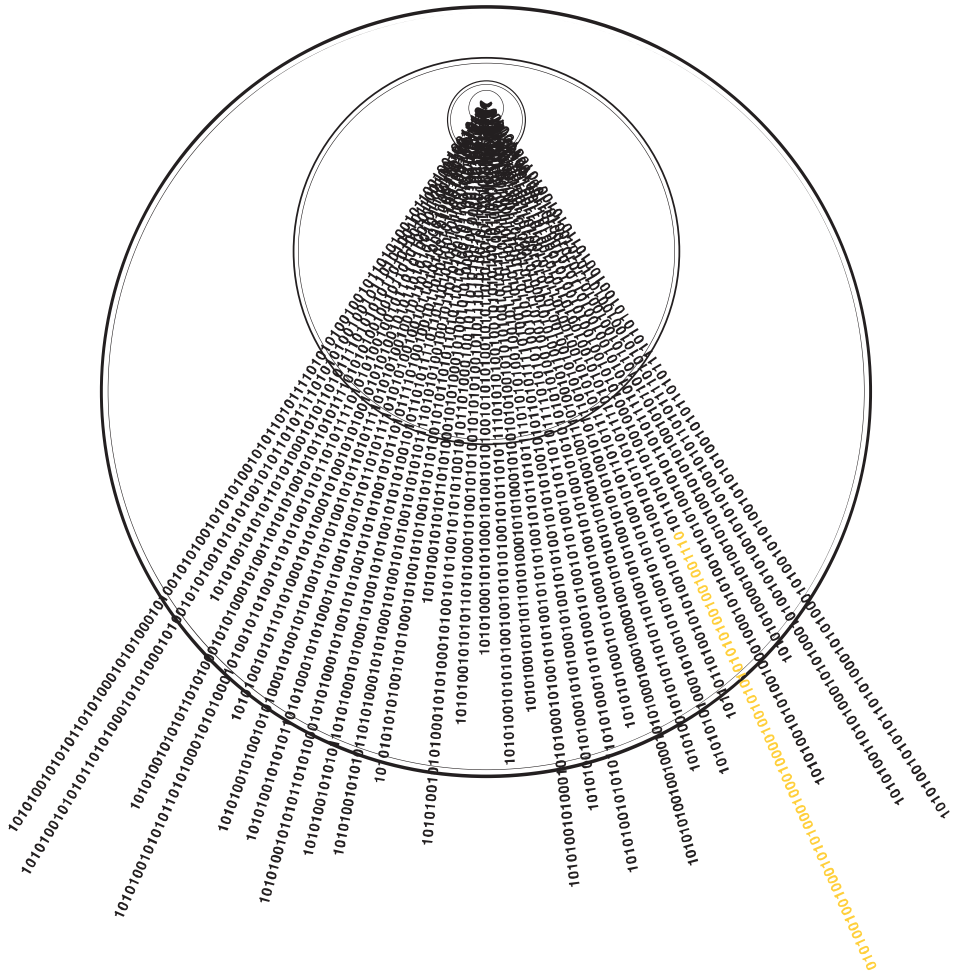
Nick Delfas, Mandeep Singh, Saroop Purewal, Dimitri Kallianiotis

Telecommunications Services

Ofcom Digital Communications Review

October 2015



ten
YEARS of REDBURN

About the team

Nick Delfas

Nick graduated from Balliol, Oxford with an MA in Classics. Prior to joining Redburn, he headed the European telecom research team at Morgan Stanley.

Saroop Purewal

Saroop graduated from St Edmund Hall, Oxford with an MA in Chemistry. Prior to joining Redburn, she qualified as a Chartered Accountant at Andersen before covering European Telecoms at Morgan Stanley.

Mandeep Singh (Specialist Sales)

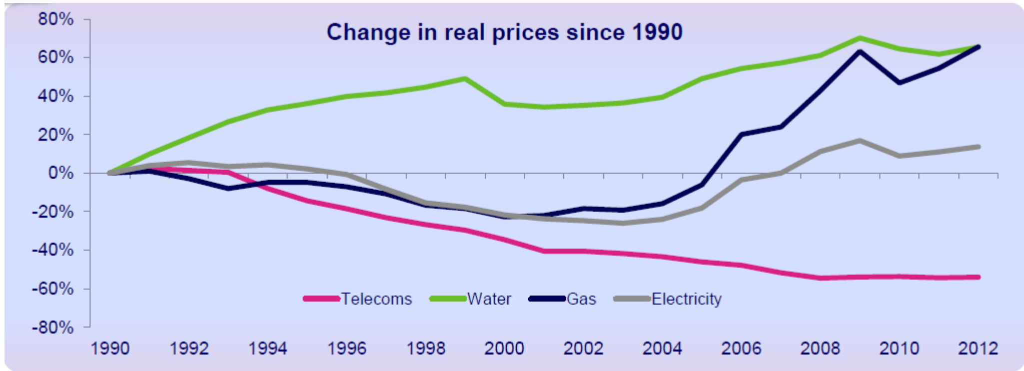
Mandeep has been a TMT specialist since 1999. He started his career with Xerox and Cable & Wireless in 1993. He moved to Morgan Stanley where he became a Telecommunications specialist salesperson and has also worked on the buy side. Mandeep has an MBA from Cass Business School.

Dimitri Kallianiotis

Dimitri holds a Masters in Management from Edhec Business School in France and a postgraduate diploma in Accounting and Finance from the London School of Economics. Before joining Redburn, he was a Telecoms analyst at Citi. He is a CFA Charterholder.

Myth 1: 'Prices are falling'

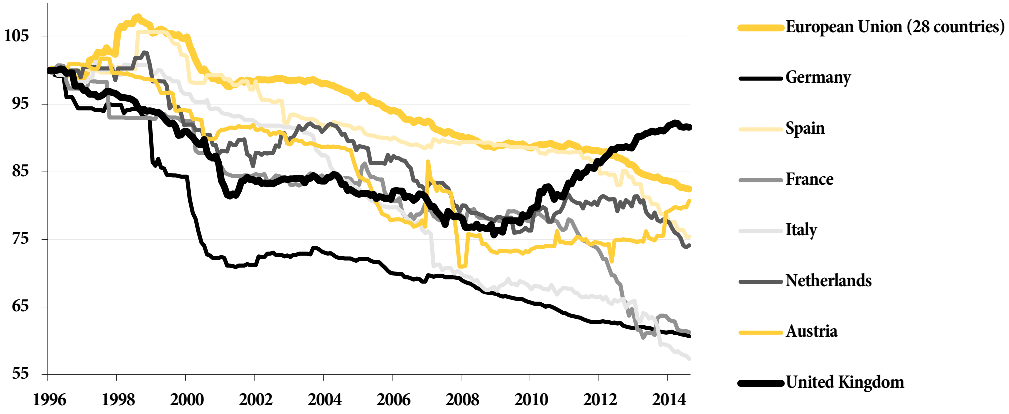
Prices are falling according to BT



Source: BT regulatory teach-in April 2014, ONS data

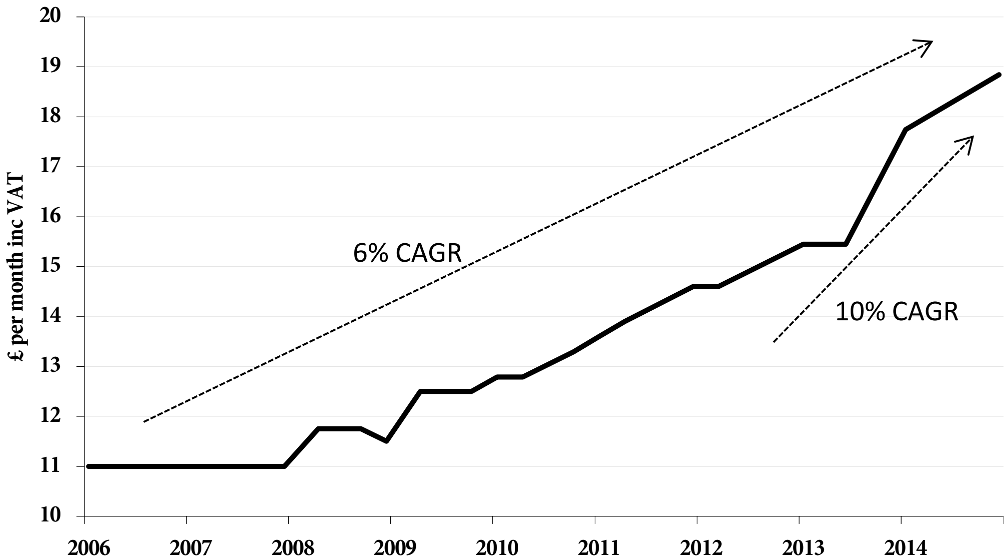
...BUT:

Prices are rising only in the UK – according to Eurostat



Source: Eurostat, Telecommunications CPI

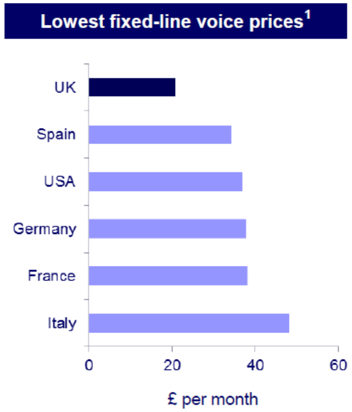
Line rental has hit the least well-off: 10% inflation

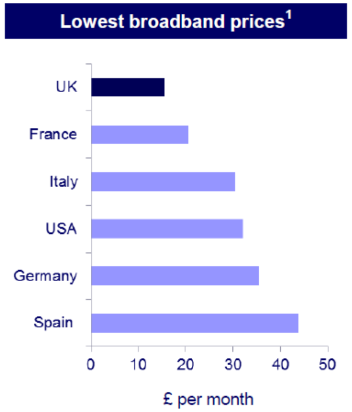


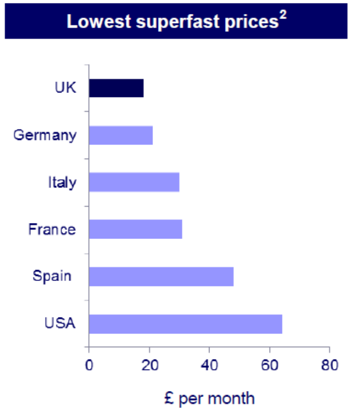
Source: BT

Myth 2: 'Prices are the lowest in Europe / USA'

Prices are low according to BT



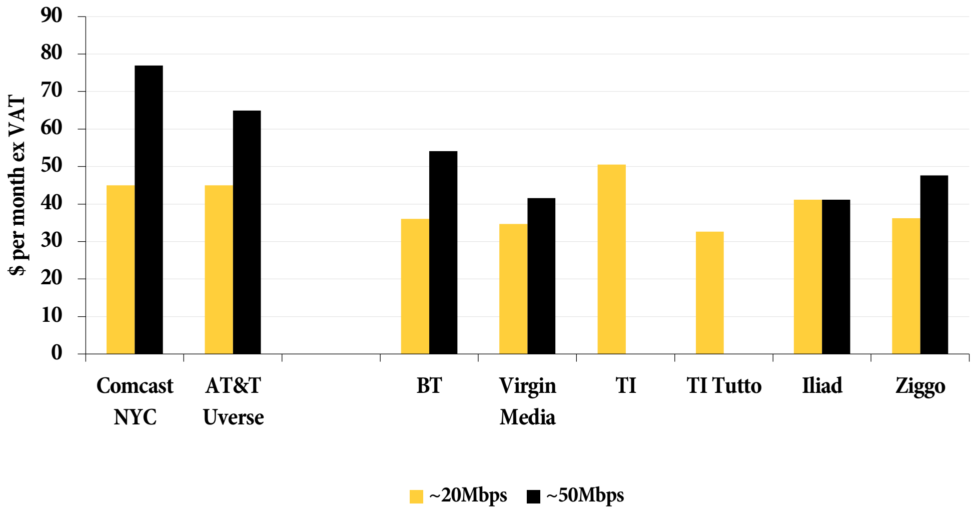




Source: BT investor day, May 2013

...BUT:

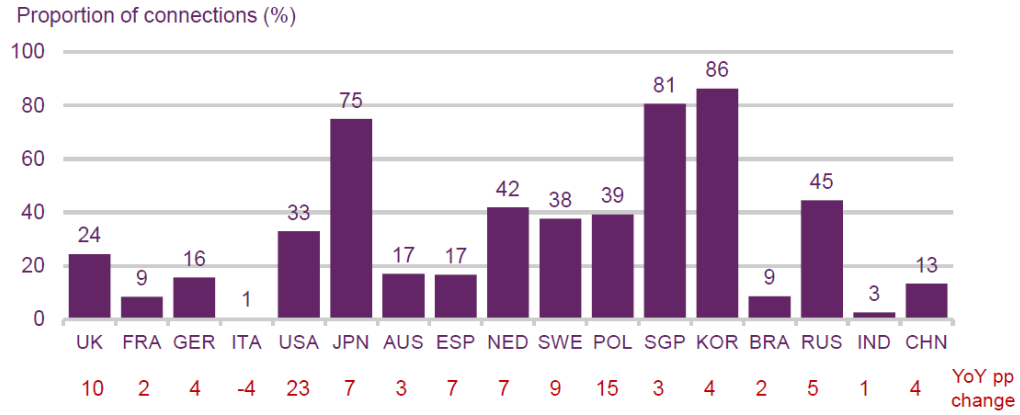
UK prices are not exceptional



Source: Redburn, company data

Myth 3: ‘Speeds are amongst the highest’

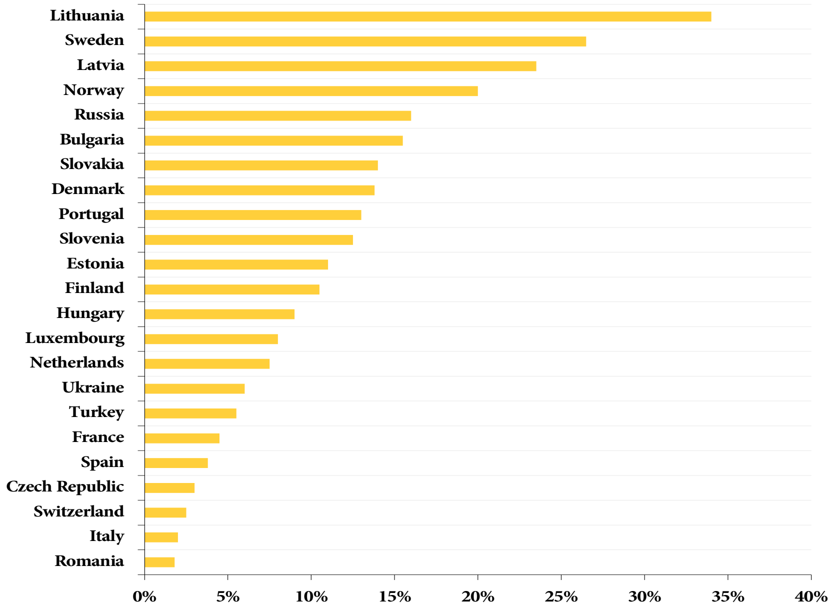
Ofcom claims speeds are high: percent of lines above 30Mbps



Source: Ofcom December 2013

…BUT:

The UK has no Fibre To The Home



Source: FTTH Council February 2015

London is only just better than Minsk

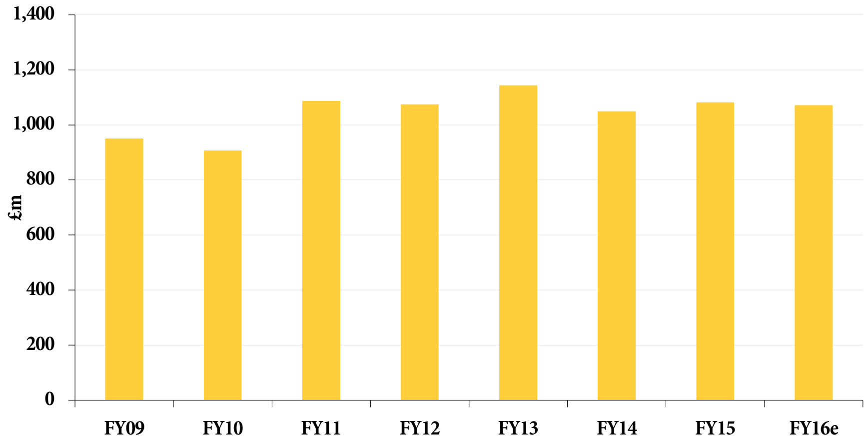
Rank	Capital City	Country	January 2015 speeds (Mbps)
1	Bucharest	Romania	80.14
2	Paris	France	78.6
3	Vilnius	Lithuania	59.99
4	Stockholm	Sweden	59.46
5	Reykjavik	Iceland	49.95
6	Bern	Switzerland	49.37
7	Copenhagen	Denmark	47.81
8	Bratislava	Slovakia	44.47
9	Riga	Latvia	42.9
10	Helsinki	Finland	42.79
11	Vienna	Austria	42.41
12	Oslo	Norway	40.25
13	Budapest	Hungary	40.1
14	Luxembourg	Luxembourg	40.03
15	Dublin	Ireland	39.43
16	Amsterdam	Netherlands	39.41
17	Tallinn	Estonia	39.34
18	Sofia	Bulgaria	38
19	Prague	Czech Republic	37.04
20	Lisbon	Portugal	34.73
21	Madrid	Spain	33.26
22	Kiev	Ukraine	32.76
23	Berlin	Germany	27.2
24	Brussels	Belgium	26.72
25	Warsaw	Poland	25.97
26	**London**	**United Kingdom**	25.44
27	Minsk	Belarus	17.79
28	Sarajevo	Bosnia & Herzegovina	13.41
29	Zagreb	Croatia	11.74
30	Rome	Italy	11.65
31	Belgrade	Serbia	10.91
32	Athens	Greece	9.76
33	Nicosia	Cyprus	9.11

Source: Ookla, 'Net Index Explorer': http://explorer.netindex.com/maps# [accessed 16 January 2015]. Data correct as of 16 January 2015. Data not available for European cities not included.

Source: House of Lords Select Committee January 2015

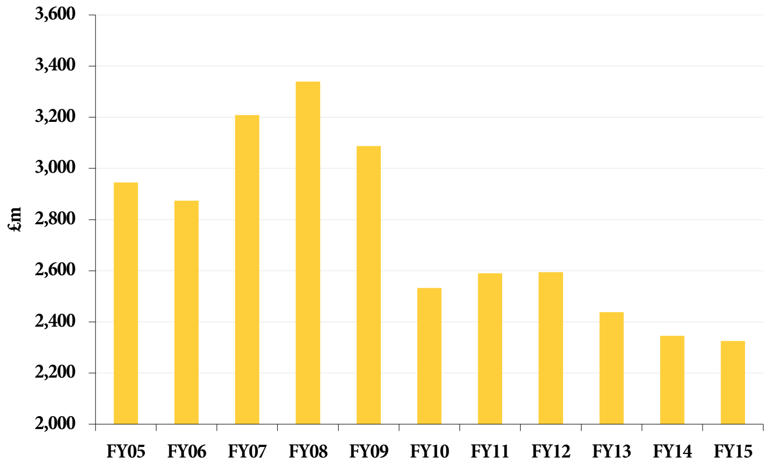
Myth 4: ‘We invested £3bn in the teeth of the recession’

Openreach capex shows no sign at all of £3bn spent…



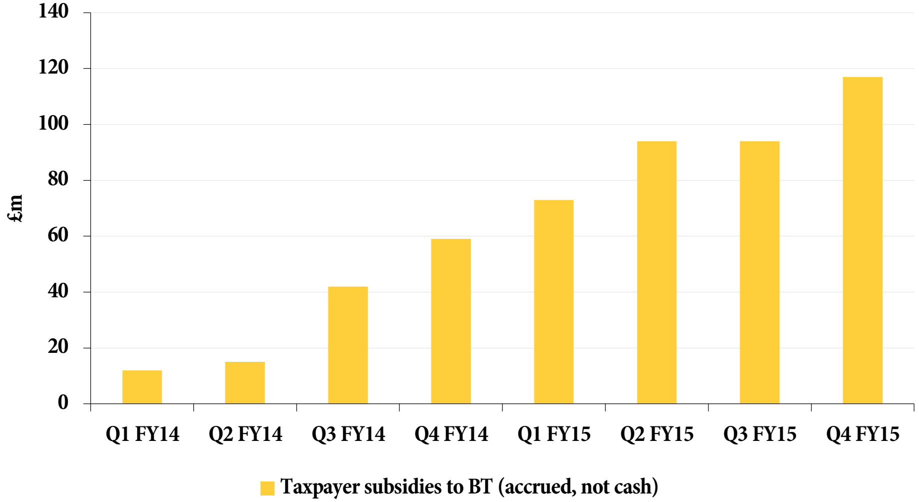
Source: BT

… nor does Group capex…



Source: BT

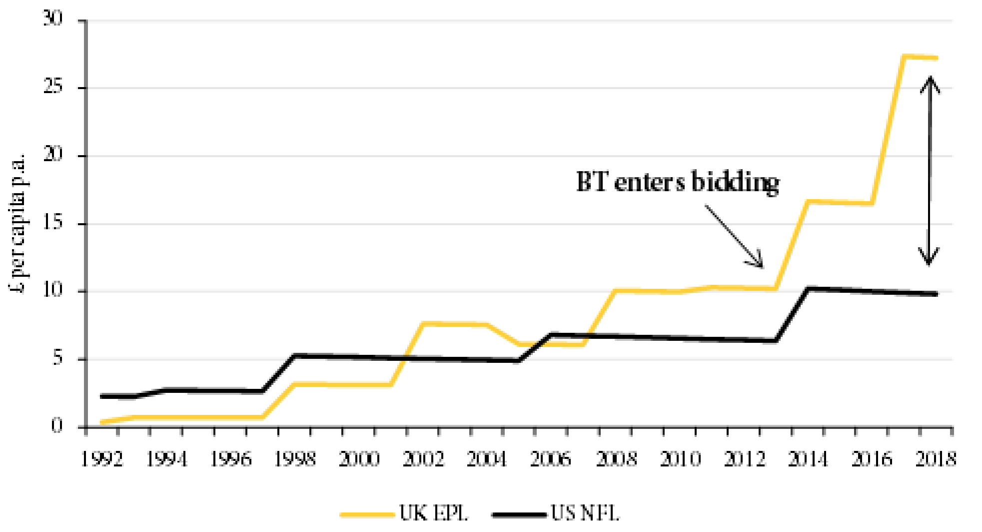
… while BDUK subsidies to BT are annualising >£400m pa



Source: BT

Myth 5: ‘We are bringing down the cost of football’

Cost of EPL rights vs NFL



Source: EPL, NFL

- At least a prima facie case that Openreach cash flow is backing bids of £1bn+ pa for EPL to force Sky – and consequently consumers – to pay more
- ITV and other bidders have to be far more constrained in their bidding
- This strengthens the argument to separate the infrastructure arm (currently subsidised) from the retail facing arm

The problem with Openreach

The problem with Openreach

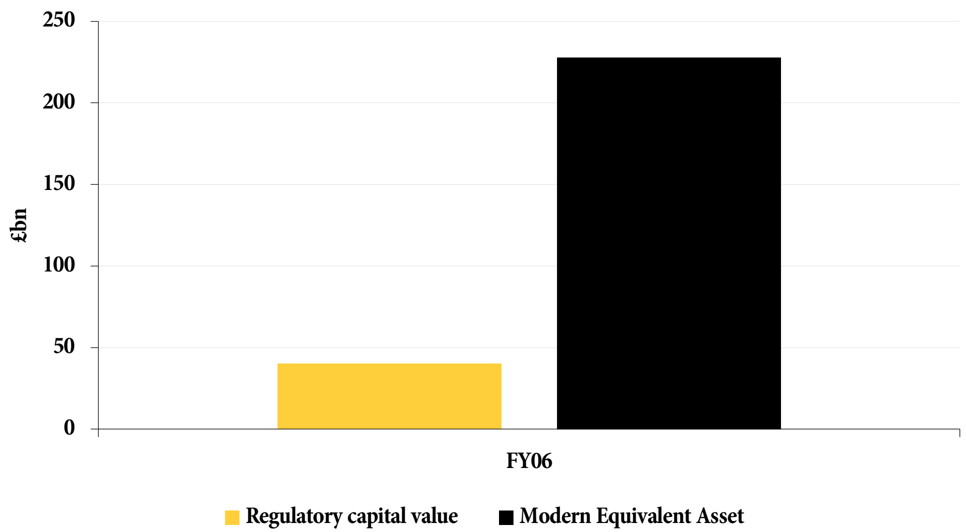
- Openreach is a regulated utility with a RAB of £11-13bn. It generates EBITDA of £2.5bn with capex of £1bn: this looks like a cash return on capital of 10%!
- Investment levels, despite BT's claims, have been flat to down since FY09
- The UK lags on fibre investment. At 30Mbps the picture looks good, at 100Mbps+ it looks very poor
- Variability of provision is a problem, and is due to use of copper upgrade technologies as a 'cheap fix'
- Utility regulation for a stable, geographically even service needs to be implemented
- Combination with BT Retail creates need for highly complex "margin squeeze" tests

"When Ofcom was established, access to a reliable internet connection or mobile phone was a 'nice thing to have'. Now …it has become a necessity in the same way as gas or electricity or running water." Sharon White, CEO Ofcom, 15th June 2015

Openreach is currently intentionally over-compensated

- Openreach is given a higher asset value to incentivise infrastructure competition (the 'Modern Equivalent Asset' basis)
- In water and other utilities no-one wants parallel networks to be built
- The difference in regulatory values is startling in water in particular
- Openreach is earning an excessively high return on an over-stated asset base

Regulatory values in the water industry



Source: Ofwat FY06

Openreach is a utility (almost) like any other

Openreach Mean Capital Employed

Section 12.4 - Openreach MCE Statement 2014

For the year ended 31 March 2014

Openreach Services (by regulated market)		Wholesale analogue exchange line services	Wholesale local access	Wholesale ISDN2 exchange line services	Wholesale business ISDN30 exchange line services	Sub Total full SMP services (excluding AISBO)	Low bandwidth AISBO Non WECLA	Low bandwidth AISBO WECLA	MISBO Non WECLA	Sub Total full SMP services (including AISBO)	Other Openreach Markets & Activities (with no SMP reporting obligations)	Total: Openreach Services - by regulated market
		£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m
Non-current Assets												
Tangible fixed assets:												
Land & Buildings		120	204	14	18	356	23	2	2	383	300	683
Access - Copper		2,909	1,311	90	14	4,324	0	0	0	4,324	246	4,570
Access - Fibre		0	0	0	71	71	536	30	16	653	573	1,226
Access - Duct		2,605	1,103	81	60	3,849	655	21	25	4,550	599	5,149
Switch and Transmission	- Switch	77	16	12	6	111	0	0	0	111	19	130
	- Transmission	3	1	0	26	30	299	27	45	401	407	808
Other		279	240	13	16	548	143	13	10	714	347	1,061
Investments		0	0	0	0	0	0	0	0	0	0	0
Total Non-current assets		**5,993**	**2,875**	**210**	**211**	**9,289**	**1,656**	**93**	**98**	**11,136**	**2,491**	**13,627**
Current Assets												
Inventories		0	0	0	0	0	0	0	0	0	4	4
Receivables												
- Internal		96	50	7	12	165	38	4	4	211	(43)	168
- External		405	244	16	23	688	133	11	12	844	495	1,339
Total Current Assets		**501**	**294**	**23**	**35**	**853**	**171**	**15**	**16**	**1,055**	**456**	**1,511**
Payables falling due within one year												
- Internal		0	0	0	0	0	0	0	0	0	0	0
- External		(606)	(371)	(25)	(33)	(1,035)	(193)	(15)	(17)	(1,260)	(586)	(1,846)
Total Payables falling due within one year		**(606)**	**(371)**	**(25)**	**(33)**	**(1,035)**	**(193)**	**(15)**	**(17)**	**(1,260)**	**(586)**	**(1,846)**
Net Current Assets/(Payables)		**(105)**	**(77)**	**(2)**	**2**	**(182)**	**(22)**	**0**	**(1)**	**(205)**	**(130)**	**(335)**
Total Assets less Current Payables		**5,888**	**2,798**	**208**	**213**	**9,107**	**1,634**	**93**	**97**	**10,931**	**2,361**	**13,292**
Provisions for liabilities and charges		(52)	(35)	(2)	(3)	(92)	(15)	0	0	(107)	(44)	(151)
Roundings		0	0	(1)	0	(1)	0	(2)	(2)	[illegible]	[illegible]	0
Mean capital employed		**5,836**	**2,763**	**205**	**210**	**9,014**	**1,619**	**91**	[illegible]	**10,819**	**2,322**	**13,141**

Non current assets are net of government grants of £78m

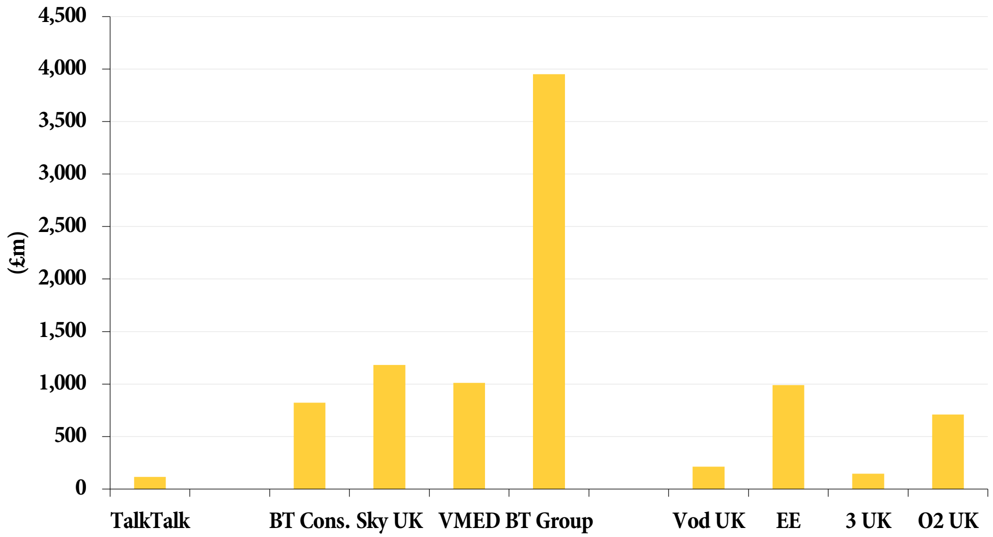
Source: BT Regulatory Financial Statements FY14

- In simple terms Mean Capital Employed times WACC gives NOPAT
- Backing out operating costs gives key wholesale prices such as ULL (aka MPF)
- VDSL (BT calls this 'fibre', brand name 'Infinity', wholesale product 'GEA') is currently outside regulation until at least 2017

The UK post Openreach separation

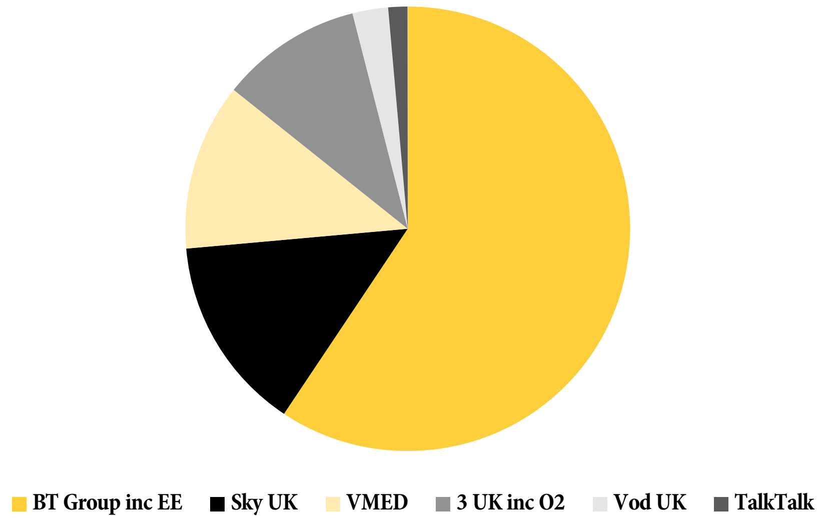
- 30 years after privatisation the UK industry remains unbalanced
- BT / EE will accentuate this scale problem
- Openreach separation would do a great deal to rebalance the industry and ensure greater competition, and remove "margin squeeze" issues

UK opFCF FY15 / 2014



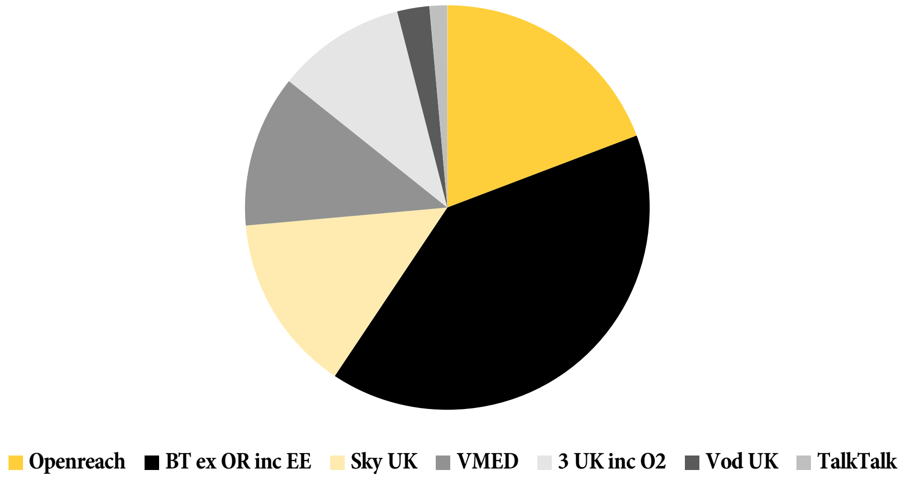
Source: Redburn, companies

UK opFCF FY15 / 2014 without Openreach separation



Source: Redburn, companies

UK opFCF FY15 / 2014 with Openreach separation

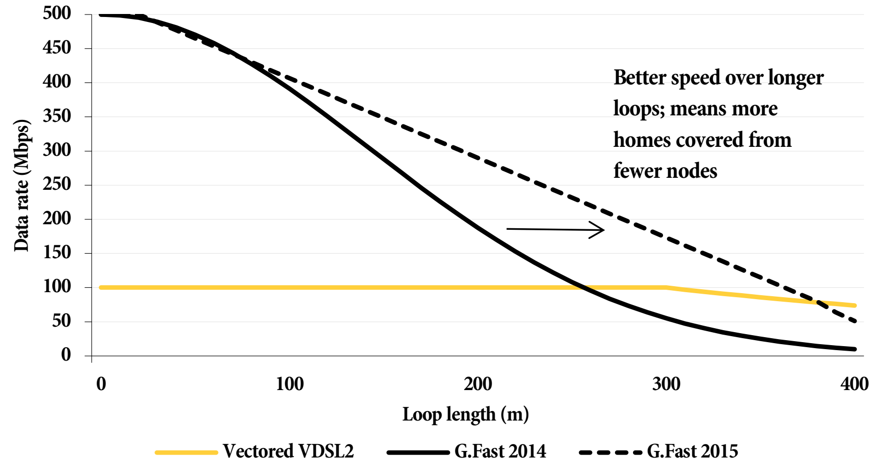


Source: Redburn, companies

Technology issues: G.Fast or FTTH?

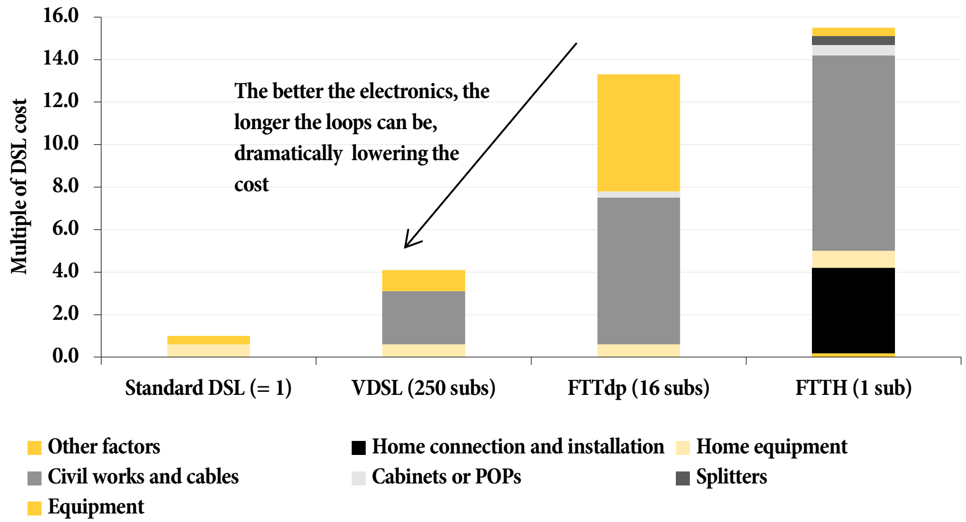
- G.Fast may be better than we expected: works over 300m+
- Will give much improved service at very low cost to 50%+ of the population
- However:
  - 20-40% will see no benefit at all and uniformity of service will become a political objective
  - Costs to operate copper networks are far higher in the long run (10pp+ off EBITDA margin)
- Ofcom has a role to decide how to compensate copper-based versus fibre network evolutions

Schematic G.Fast technology improvement



Source: Redburn

Impact of retaining longer loop lengths on cost



Source: Redburn, Alcatel

Time for BT to negotiate?

- The arguments against separation are weak:
  - **'Investment coordination'.** The idea the Openreach can only invest with BT Retail as an anchor tenant has no basis in economic theory. Airports, energy extraction and software are not vertically integrated and have enormous investment needs. In fact other ISPs are *more* likely to contract in advance with a separated Openreach. (Cf. Cave & Doyle, Contracting Across Separated Networks in Telecommunications)
  - **Ownership.** There would be a heightened risk of foreign ownership of Openreach, though this has not been a concern in other areas of the economy.
  - **Pension fund.** Cable & Wireless split its pension fund between CWW and CWC according to the employment history of each member.
- The arguments in favour of negotiation are very strong:
  - Load pension liabilities into Openreach. A £100bn nominal liability.
  - Amend regulation to include a 'duty to finance' as in other utilities
  - Avoid inclusion of EE assets in the new Openreach

Two other issues to consider

Two other issues to consider

- **Quality.** Broadband is subject to quality variability we would not accept in other utilities. New network builders are thin on the ground.
  - Should Ofcom organise a "concession area" approach for new fibre builds giving certainty of no overbuild in return for 100% coverage obligations?
  - Should Ofcom learn from Arcep in France on dense, less dense and non dense fibre regulation?
  - What action should Ofcom take on "predatory overbuild"? Should Openreach be forced to publish upgrade plans 5 years in advance?

- **Consumer welfare.** "Opt-out" charges have been introduced for voicemail, BT Sport. Consumers took these services on the basis they were free, but are not asked for permission before charges are added to the bill.
  - Should "opt-out" charging approaches be banned?

Other considerations for BT

BT Consumer: pregnant with opportunity

- Our earlier negative view on BT Consumer was based on excessive resale margins (25%) compared to Centrica (10-15%) despite very stable wholesale input prices
- We now focus more on the market share and TV opportunity
- **BT Consumer's major asset is its relatively low market share** (32% vs 40-50% for other incumbents) which gives it regulatory cover while operating with enough scale
- **Bell Canada exclusive content to fixed and mobile access products is an intriguing strategy.** Using content (small market, low cost relative to telco businesses) to drive access (very large market, highly operationally geared) makes a great deal of sense.

BT Sport Europe could generate a lot of cash

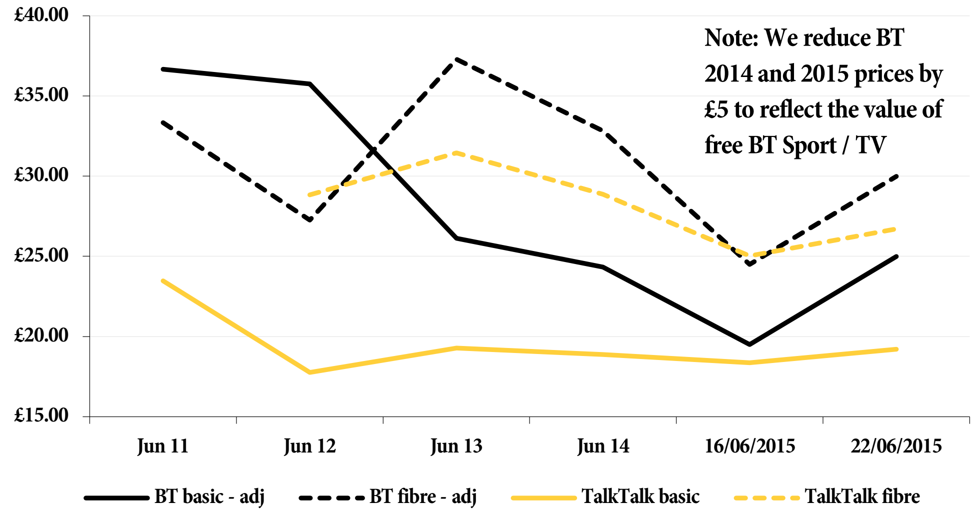
- Unlike the first BT Sport launch, BT Sport Europe does not rely on broadband share gain
- Existing customers paying, or more Sky customers buying the channel will drive break-even
- However this does not mean broadband share gain will not also occur: BT is able to price very close to TalkTalk
- Delia Bushell (ex Sky Italia) is creating a credible low cost exclusive content platform, sold 'free/free' (TV/Sport)

Champions League Maths for BT

Variable	Value (£m)	Comment
2.5m customers pay £5pm	125	3m BT broadband (out of ~7m BT brand customers) take 'free' BT Sport. We assume 0.5m will call to opt out
Virgin pays more	40	We estimate Virgin Media currently pays £80m for EPL matches from BT. The value of Champions League could in reality double this but we are more conservative
Sky customers pay more	30	0.5m Sky customers currently pay £13.50 for BT Sport. We expect this price to rise to include CL
Pubs and clubs incremental	20	We assume £20-30m already for EPL
Advertising	10	High value games, could be greater
Total ex new Sky payers	225	
New Sky payers 1m	216	Of 6m Sky Sports subscribers, we assume a further 1m will choose to buy BT Sport to see CL games at £18 ex VAT
Total	441	
CL rights	(300)	£897m cost quoted for 3 years; BT has unfortunately hedged the cost
CL production and marketing	(30)	
Pre-tax incremental profit	111	

Source: Redburn

BT vs TalkTalk prices – adjusting for free BT TV/Sport



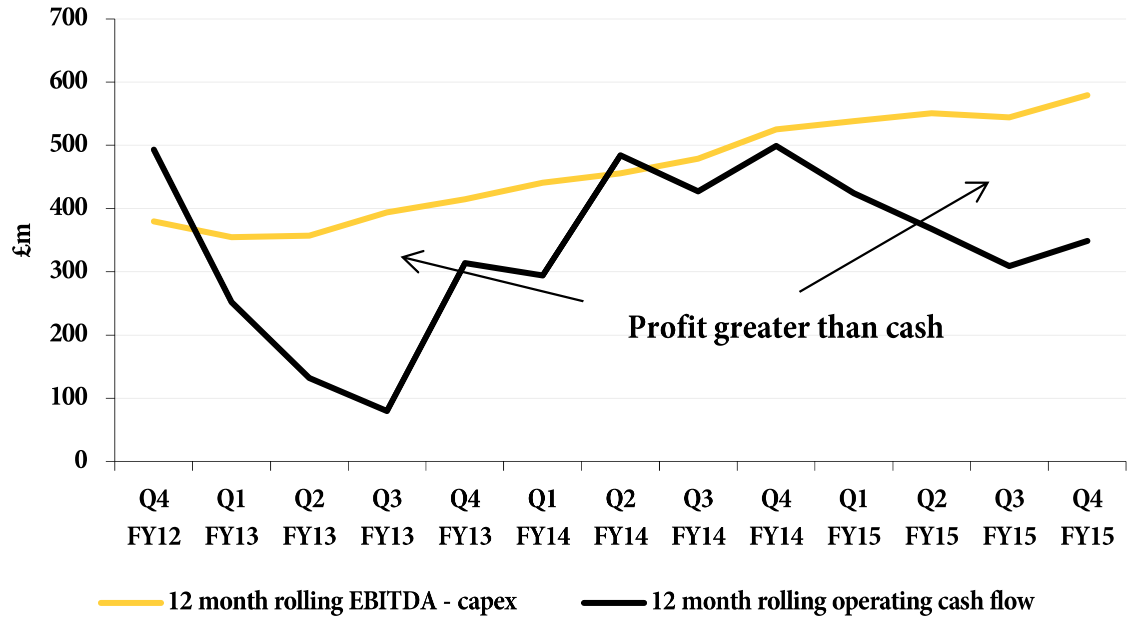
Source: Companies

REDBURN

Global Services and BT Business: as good as it gets?

- Can BT enunciate the competitive advantage of Global Services?
- Parts are simply communications services for large corporate
- Parts belong elsewhere – T-Systems?
- BT Business suffers from excess margins (32% EBITDA) and a high market share, coupled with ongoing IP deflation

Same old story? Profit over-recognition at Global Services

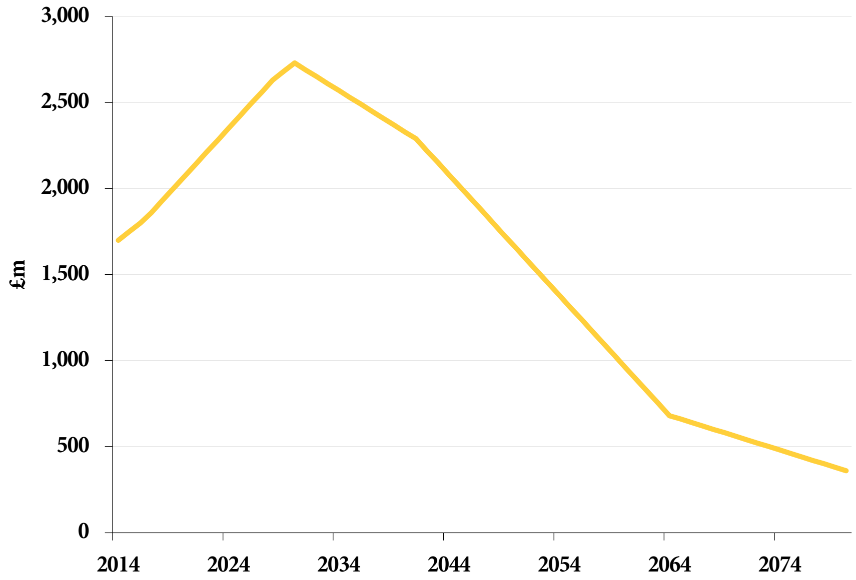


Source: Redburn, BT

Pension fund

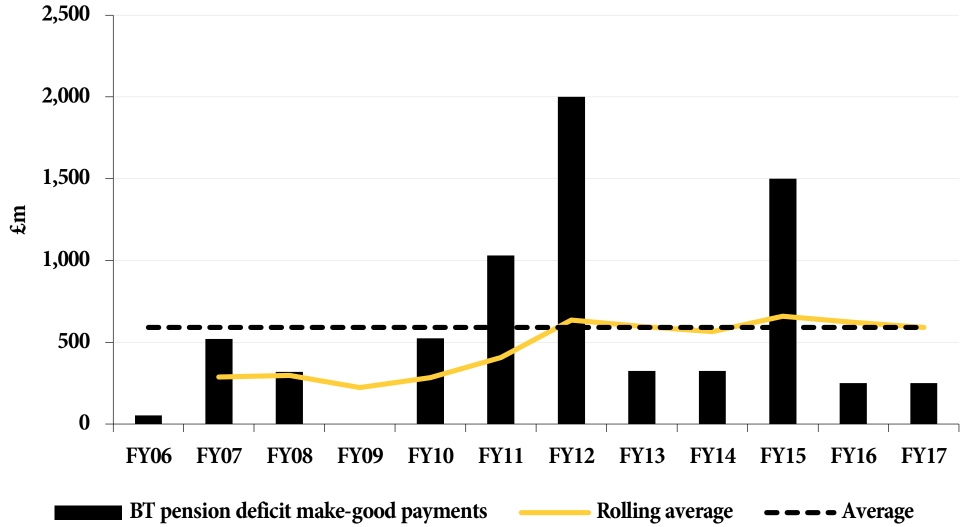
- Payments to pensioners peak at >£2.5bn in mid 2020s
- Around £44bn of assets must grow to pay £100bn nominal of liabilities, while paying out £1.5bn+ in the near term
- Size relative to equity / enterprise value has shrunk but still highly material
- Rising rates would reduce deficit, depending on short term impact on assets

Benefits payable by the BT Pension Scheme



Source: BT

BT contributions to the pension scheme



Source: BT

REDBURN

RECOMMENDATIONS

BUY Redburn argues that the stock price will rise by at least 15% over one year. For high beta stocks the hurdle rate may be commensurately higher.
SELL Redburn argues that the stock price will be lower in 12 months than it is today.
NEUT. Redburn currently has no strong opinion on the likely movement of this stock price.

REGULATORY DISCLOSURE

This report has been issued by Redburn (Europe) Limited, authorised and regulated by the Financial Conduct Authority and is intended for use by professional and business investors only. It is solely for the information of the addressee only and is not an offer, or solicitation of an offer, to sell, or buy, any securities or any derivative instruments or any other rights pertaining thereto. The information in this report has been compiled from sources believed to be reliable but neither Redburn, nor any of its officers or employees makes any representations as to its accuracy or completeness. Any opinions, forecasts or estimates herein constitute a judgement, as at the date of this report, that is subject to change without notice. This report does not have regard to the specific instrument objectives, financial situation and the particular needs of any specific person who may receive this report. Redburn may have disseminated information contained in this report prior to its publication.

Notice for US recipients
This report is not intended for use or distribution to US corporations that do not meet the definition of a major US institutional investor in the United States or for use by any citizen or resident of the United States.

Redburn (Europe) Limited, and its research analysts, are not members of the Financial Industry Regulatory Authority and are not subject to the FINRA Rules on Research Analysts and Research Reports and the attendant restrictions and required disclosures required by that rule. Redburn (Europe) Limited is a correspondent of Redburn (USA) LLC. All US persons receiving this report and wishing to buy or sell the securities discussed herein should do so through a representative of Redburn (USA) LLC. Redburn (USA) LLC and its affiliates: do not own any class of equity securities issued by any of the companies discussed in this report; have not received, and do not intend to receive, any investment banking compensation from any of the issuers discussed in this report; and, have not acted as manager, or co-manager, of any public offering of securities issued by any of the companies discussed in this report. Neither Redburn (USA) LLC, nor any of its officers, own options, rights or warrants to purchase any of the securities of the issuers whose securities are discussed in this report. Neither Redburn (Europe) Limited, nor Redburn (USA) LLC, make a market in any securities, and do not stand ready to buy from or sell to any customers, as principal, any of the securities discussed in this report.