PRICEWATERHOUSECOOPERS

Evaluation of the dispersion of profitability within the comparator sets used in Annex 9 of Ofcom's pay TV phase three document

A report for British Sky Broadcasting Limited

16 September 2009
Final report

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Cross-industry analysis of the dispersion of profitability and valuation ratios

1 Background

On 26 June 2009, Ofcom published its "Pay TV phase three document" as part of its investigation into pay TV in the UK. Annex 9 to this document is a study on Sky's profitability prepared by Oxera Consulting Ltd ("Oxera") entitled "BSkyB's profitability in the context of the Ofcom market investigation". British Sky Broadcasting Ltd ("Sky") commissioned us, PricewaterhouseCoopers LLP ("we", "us" or "PwC"), to evaluate the dispersion of returns and valuation ratios within the comparator sets used in Oxera's benchmarking of Sky's profitability against other businesses (Section 6 of Oxera's report), against the dispersion of returns and valuation ratios in other sectors.

2 Introduction

As part of the analysis of the profitability of Sky, Oxera conducted a benchmarking analysis, comparing Sky's returns with the returns achieved by companies judged by Oxera to be reasonable comparators for Sky (in the sense that they might be expected, *a priori*, to earn similar returns to Sky). In our report "Evaluation of the selection of comparators used in Annex 9 of Ofcom's pay TV phase three document", we report the results of our investigation into the appropriateness of the comparator companies chosen by Oxera to benchmark Sky's profitability. We concluded that most of the companies selected differ from Sky in important respects which make them unreliable comparators for profitability analysis for the period considered. In particular, we found that the Non-TV sectors analysed by Oxera differ in important respects from the pay TV sector, and that even within the TV sector there are important differences in the comparator firms with regard to factors such as business model, business maturity, regulation and country of operation. We therefore concluded that no sound conclusions can be drawn concerning the level of Sky's profits based on comparisons with Oxera's selected benchmark companies.

In this report we set out the results of our analysis of the degree of dispersion in Oxera's chosen comparator sets. We compared this dispersion with the dispersion found in other randomly-chosen industry sectors. Our purpose in conducting this analysis was to determine whether, notwithstanding the important findings we made with regard to the suitability of Oxera's comparator sets, the degree of dispersion of returns found by Oxera in its analysis of the pay TV and related sectors differs from that observed in other randomly-chosen sectors. If it did not, this would suggest that there is nothing unusual about the range of different returns earned by companies in the TV sector, and as such the results of the benchmarking analysis could not be interpreted as showing that the returns earned by any particular company within the TV sector (such as Sky) are excessive.

3 Precedent for the dispersion of returns in Non-TV sectors

The underlying rationale for Oxera's benchmarking work was that (1) in the long-run in effectively competitive markets firms should earn returns equivalent to the cost of capital for that type of business; that (2) firms in similar sectors should have a similar cost of capital; so that (3) in the long-run one would expect such firms to earn similar returns if the markets in which they operate are effectively competitive; and thus (4) if Sky was found to have higher returns than a group of comparator companies this would provide *prima facie* evidence that its profits are high, presumably because of ineffective competition.

Our methodological assessment of profitability benchmarking[1] suggested, however, that even within an appropriately selected group of comparator companies in a single sector, or within a relatively homogenous group of sectors, we would expect to observe a dispersion of returns in any period such as the 5 year period examined by Oxera. Differences between the companies in terms of factors such as business model, exposure to risks, particular factors having an impact in the particular time period considered, and measurement issues can all interact to cause differences in measured profitability. Furthermore, even if there were no, or only minor, differences caused by such factors, it is also the case that in real world markets over any given period of time, firms differ in important respects such as the quality of management, efficiency levels, innovation and success. We would therefore expect a dispersion of profits to be observed even for a properly constructed comparator set of companies within a relatively homogeneous sector with no issue of ineffective competition.

This has been accepted in past regulatory decisions. For example, the Competition Commission ("CC") acknowledged this in its investigation into mobile phone charges (2003)[2]:

> *Oftel stated in its 26 September 2001 Effective Competition Review (see paragraph A8.9 of that review) that supernormal profits were consistent with competitive market conditions under particular circumstances. For example, high returns might reflect relative efficiency and high levels of innovation by an operator. These factors might give rise to excess profits in any single period. Oftel said, however, that it was clear that persistent high returns were difficult to reconcile with a competitive sector, because over time competitors should be able to replicate efficiencies or produce rival innovations. We broadly concur in this view.*
>
> Competition Commission (2003), Investigation into mobile phone charges, paragraph 2.160.

The CC summarised that *"the circumstances in which persistently high profits become an indicator of ineffective competition is a matter of judgement, about which contrary views may legitimately be held"* (paragraph 2.161) and that *"…the profitability of each MNO over the past few years is not critical as an indicator of competition in any particular part or parts of the wholesale or retail market."* (paragraph 2.162). In a report prepared for the OFT, Oxera (2003)[3] states (referring to the importance of comparing only similar companies) that *"profits can be expected to vary across companies, independently of whether or not profits are excessive."*

This discussion yields the following insights regarding the treatment of individual firm profitability as evidence of ineffective competition:

- Profits must be shown to be **persistently** "high" even to be a **potential** indicator of ineffective competition. It was common ground between the CC and Ofcom's predecessor Oftel that excess returns *"in any single period"* would be compatible with a competitive sector; and

[1] PricewaterhouseCoopers (2009), "Evaluation of the selection of comparators used in Annex 9 of Ofcom's pay TV phase three document"

[2] Competition Commission (2003), "Investigation into mobile phone charges".

[3] Oxera (2003), "Assessing profitability in competition policy analysis", report prepared for the Office of Fair Trading.

- Even where profits do appear to be persistently high, whether this is an indicator of ineffective competition is a matter of judgement, rather than of fact.

With regard to the first of these points, it is our view that 5 years is too short a period of time to demonstrate persistence, particularly in a sector such as pay TV which is subject to both cyclical and structural changes, and continuous innovation and growth.

With regard to the second point, the fact that judgement is needed makes analysis of what constitutes persistently high returns resulting from ineffective competition inherently subjective. One commonsense approach would be to consider whether the apparently excess returns observed was in some sense "unusual" compared with returns in other sectors. Cases of high profits associated with ineffective competition should be the exception rather than the norm, and thus the degree of profit dispersion observed in cases where there is a genuine underlying competition issue should differ from that in other sectors where it can be reasonably assumed that competition is sufficiently strong to be effective.

4 Comparison of the dispersion of returns in Oxera's samples and other industries

We thus undertook a high-level analysis to compare the dispersion of the 5-year historic annual returns (proxied by ROCE, ROS, EV/Total assets[4] and EV/(Opex + Capex)) in Oxera's TV and Non-TV comparator samples against an international selection of companies in 6 other sectors (automobiles and parts, electric services, life insurance, petroleum refining, telecommunications, and water supply). These sectors were selected solely on the basis of data availability and the number of comparators per industry group in the Datastream data set. We have no reason to believe that these sectors are ineffectively competitive, and they certainly were not chosen on this basis.

Given our methodological insights set out above, and our detailed analysis of the comparator companies used by Oxera set out in our report "Evaluation of the selection of comparators used in Annex 9 of Ofcom's pay TV phase three document", prior to conducting this analysis of the dispersion of returns we considered the appropriate interpretation of the results:

1. We expected all the sectors considered to show a dispersion of returns across individual businesses within the five year period considered because of different company factors and different degrees of management capability, efficiency and success. This would be the case even in sectors where competition was effective.

2. In the event that the dispersion of returns for our other, randomly-chosen, sectors appeared consistent with that found by Oxera for its TV and non-TV comparator samples, then this would provide evidence that there was nothing unusual about the extent of variation in returns identified by Oxera in its TV and non-TV comparator sets. In turn, this would undermine any contention that there was ineffective competition in the TV sector (unless it could be argued that our randomly-chosen sectors also suffered from a similar problem of reduced competition).

3. In the event that the dispersion of returns for our other, randomly-chosen, sectors appeared inconsistent with that found by Oxera for its TV and Non-TV comparator samples (for example, if there was less dispersion in our comparator sectors, or if there was not the same pattern of some companies earning

[4] For consistency of method with Oxera's report, we define ROCE as EBIT/Total Assets for this analysis.

returns substantially greater than the average) this might superficially provide some evidence to support an interpretation of Oxera's benchmarking analysis as demonstrating that the pay TV sector is less than fully competitive.

4. However, as set out separately in our report "Evaluation of the selection of comparators used in Annex 9 of Ofcom's pay TV phase three document" we have major concerns regarding the composition of Oxera's TV and non-TV comparator sets. Because of this, a different dispersion could be observed, not because of a fundamental difference in the effectiveness of competition, but because of the more heterogeneous nature of the businesses included in Oxera's comparator sets compared with the additional sectors considered in our analysis.

5. This would most particularly apply to the non-TV comparators where our analysis indicated that these businesses differ fundamentally, not only from the pay TV sector, but also from each other. *A priori* we expected to find a greater degree of dispersion for the non-TV companies than for the other sectors (including Oxera's TV sector), but this would be indicative of the lack of commonality of the businesses in this set rather than any insights into the effectiveness of competition in the pay TV sector.

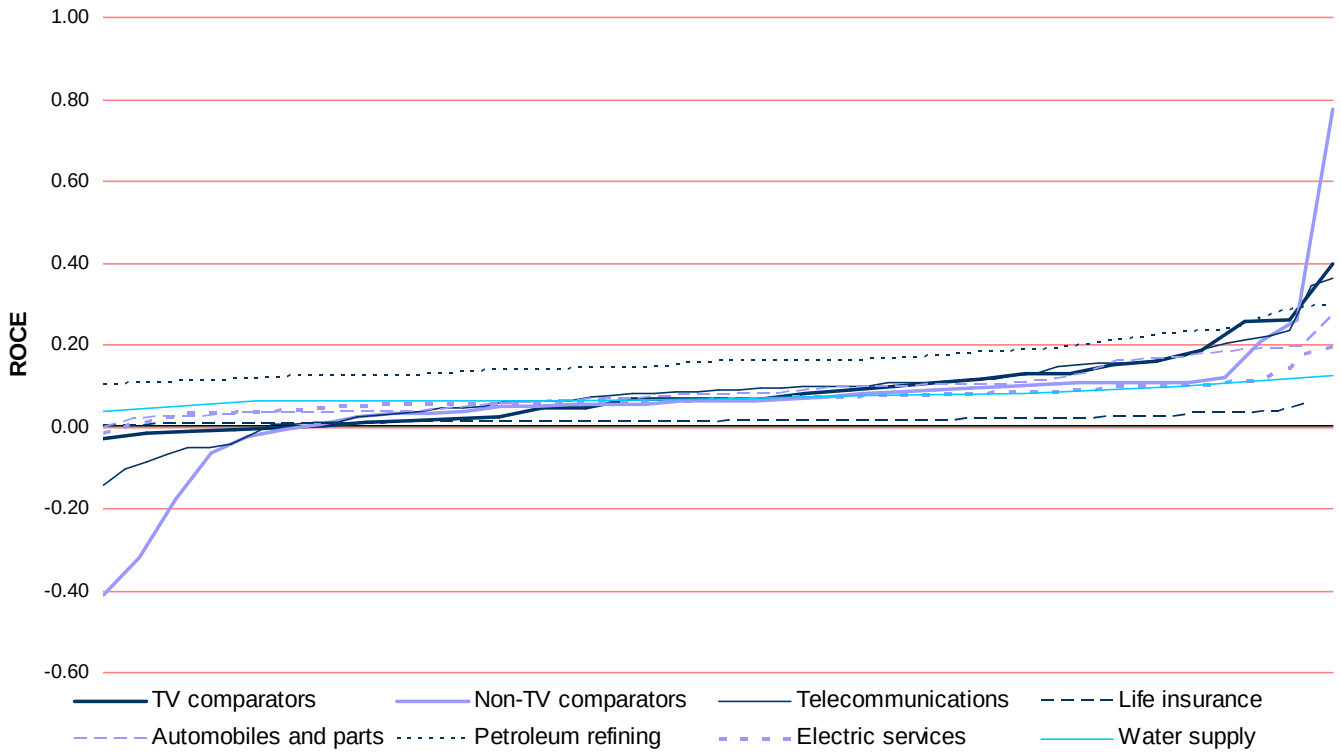
6. With regard to Oxera's TV comparators, we considered that it was more likely that the dispersion of returns found for this group would be closer to that of the other sectors. Although we have major concerns about the comparability of the firms in this set, similar concerns might also apply to the composition of firms in our randomly-chosen sectors if a detailed analysis were performed. Therefore, we did not necessarily expect to see a marked difference in the pattern of dispersion of profits for Oxera's TV sector compared with the other, randomly-chosen sectors. However, because of the highly heterogeneous natures of the TV sector some difference in dispersion would not be unexpected. Furthermore, because our detailed analysis of Oxera's TV comparators suggests that few of them are a reliable comparators for Sky, whilst a finding that the dispersion for the TV sector was in line with that in our other sectors would provide a positive indication of normal, effective competition within the TV sector, a finding that dispersion was different could not reliably demonstrate the opposite.

4.1 ROCE dispersion

Figure 1 presents the dispersion of ROCE in Oxera's TV and non-TV comparator sets, compared to a selection of other industries.

Figure 1 – Dispersion of ROCE

For this chart and following charts, the y-axis shows a measure of returns or valuation (as noted on each chart) for each company in the sample. Companies are ordered along the x-axis in ascending order of the relevant return/valuation metric (i.e. the lowest value on the left-hand side and highest value on the right-hand side) to demonstrate the distribution of returns/valuation for each sample set.



Source: PwC analysis, Datastream, Oxera

From this chart, we note that:

- There is dispersion in ROCE within all the sectors examined. The water supply sector has a smaller dispersion of returns than other industries, potentially reflecting price control regulation in this sector.

- Most sectors (including Oxera's TV comparator set) demonstrate a similar distribution of dispersion, in which the majority of companies within a sector have a similar ROCE to each other (i.e. small differences from the sector mean) but with a number of companies with profits substantially above or below the average.

- The "non-TV comparators" sample includes an unusually large number of large negative returns and one unusually high positive return. The larger distribution of returns in this sample suggests that the sample contains very different companies or companies experiencing recent exceptional events. The large number of companies with negative ROCEs suggests that it is inappropriate to compare the average ROCE for this sample against any company, since negative ROCE is unsustainable.

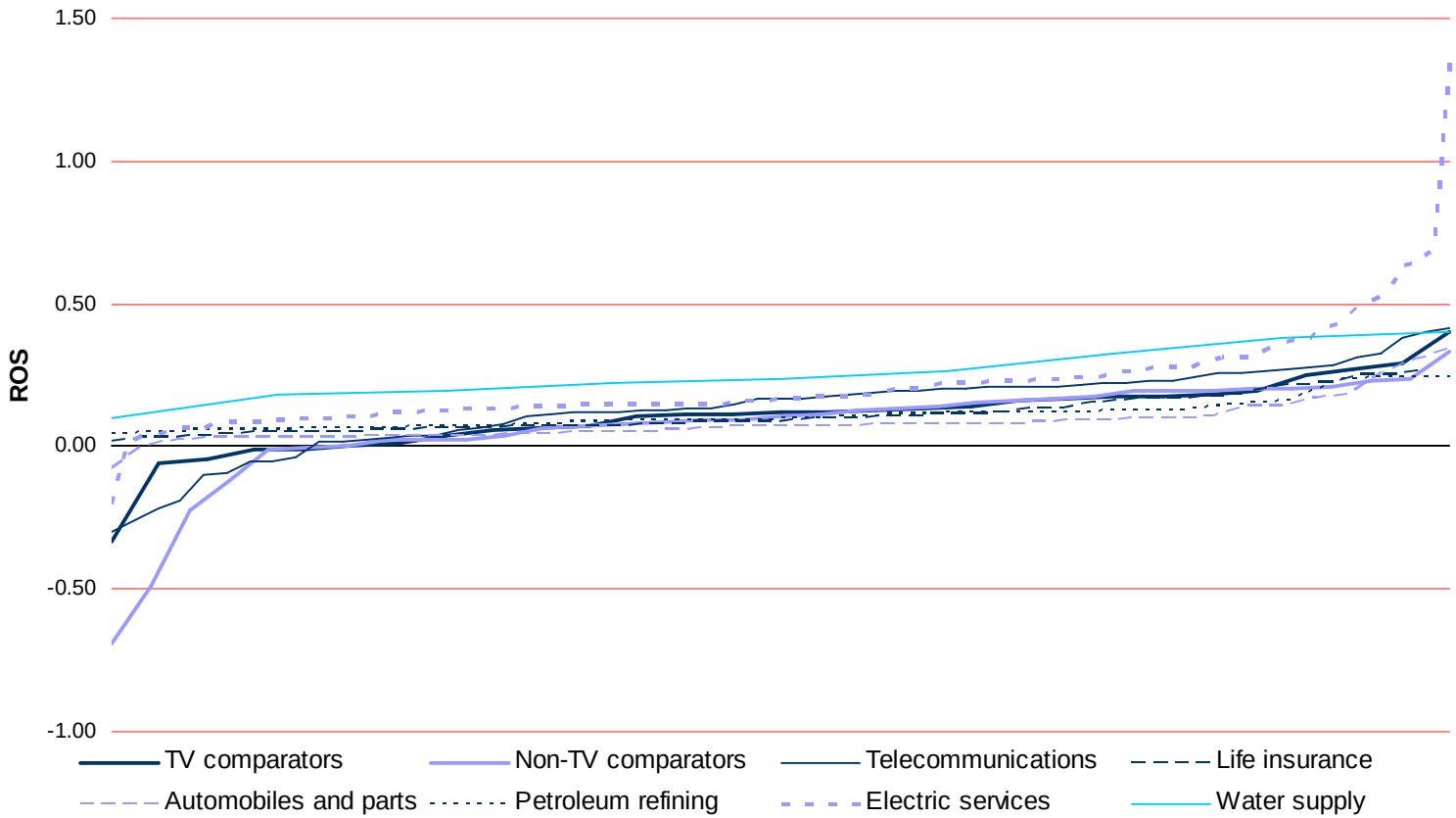
- The dispersion of ROCE within the TV comparator sample is similar to that of other industries.

4.2 ROS dispersion

Figure 2 presents the dispersion of ROS in Oxera's TV and non-TV comparator sets, compared to a selection of other industries.

Figure 2 – Dispersion of ROS

See notes on interpretation above.



Source: PwC analysis, Datastream, Oxera

From this chart, we note that:

- There is dispersion in ROS within all the sectors examined. The water supply sector has a smaller dispersion of returns than other industries, potentially reflecting price control regulation in this sector. Automobiles and parts also has relatively less dispersion of ROS, potentially reflecting that this is a mature sector.

- Most sectors (including Oxera's TV comparator set) demonstrate a similar distribution of dispersion, in which the majority of companies within a sector have a similar ROS to each other (i.e. small differences from the sector mean) but with a number of companies with profits substantially above or below the average.

- The "non-TV comparators" sample includes an unusually large number of large negative returns. The large number of companies with negative ROS suggests that it is inappropriate to compare the average ROS for this sample against any company, since negative ROS is unsustainable.

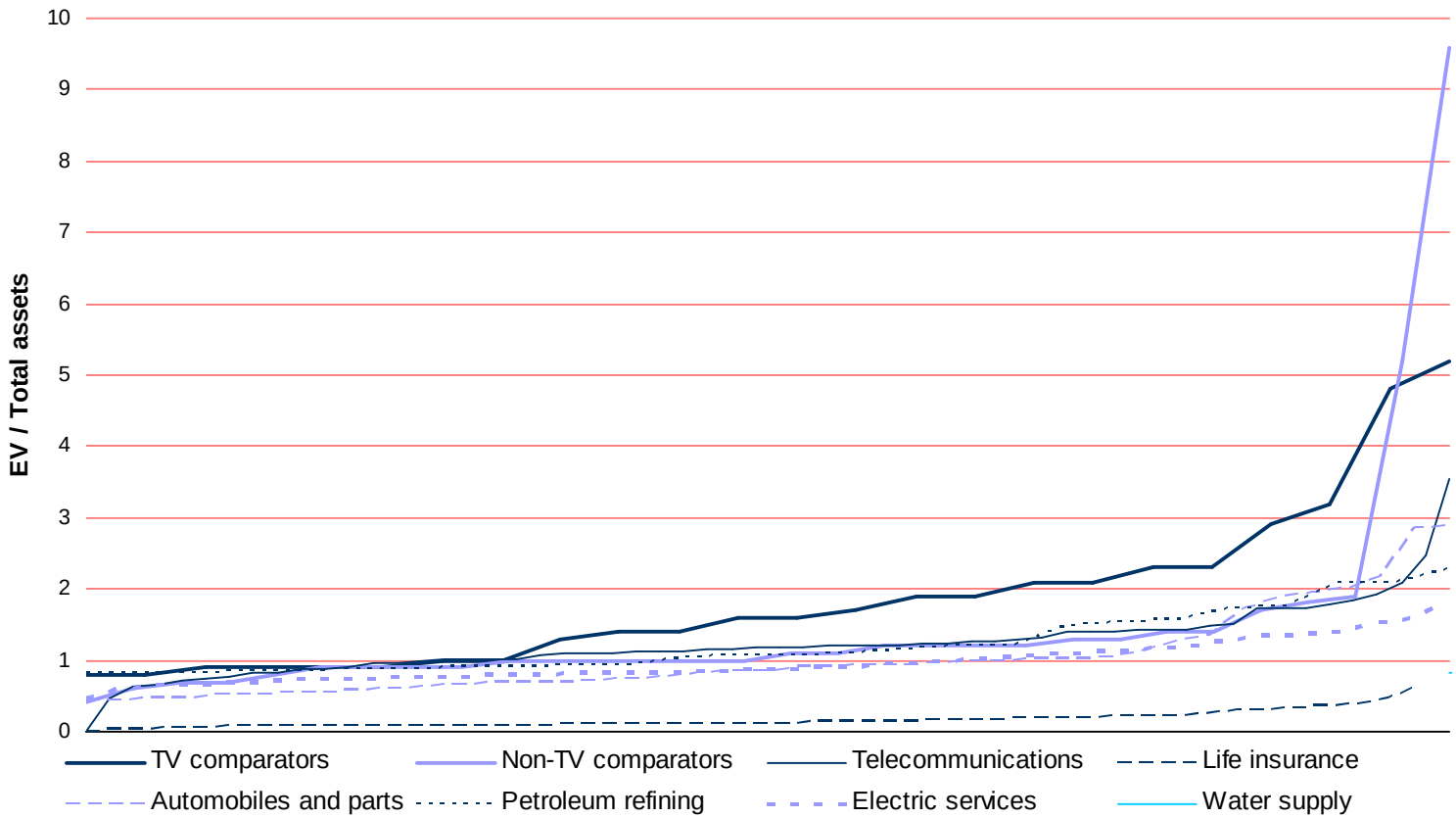
- The dispersion of ROS within the TV comparator sample is similar to that of other industries.

4.3 EV/Total assets dispersion

Figure 3 presents the dispersion of EV/Total assets in Oxera's TV and Non-TV comparator sets, compared to a selection of other industries.

Figure 3 – Dispersion of EV/Total assets

See notes on interpretation above.



Source: PwC analysis, Datastream, Oxera

From this chart, we note that:

- There is dispersion in EV/Total assets within all the sectors examined. The life insurance sector has lower returns than other industries, due to the high levels of assets held by life insurance companies.

- Most sectors demonstrate a similar distribution of dispersion, in which the majority of companies within a sector have a similar EV/Total assets ratio to each other (i.e. small differences from the sector mean) but with a number of companies with ratios substantially above the average and some close to zero.

- The “non-TV comparators” sample includes one company (Virgin Mobile) with a notably high average EV/Total assets ratio. The EV/Total assets ratios for the non-TV comparators are substantially lower than for TV comparators, suggesting that the non-TV comparators are a poor set of comparators for businesses within the TV comparators sample.

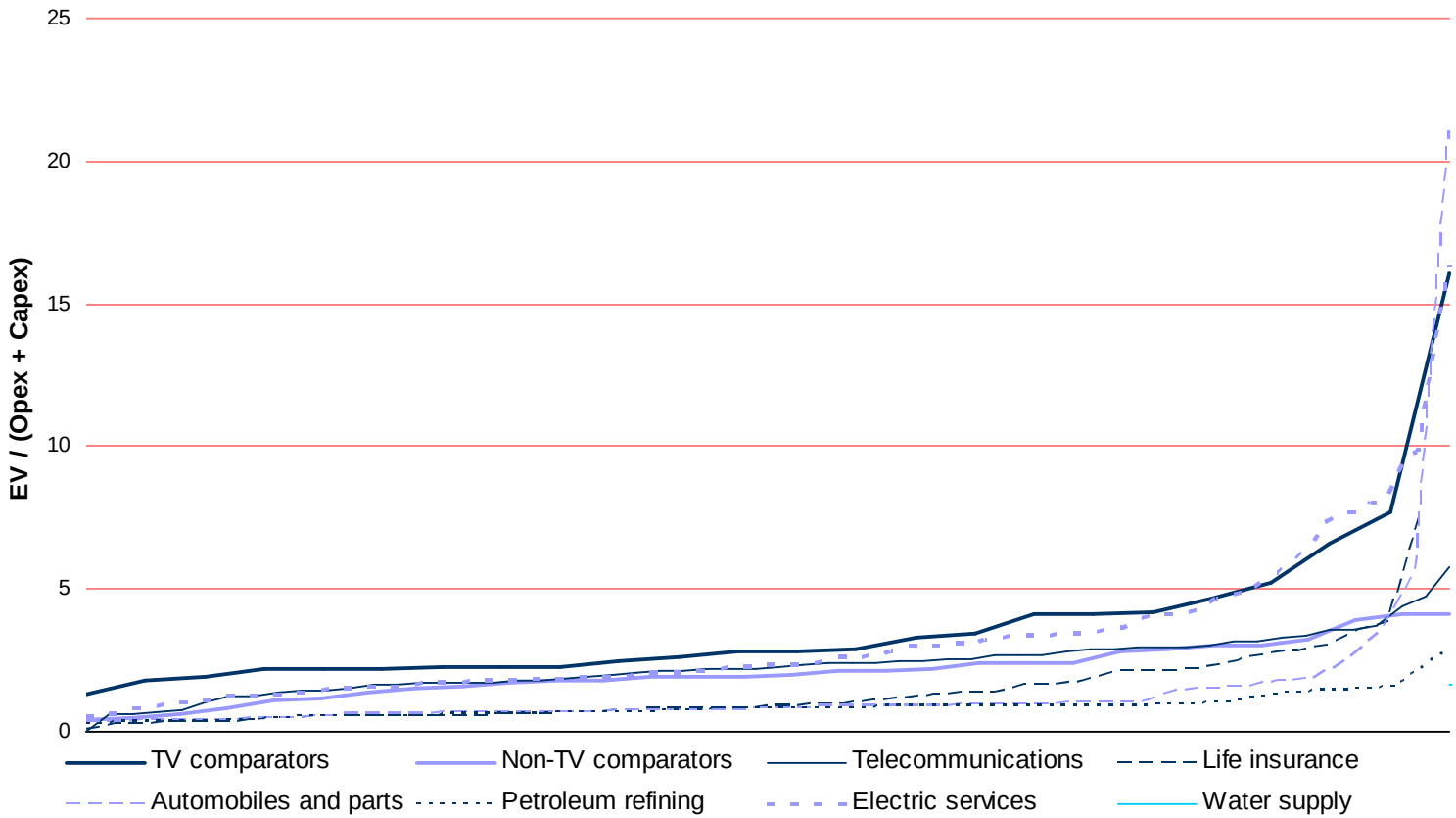
- EV/Total assets is substantially higher for the TV comparators than for other sectors, probably reflecting a high level of unmeasured intangible assets and low capex (“Total assets” is a particularly poor description of this denominator for the TV sector, as some TV companies invest heavily in assets which are not typically recognised in their accounts). There is a large dispersion of ratios within the TV comparators set (compared to other sectors). This is the result of differences between a large proportion of companies within the sector and is not the result of one or a small number of companies with a particularly high valuation ratio. This suggests either (i) that there is some characteristic of the TV comparator sector that means that EV/Total assets varies substantially, possibly reflecting differences in the incidence of the creation of unmeasured intangible assets, or (ii) that the sample may be poorly specified and contains companies that are poor comparators for the purpose of a valuation analysis based on this measure.

4.4 EV/Capex + Opex

Figure 4 presents the dispersion of EV/(Capex + Opex) in Oxera's TV and non-TV comparator sets, compared to a selection of other industries.

Figure 4 – Dispersion of EV/(Capex + Opex)

See notes on interpretation above.



Source: PwC analysis, Datastream, Oxera

From this chart, we note that:

- There is dispersion in EV/(Capex +Opex) within all the sectors examined.
- Most sectors demonstrate a similar distribution of dispersion, in which the majority of companies within a sector have a similar EV/(Capex + Opex) ratio to each other (i.e. small differences from the sector mean) but with a number of companies with ratios substantially above the average and some close to zero.
- The "TV comparators" sample includes one company (Liberty Media) with a notably high average EV/(Capex + Opex) ratio.
- The EV/(Capex + Opex) assets ratios for the non-TV comparators are substantially lower than for TV comparators, suggesting that the non-TV comparators are a poor set of comparators for businesses within the TV comparators sample.
- EV/(Capex + Opex) is substantially higher for the TV comparators than for other sectors (except for Electric Services), probably reflecting a high level of unmeasured intangible assets and low capex. There is a large dispersion of ratios within the TV comparators set (compared to other sectors). This is the result of differences between a large proportion of companies within the sector and is not the result of one or a small number of companies with a particularly high valuation ratio. This suggests either (i) that there is some characteristic of the TV comparator sector that means that EV/(Capex + Opex) varies substantially, or (ii) that the sample may be poorly specified and contains companies that are poor comparators for the purpose of a valuation analysis based on this measure.

4.5 Statistical analysis of dispersion

The coefficient of variation is a measure of the dispersion of returns within a given sample, equal to the standard deviation of a sample divided by the mean. An analysis of the coefficients of variation of the four profitability/valuation ratios used by Oxera demonstrates that, in general:

- The non-TV comparator sample has a significantly larger coefficient of variation than the other sectors for three out of the four ratios, and for the fourth it has the lowest figure. The fact that it is an outlier confirms our *ex-ante* expectation that it is a poorly specified sample of disparate companies from different sectors whose returns (on most measures) varied considerably in the period examined by Oxera. We believe that this reinforces our conclusion in our report "Evaluation of the selection of comparators used in Annex 9 of Ofcom's pay TV phase three document" that this group of companies forms a poor comparator set.
- The TV comparator sample has a comparable coefficient of variation to other sectors. To the extent that its coefficient of variation tends to be towards the top end of the range, it is by no means an outlier. It is the highest for only one of the four measures, and in no case does it differ markedly from the average. Furthermore, an examination of the profiles in Figures 1 to 4 indicates that, to the extent there is more variation within this sector than the others, this is associated with slightly greater general variation between companies within the mid-range of profitability – it is not associated with extreme outperformance by a company or companies.

Figure 5 – ROCE coefficient of variation

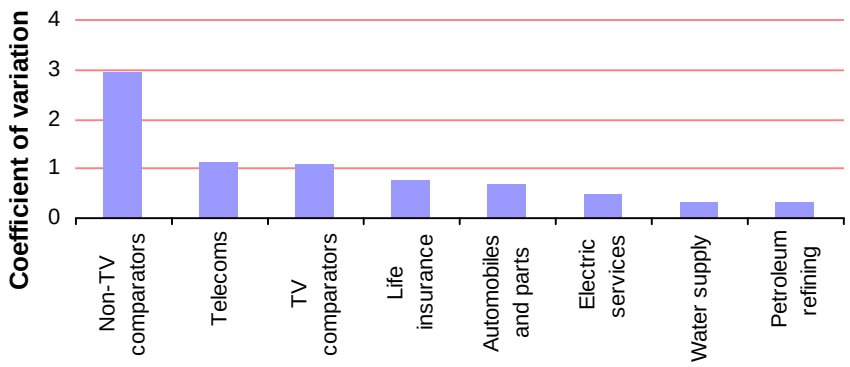


Figure 6 – ROS coefficient of variation

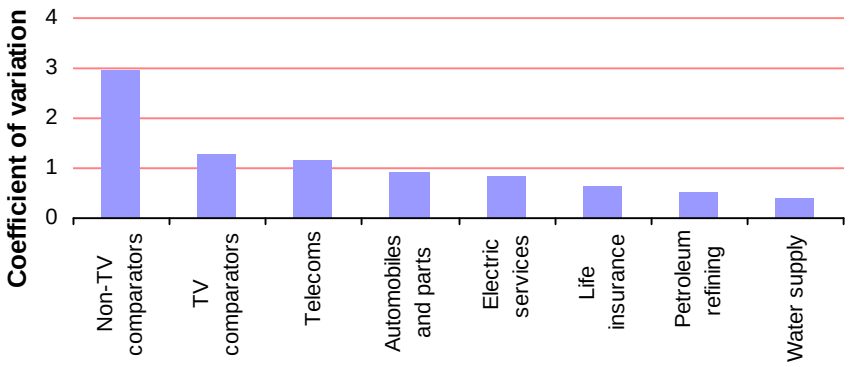


Figure 7 – EV/Total assets coefficient of variation

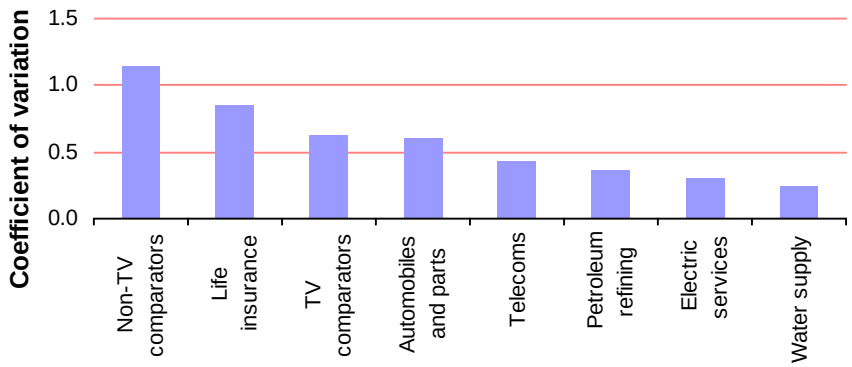
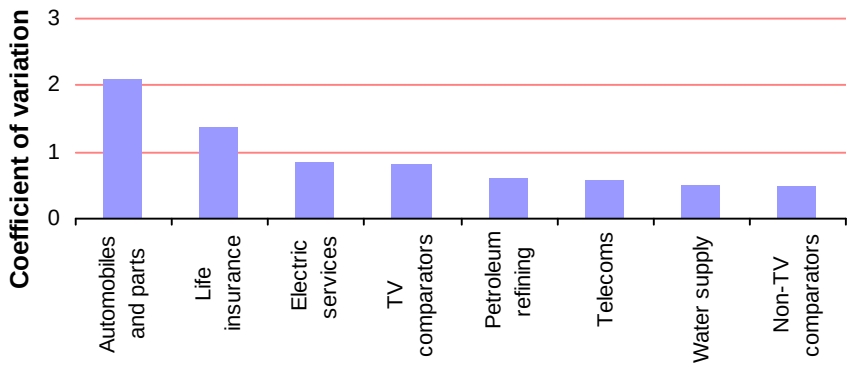


Figure 8 – EV/(Capex + Opex) coefficient of variation



Source: PwC analysis, Datastream, Oxera

5 Concluding remarks on dispersion

In our view the data presented above demonstrate clearly that:

- The presence of a dispersion of profitability or valuation (measured using ROCE, ROS, EV/Total assets and EV/(Capex + Opex)) is common across industries. Had Oxera's benchmarking analysis been carried out for the other sectors analysed here, it would also have found some companies to be substantially more profitable than others. Equally it would find some companies to be substantially less profitable.

- The non-TV comparators set exhibits a different pattern of returns from the other comparator sets, suggesting that it is a highly diverse group of businesses which makes it a poor comparator set for TV companies in general or for Sky in particular.

- The pattern and degree of variation in returns within Oxera's TV comparator set does not appear to differ from other randomly-chosen sectors. This suggests that to the extent that for the 5 year period considered by Oxera one or more companies earned higher returns than the average in the sector, this is normal and is not indicative of any competition problem.