-term outlook for oil and gas companies than the potential implications of external issues (such as climate change-related pressures).

2) **Technological change.** Technically recoverable oil resources of 2.6tn bbls are estimated at more than 2x the cumulative demand between 2015-2050. However, we note that the pace of technological improvement should not be underestimated, which could make today's 'technical' recovery estimate a conservative one. All this could mean that longer term oil may be supplied at lower costs and pressure oil prices, thereby making it more difficult for alternative energy to become (or stay) cost competitive.

3) **Regulation** Climate change-related regulation such as targets for vehicle electrification is typically seen as a significant threat to the oil and gas sector. However, we view the potential for efficiency gains as much more relevant in the first instance. Key uncertainties for the oil and gas sector in our view therefore are policies aimed at 1) encouraging a shift away from coal to gas, 2) technological progress including energy storage and 3) improving fuel efficiency.

- **How will the industry react?** 'European' Majors are familiar with change and are likely to be part of the solution, in our view (e.g. Shell started off as a company selling shells and trading rice).

What’s key for oil companies is to sit on the right side of the cost curve and in geographies with few above-ground issues to facilitate a more timely development of its resources. We expect investments towards ‘New Energy’ to rise from early 2020s.
Oil & Gas – Disruption more a question of when not if

Who stands to be impacted most?

- **For Oil**, the greatest threat is efficiency gains as opposed to electrification in the first instance. This is mainly because passenger vehicle related demand is only ~20% of global demand, and electrification of other transport means remains complex. In addition, passenger-related demand growth is likely to remain strong as the emerging middle class continues to expand.

- **On the gas side**, gas is seen as the cleaner energy (versus coal), which is complementary to renewables. Key uncertainties include government policies encouraging a shift away from coal (to gas), while improvement in storage technology as well as better grid penetration is important to make renewables for electricity generation more relevant (i.e., variables to deal with intermittency).

- We expect European Majors to benefit more from this trend than US Majors. Within OFS, we expect E&C companies to be relative winners. Within the E&P sector, those with low cost ‘franchise’ assets (e.g., Lundin) are likely to be better off. (See European Integrated Oils: Postcards from across Europe)

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**Fuel demand for use in passenger vehicles**

**Digital revolution – passenger related oil demand**

**Electric revolution – passenger related oil demand**

Source: BP
Pharmaceuticals – Advancing with complex biologics

What are the key disruptive developments?

- **Complex biologic therapies** have emerged as a key disruptor within the pharmaceutical market. They have become a preferred technology in the industry as they can be generated to bind a drug target with high specificity whilst avoiding some of the development issues associated with conventional small molecule drugs.

As a result, we have seen strong sales growth in this category. Conventional small molecule drug sales have declined since 2013 reflecting patent expiries and potentially the change in R&D focus.

We expect complex biologic products to continue to be important growth drivers for pharma and biotech. We forecast strong sales growth of the complex biologics category to 2022 (2017-2022 CAGR +11%), a rate that outpaces conventional small molecules (2017-22 CAGR 7%)

Strong sales growth for complex biologics is forecasted to continue to 2022+ (2017-22 CAGR+11%)

Sales growth for conventional medicines is expected to progress at a slower rate vs complex biologics (2017-22 CAGR 7%)

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Source: CS PharmaValues database, Company data, Credit Suisse estimates
Pharmaceuticals – Emergence of biosimilar competition

- **Biosimilars** are non-original copies of innovative biologic products – "copy-cat" biologic medicines. They are typically launched when the patent or market exclusivity for the original medicine expires. Competition from biosimilars has shown to be highly disruptive and has driven down prices for important biologic therapies.

Three examples of the market disruption caused by biosimilars are shown in the figures on this page.

- We expect biosimilars to be key disruptors in major pharmaceutical markets going forward with c.$80bn of product peak sales exposed to potential biosimilar competition in the next 10 years.

Who stands to be impacted most?
- **Roche** and **Pfizer** stand to be most impacted by this, in our view.

**EU case study 1:** Enbrel sales declined 28% in one year following the launch of a biosimilar

**EU case study 2:** Biosimilar G-CSF products have taken 77% of the accessible market share since launch

**US case study:** Lilly’s basal insulin biosimilar has shown strong new to brand trends since launch

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Source: Quintiles IMS Health report "The impact of Biosimilar competition in Europe"

Source: IMS Health and Credit Suisse estimates and analysis
Real Estate – eCommerce and flexible working threats to REITs

What are the key disruptive developments?

- **The move to online retail:** The emergence of internet shopping has been at the expense of traditional, physical retail shops, as also highlighted by our General Retail team elsewhere in this report.

Share prices of US shopping mall REITs have been under pressure as their department stores’ anchors have struggled to compete. In the UK, provincial high streets and secondary shopping centres have also underperformed.

We assume that the trend towards online shopping will continue, which is therefore likely to put structural pressure on retailers and impact the performance of shopping destinations of the listed REITs with exposure to the sector.

- **Flexible working:** Technological advances have accelerated trends aimed at ‘working from home’, ‘hot-desking’, ‘co-working’ and ‘flex leasing’. All of these developments are transforming the requirements for office space, which in turn impacts REITs with exposure to them.

Big cities have been a relative winner so far as physical inter-connectivity has been valued even as internet connectivity has increased, although the disruptive threats remain.

Flexible office providers WeWork and The Office Group are growing rapidly, especially in London, and are challenging global serviced office providers like IWG (see IWG - Space to lead: Raising our target price for this). REITs are also trying to compete in this field, for example via established London specialist Workspace and through British Land’s new flex provision.

*Source: MSCI/IPD  Note: based on top and bottom quartile value per sq.m*
Real Estate – Residential looks relatively safe

Who stands to be impacted most?

- High-quality destination shopping centres, of which the listed sector has a high proportional ownership, are likely to be among the relative winners as the shopping ‘experience’ remains a key differentiator to on-line. Weaker, secondary locations are likely to suffer as retailers consolidate their store portfolios and focus on larger flagship retail space in destination centres.

- The industrial property sector is emerging as a relative winner from online shopping as demand for mega distribution centres grows and smaller ‘last mile’ hubs close to cities are needed to meet ever more demanding delivery requirements.

- REITs with exposure to Retail: Intu Properties (mostly UK with a growing exposure to Spain), Hammerson (UK & Europe), Klepierre and Unibail (Continental Europe only).

- REITs with London office exposure: Derwent and Great Portland (mostly London office), British Land and Landsec (c.50%).

German residential – relatively strong

The growth of German resi is driven by the continued lack of affordable housing supply and high levels of immigration. Owner-occupier rates are amongst the lowest in Europe (c.50% vs. a 70% average) and rent controls protecting tenants have created a gap between in-place and market rents (up to 30% in city locations such as Berlin). The listed landlords continue to capture rental reversion through regular increases and via targeted portfolio modernisation to boost rents and enhance property values. Even after significant rent and value growth, Germany remains affordable.

- The listed landlords: ADO Properties, Deutsche Wohnen, Grand City Properties, Vonovia

Property values in Germany are rising, especially in larger cities, but remain the fourth-cheapest globally according to the OECD
Staples – Beverages: Craft affecting beer more than spirits

What are the key disruptive developments?

- **Increasing prevalence of Craft Brewers:** Craft beers continue to take share from mainstream. This is partly driven by the – digital-savvy and more ethnically diverse – millennial generation in our view. We think they attach greater importance to authenticity (natural, local, artisanal) and personalisation, which are attributes that are difficult to reconcile with mass production and scale efficiency.

More recently, however, large craft players are suffering as the segment is fragmenting, in addition to big beer players quickly moving into craft, organically or through acquisitions.

Who stands to be impacted most?

- **Spirits should be relatively safe:** We do not see spirits being as disrupted as beer in terms of craft. The distribution system in spirits is a lot more consolidated, which makes it is harder for smaller brands to get to scale. See [Improving returns led by Scotch & India](#).

- **Diageo is best placed,** in our view, as it already owns many craft brands such as Bulleit and Don Julio and has been acquiring smaller craft brands (Casamigos).

- **Best Positioned among the brewers: Anheuser-Busch InBev** (see [Assessing progress on organic growth](#)).

---

**Craft Distillers vs. Microbreweries from industry founding date (Microbrew=1961, Craft Distillers=1982)**

[Graph showing the comparison between craft distillers and microbreweries from 1961 to 2016.]

Source: Coppersea Distilling, American Distilling Institute

**Diageo’s Bulleit brand has recorded a c50% CAGR since 2008 to 1.1m cases**

[Graph showing the sales growth of Diageo's Bulleit brand from 2008 to 2016.]

Source: Company data, IWSR
Staples – Tobacco: Ongoing regulation, new technologies

What are the key disruptive developments?

- **Regulation:** The Tobacco industry is faced with consistent regulatory pressure, which is increasingly placing restrictions on its ability to ‘brand’ cigarettes. This, combined with some countries (e.g. Australia) introducing punitive duty hikes, there is a risk that the category commoditises and consumers trade down.

- **Technology:** Next Generation Products are gaining increased acceptance from consumers, but also from a rising number of regulators. This may reverse the industry’s long-term decline, provided it can consolidate the fragmented e-vapour category and extend the popularity of heated tobacco products outside of Japan.

Who stands to be impacted most?

- BAT, with its balanced NGP approach, is best placed in our view.
- Imperial Brands’ focus on e-vapour leaves it most vulnerable, whereas PMI’s focus on heated tobacco requires growth outside Japan.

Countries that have implemented tighter regulations

E-cigarettes starting to affect cigarette consumption in the UK

Heated Tobacco: Limited penetration outside of Japan
Steel – China, protectionism & technology

What are the key disruptive developments?

- **China matters**: A slowdown in Chinese demand has been and will continue to be a source of disruption, with China accounting for ~50% of global demand across key commodities. A reorientation from construction and investment towards services may keep demand growth for commodities lower and also see China export more of its domestic production – especially in steel, where demand is flattening, and aluminium where supply is plentiful.

- **Protectionism**: Policies can be put in place to restrict steel imports in order to promote domestic production. The S232 proposal in the US could be put in place (similar to President Bush’s S201 Action in 2002) which would reduce US imports causing flow-back of material to other regions and potentially causing Europe to implement safeguard actions, destabilising the market.

- **Technological improvements**: In many industries, for instance Autos, there is push to use lighter-weight materials and also increase quality by choosing corrosion-resistant materials. This typically means reduced demand for steel, substituting it for later-cycle commodities such as Aluminium or carbon fibre. Combatting this, producers are endeavoring to make thinner and thinner steel products that can compete on weight at a lower cost.

Who stands to be impacted most?

- Specialist producers are less disruptable. **SSAB and Voestalpine** are leaders in producing specialty products suitable for the requirements of each end market.

- Companies that fail to innovate look the most at risk; this includes **Salzgitter**.

- For trade actions in the US, we would favour high US exposure (**ArcelorMittal** and **SSAB**) and think **Salzgitter** could be negatively affected.
Tech Hardware – Electrification & Autonomous driving

What are the key disruptive developments?

- **Semi content growth in cars.** Although global car unit growth will slow down from the 4-5% seen over the last 2-3 years, semi content growth will continue to accelerate. With multi-year themes around electrification (EV), safety and autonomous driving (ADAS), we believe that semi content can grow at around 5% CAGR.

- **Content can surprise on the upside.** We see 3-4ppt content CAGR upside if semi content in cars were to follow the same path as in smartphones (e.g. iPhones). Average content per car would potentially cross $500 vs. $350 currently.

Who stands to be impacted most?

- **IFX and STM key beneficiaries.** With IFX/STM having a material auto exposure (~40% of IFX sales/profits and ~30% of STM sales), and also exposed to new product areas like EV and Radars, we see them as key beneficiaries from this theme.

Radars & Sensors – key for Autonomous Driving

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Source: Infineon ATV presentation

Bulk of content increase in EV car comes from Power

### Average xEV semiconductor content by degree of electrification

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Source: Infineon ATV presentation, Credit Suisse estimates

Semi content in cars can continue to surprise on the upside

- If content grows at 8% CAGR (like we saw with iPhone), then avg. content in cars at global level will be over $500 by 2020 (vs. our estimate of $430). Japan is already at close to $500 in 2015.

Source: Infineon ATV presentation

If content grows at 8% CAGR (like we saw with iPhone), then avg. content in cars at global level will be over $500 by 2020 (vs. our estimate of $430). Japan is already at close to $500 in 2015.
Tech Software & Services: It’s still all about the Cloud

What are the key disruptive developments?

- **The Cloud is a disrupter**: We see ‘the Cloud’ as one of the most disruptive technologies in the Tech sector. The main impact on Tech is a change in revenue recognition, from up-front licensing to longer-term recurring subscriptions.

- **Widespread implications**: The Cloud also enables hardware virtualisation and rationalisation. Storing data remotely means that data is easier to access, supporting mobile working. Remote hosting creates security challenges, fueling growth in this area, too.

Who stands to be impacted most?

- **SAP looks undisruptible**: SAP has a commanding position in enterprise software, with huge barriers to entry and is at the forefront of delivering disruption to clients. It is likely to be a key beneficiary.

The shift in momentum to Cloud will fuel future growth in Software & Services: SAP Revenues 2011-2018E (€m)

Cloud disruption: Mapping a theoretical change in revenue recognition that leads to stronger long-term performance ($)

Source: Company data, Credit Suisse estimates

Source: Credit Suisse research

Cloud has widespread implications across the tech landscape: IT Services End-User Spending on Cloud ($bn)

Source: Gartner, 2016

Software & Services
Telecoms: Unlimited mobile

What are the key disruptive developments?

- **Mobile is about unlimited data plans:** They’re taking off in Europe with ~20 unlimited plans currently vs <10 a year ago. Growth should accelerate in our view as these plans are popular and generally at price points above ARPU.

  Mobile competition should fall as capacity-constrained networks struggle to keep up and MVNOs (resellers) exit. Although capex will eventually have to rise too, we believe higher growth + better margin would lead to a re-rating of incumbent mobile operators.

  See: [Unlimited mobile data plans - Popular, but how sustainable?](#)

Who stands to be impacted most?

- **Positive** for telco stocks with network leadership. (e.g. DT, Bouygues, Vodafone).

  At more risk: KPN, which may reprice down its mobile back-book

MVNOs can’t compete above 5GB data usage

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### Avg mobile data usage / SIM vs MSR growth rate (y/y)

- **8.0%**
- **6.0%**
- **4.0%**
- **2.0%**
- **0.0%**
- **-2.0%**
- **-4.0%**

**Source:** Credit Suisse research, company data

### EBITDA margin vs service revenue market share

**Source:** Credit Suisse research, company data

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Telecoms: Fibre-to-the-home

What are the key disruptive developments?

- **Fibre-to-the-home impacts fixed line**: Pressure to build fibre-to-the-home (FTTH) is growing for many reasons. Demand for FTTH is starting to reach critical mass.

- Non-incumbent fibre companies are becoming an increasingly notable source of fibre build. Independent fibre companies have seen high take-up in the Nordic markets and the stand-alone business case for many independent fibre companies is attractive.

- For the incumbents this increases the pressure to roll out more FTTH (higher capex) or face losing share. This comes at a time when fixed line’s outlook is becoming more challenging (pricing fatigue, DSL substitution risk from mobile).

Who stands to be impacted most?

- **Positive**: Fibre: Orange, Telefonica

Broadband lines in Sweden

![Graph showing broadband lines in Sweden](source: PTS)

Fixed line: The pressures to build fibre are growing

![Diagram illustrating the pressures to build fibre](source: Credit Suisse research)

High-speed broadband lines by operator

![Graph showing high-speed broadband lines by operator](source: Credit Suisse research)
Transport: Low cost competition & supply chain disruption

What are the key disruptive developments?

- **Low Cost Carriers**: LCCs led by Ryanair and easyJet take market share from legacy carriers medium haul business. We expect LCC share to continue to grow in the short haul market in continental Europe, as the LCCs focus on relentless expansion (76% of competitors’ seats cost 2x Ryanair’s average fare).

- **Disintermediation of supply chain**: Airlines seeking to take greater control of their revenue channels. We expect the share of bookings through GDSs to fall from c.50% today to 40-45%. See Amadeus: Disintermediation momentum to accelerate and Global Airlines: Procurement partnerships coming closer

Who stands to be impacted most?

- **Amadeus / global distribution systems (GDS)**: As volumes come under pressure and Amadeus pays greater incentives to travel agents for bookings, we expect lower group earnings growth.

- **Positive: RYA, EZJ**: Legacy carriers launching own low cost offerings, helped by concentrated markets

LCC penetration, key European countries, 2007 and 2016

Euro legacy carrier shares of GDS bookings suggest vulnerability

76% of competitors’ seats cost 2x Ryanair’s average fare

Source: Credit Suisse Market Opportunity model

Source: Credit Suisse estimates of Amadeus volume
Utilities: Decentralisation, Decarbonisation, Digitalisation equals Disruption

What are the key disruptive developments?

- **Regulation**: Traditionally, disruption in utilities was slow and mostly resulting from regulatory changes.
- **Technological disruption**: Now and in the future, technology is the key driver of change with (a) the emergence of decentralised power resulting from the conjunction of cheaper and more reliable solar/wind and battery technology and (b) the vertiginous drop in cost of renewable power (now competing with traditional power generation on a non-subsidised basis).
- As of now, only the supply business (‘the last mile’) will remain relatively protected even if digitalization will probably lead to increased competition and lower margins.

Who stands to be impacted most?

- **DONG Energy**, **Engie** and **Enel** are likely to be the most impacted.

How we think the levelised cost of offshore wind will evolve, €/MWh

The cost of wind is now competitive with solar, and not so far behind fossil fuels, €/MWh

Source: DBEIS, Credit Suisse research

New low solar bids (2013-2016)

Source: Clean Technica

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CleanTechnica: Solar energy is now cost-competitive with fossil fuels

Solar power is now cheaper than coal and cheaper than gas for many applications

Source: Credit Suisse Research, Credit Suisse estimates
## Appendix: European sector contacts

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