



## **WACCy thoughts – an unconventional report on telecoms cost of capital calculations**

**A provocative discussion of some consulting issues to stimulate thought, rather than provide answers**

**April 2022**

File reference: WACCy thoughts 04042022.docx

Details: This is a discussion paper on how to deal with calculations of the Weighted Average Cost of Capital. NB this is not a tutorial or a conventional consulting discussion

Author: R Steele

No liability is accepted for the accuracy of information contained in this report or for any decisions made or actions taken by any party, as a result of this report.

This report need not reflect the views of any client of Telzed.

This report includes some comments and opinions that are designed to provoke additional thought and discussion. It may include items that need not be totally true or factual, but are included to stimulate discussion and thought

## Table of contents

<b>1</b>	<b>The need to define the Cost of Capital .....</b>	<b>2</b>
1.1	Background .....	2
1.2	This is an unconventional discussion and need not be entirely factual.....	2
<b>2</b>	<b>Thoughts on WACC.....</b>	<b>4</b>
<b>3</b>	<b>Conclusions .....</b>	<b>17</b>

Document history

Ver 04042022 Initial version

# 1 The need to define the Cost of Capital

## 1.1 Background

Almost all businesses need to understand the cost of capital, as that is a vital part of measuring and achieving the economic costs over time. Does the profit exceed the cost of capital? If not, it is value diluting, and you may be better off putting the capital investment in something else.

The cost of capital defines how expenditure (and revenues) are weighted over time – an expense due next month is effectively more costly than the same expense made in two years' time. This is elementary business economics. Brealey and Myers<sup>1</sup> is a classic read for those wishing more study.

The essential need is to define a *cost of capital*. There are different methods to define it. A reader can look at these in the literature. They also crop up in telecoms costing work – which is often centred around telecom regulations. The cost of capital value is a critical input to cost-based price controls or evaluations of excessive profits. For at least 30 years telecom ministries, regulators and operators have defined ways to determine the cost of capital, and then how it should be used. Probably the most frequent approach to define the cost of capital is based on the *weighted average cost of capital* (WACC). This is the focus of this Telzed report. Cost of capital and WACC terms are sometimes interchanged, even if this not strictly correct.

WACC is usually based on a deceptively simple formula. Most parties agree on the formula, though variants exist. But how the parameter-values are defined is subject to remarkable differences, even when a seemingly similar approach is followed.

In this Telzed report, we examine only some of the many issues that may be seen (or heard of, or maybe even made up!). These are included to help readers understand the key factors, areas of dispute and problems that arise. This report does not examine the detailed method or the basic WACC formula. A reader is assumed to be familiar with this or else many learned papers discuss the WACC and cost of capital – often seen on national regulators' web sites, typically as part of a public consultation. Please refer to these and the submissions by the telecom players, to better understand the essential parameters and so appreciate the economics. This helps to understand why the figures are so often subject to dispute.

## 1.2 This is an unconventional discussion and need not be entirely factual

This report provides a discussion of ideas and thoughts to help WACC-related projects. This is not a guide to WACC principles or to the economics. The unconventional approach aims to help the reader step back and appreciate the wider issues and the solidity of the values.

---

<sup>1</sup> Principles of Corporate Finance. Other such books and papers exist

Key issues to be addressed include:

- Why WACC calculations differ, even if the same formula is used and seemingly similar methods are used to define the parameters
- What are the aims of the WACC (or other cost of capital definitions)?
- Does the value matter and how solid is it for the decisions to be made?
- Why is it an unending project? WACC updates seem to be needed every few years
- Why have WACC values altered over time?
- Does it matter?

The discussions in the following should help those involved in WACC, telecoms regulation and business modelling to appreciate some of the issues and the deeper thinking required.

## 2 Thoughts on WACC

The following provides a diverse discussion on WACC related issues. The order is not significant – the subject matter deliberately jumps around.

The WACC formula is simple! We “just” have to define a few numbers. Perhaps the simplest is the debt/equity ratio. Almost every company is funded by debt and equity, the values of which are known from the accounts or in a business plan. Simple. Perhaps not.

### Debt/equity ratio

A basic follow on to the debt/equity ratio is that debt financing is usually cheaper than using shareholders' equity - borrowing often has low interest rates and taxes on corporate profits do not usually apply to the debt. So more debt is a cheaper way to build a company. But, at some point too much debt raises worries and increases risks. Few readers would want to put all of their pension investment in a company that is 95% based on debt bonds. Why did so few shareholders put up their money?

So somewhere there is an upper limit of the debt percentage.

Options start to arise:

- Use the company's actual debt/equity ratio. Often this value known for the incumbent telco. Sometimes also for other the players
- Use the competitors' values as they may be more subject to market and competition pressures
- Use an optimum value. If so, how to define it?

So the simplest parameter starts to cause disputes. Often WACC is needed for fixed and mobile or maybe access and core sub-businesses. How to define these values from an integrated operator? Some operators do not have accounts by country, so an international player has a known debt/equity definition but what value is relevant to each market?

What if an operator is almost 100% equity funded? It may be highly profitable and has no need to borrow money. So this high profit business is “rewarded” by higher regulated returns as the WACC is higher than optimum. A theoretical more-optimum ratio can be used (which lowers WACC) but the operator may have no intention to follow that route. But what ratio is the best to use?

A formula might be used to adjust the debt risk as the debt percentage gets beyond some value. What value and what formulae? Should that high debt be tolerated as the attitude to the related high-debt risk might change in a few years?

So even a simple parameter is rarely agreed upon. Debt risk free rates can even be disputed, risk premiums even more so.

Equity cost values often become a major problem – the national stock market may have few companies and maybe only one or two (or less) telcos. How to use other country-data and convert it to the national market?

So the work is complicated and open to alternative views. Financial consultants and economists just love this type of project!

## What to apply the WACC to?

The WACC is normally applied to the company investment – assets that are bought with the debt and equity. Assets also includes net working capital, needed to pay invoices in the near future and to convert into more assets. Again, simple.

What happens if the telco has made lots of profits and has huge levels of working capital? This seems unlikely to many telcos and investors who see the telecoms markets under strain (look at the share prices of major telcos). But it is seen. So the WACC provides a notional return on cash in the bank and accumulated profits. This is a type of double-dipping, where a telco gets a return on profits [returns] already made. So the application of WACC needs to understand the telco business and decisions are needed on what is a reasonable level of working capital.

Readers might also contemplate how some operators can run with almost zero or negative working capital and others have more than enough for maybe six months of operations without any revenue.

So the relevant capital base to apply the WACC to, matters.

## Efficient capital base

The above working capital levels show how some operators run with large cash levels and other are (arguably) more efficient as almost all investment is in the network and business operations. This inevitably drifts into the issue of efficiency.

Apply the WACC to what is in place, or to what will be in place or to what should be in place? If a telco bought excess equipment and has triple redundancy for every item, it will cost more. If it gets the WACC return on this, then excess profits follow compared to an efficient operator. Although competitive market forces tend to result in efficient operations (assumed in many countries such as UK/EU), this is not true everywhere.

So what capital base is to be used to apply the WACC to? Based on past investments, optimal investments or future investments. Efficient/optimal structures or realistic investments *given the national situation and the past history*. Few operators can migrate radically to a theoretical optimum asset base without additional costs. History cannot be un-done at zero cost.

The asset values have to be calculated. The historic investments (in the company fixed asset register) or current cost accounting values of the assets or the future asset structures. Should these assets be based on optimal efficient structures or realistic designs? No network is perfect, and no agreement on perfection will exist between network engineers/designers. Aside: a consultant with a few pages of Excel should be careful about a claim that this shows the engineering department were idiots, as the Excel asset base and design is 50% of the real network.

If the venture is prior to launch, then of course future estimates must be made. This might give better (optimal) designs but may add the risk of “making a network in an Excel business plan” rather than the efforts of a team of 100 planners and designers. The Excel business model is not invalid, it just needs quality modelling, calibrations and an understanding of the

strengths and weaknesses. The latter imply the model itself has some risks – likely shown in network design scenarios under different engineering design factors such as resilience or demand variances. Future equipment price trends and variances are also factors that give upper and lower limits to the capital base. In turn this alters the total costs, and hence required prices and the market share. Does this in turn alter the risks? Higher costs mean lower margin and so a higher risk of company failure if the margin cannot be achieved due to competition effects.

## **High WACC is good, low WACC is good, high WACC is bad, low WACC is bad**

Any (?) consultant should be able to argue for every option. It depends on the needs, situation and desired outcomes. No surprise should occur when different parties have diverse WACC values. Could the calculations in a submission ever be biased to the business needs of the operator, and are not “a professional neutral calculation based on best economic theory?” As if...

Look carefully at the WACC submission – who funds it? What is their desired outcome? Could this impact the choices in calculations and chosen parameters? Look at the disclaimers from any third-party consultants and the basis for the “seemingly independent” economist’s report. Is it independent?

The attitude to what is good and bad depends on the required decisions and strategy.

## **Using WACC to alter prices**

Defining WACC is based on business economic factors. It is often used in price controls or profit evaluations. Could, *how it is used* ever influence the choice of parameters and the calculation. See above notes on different views.

Regulators often consult on the WACC. Not too long ago it was common for WACC to be well in the teen-percentages or even more for mobile players<sup>2</sup>. Higher WACC was also seen for mobile than for fixed. Operators buying cost-base wholesale services must pay the WACC on the service’s assets. That is usually deemed a fair profit (read basic economics books or regulatory papers if needed). WACC is a factor in the price. So the buyer may argue for low WACC, the seller for high WACC<sup>3</sup>.

A regulator once consulted on the WACC, which was then high. Most alternative new entrants argued for a low value. Incumbent players are rarely popular in these debates as they were deemed “nasty inefficient players trying to restrict the new entrant competition.” So a regulator could make itself popular by declaring a low WACC. This helps with low wholesale prices to the alternative operators. No doubt in some countries this might lead to a good outcome later on for at least some of the new operators.

---

<sup>2</sup> Values over 30% have been seen – not every country is as stable as say European and other stable developed markets

<sup>3</sup> This author has seen subtle games where the incumbent seller realised that *lowering* prices and/or lower WACC was beneficial in the long run. If you cannot think of reasons why, then ask, or perhaps strategic aspects are not for you

A meeting was held by the regulator to discuss low WACC and if telecoms was actually a low-risk safe utility type business needing low returns. Arguments were provided. You can speculate what most alternative new entrants (who rely on wholesale services bought in) might have said. The CEO of an alternative fixed operator stood up and said, "If I knew we would only get 7.5% return, which is the low cost of capital proposed by some, then I would not have bothered to set up business."

The WACC is often an industry return, not always specific to one operator. An incumbent may be deemed a low risk. All players in the market will in the longer run be driven towards the similar WACC. Biased thinking creates a danger. The outcome in the above debate was that WACC values did not get radically reduced by the regulator. The alternative operator still went "Chapter 11."

Low prices can be forced by other regulatory means. Low prices are good, low prices are bad... It depends on the viewpoint and the desired outcomes in investment, competition, short-term or long-term gains etc.

### **Disputes are normal**

Even if the formula and method are agreed upon, the calculated WACC values are often different depending on the party. The financial impact can be large, depending on the use of WACC-based prices. Voice interconnect prices were calculated this way and it was a huge part of many operators' costs (and incomes). Disputes were common as the value was a key input to the cost (price) calculation. More recently voice has reduced in impact – broadband data now dominates the business cost as it drives the majority of network capacity and the asset base. Voice calls are often less significant in number and anyway payments tend to balance out (in and outbound).

Many wholesale services such as broadband access or transmission capacity are regulated to be cost-oriented. So the WACC impacts the costs to the buyers and so the WACC can still be a major part of the business cost calculations. Further, it has a deeper impact on the long-term investment plans, retail prices and strategies. This is more profound than a few years with slightly more or less fees for wholesale prices. Both buyer and seller are pulled to a common WACC. So "beware of what you ask for (low WACC and low prices), as that wish may be granted<sup>4</sup>."

One party calculated a WACC of 10%, and the other party 15%. No surprise that arguments started: "Your consultants are wrong, ours are right." "You do not understand the implications." Escalations can be threatened. Arbitration gets mentioned. One party set a meeting – chiefs only, no analysts, specialists or consultants. "Can we agree on something sensible? Please have a cake with your tea." Could this ever result in a handshake and 12.5% accepted by both sides?

### **Use your independent expertise**

A consulting firm received a letter: "We see your reputation and expertise in WACC. We need a calculation backed by the reputation of your firm for quality independent analysis. This

---

<sup>4</sup> Fairy godmother economics



should show a low WACC.” Double luck, the same day another party sent an almost identical letter but asking for a high WACC. A bid meeting was called:

- Can we do both with Chinese walls or waivers?
- I have lots of experience on this, so the method should include factors X and Y
- Which has the most potential for follow on projects?

After a rich discussion, one person piped up: “I think we have to decline both requests if they are based on the request for our independent analysis to give the desired result.” Why? If you struggle on this, please do not ask Telzed to be your business partner.

Similar to this are requests such as:

- We want the WACC to be in the lowest quartile of EU benchmarks
- We want the cost model to show costs or prices in the lowest quartile of benchmarks.

This sort of thing does happen, perhaps at the start of a project. One consultant's reply resulted in it never being mentioned again. The client respected the reply. What would you say to such a request?

## **Risks are for a market but some players are more equal than others**

WACC is often set for all of telecoms or defined sub-markets. Fixed and mobile, or access and core. A current focus is on regulation and price controls for fibre to the home (FTTH). So a WACC for FTTH is relevant to a new technology that, in many countries, has only just taken off. Inherent in business risks are the potentials for better than WACC returns or lower than WACC. On average a business is successful if these different ventures average out to give the desired return. Every venture is not perfect and subject to some similar factors (demand uncertainly, uncertain competition impacts, tolerable market prices, technical cost trends etc). Perhaps not included are the rather too numerous totally stupid investment ventures made by telcos. Fortunately, these rarely destroy the company (but that happens). Should these be deleted in any analysis, as we should (?) consider only rational management and investment, not plans and failures dictated by one CEO's deluded dreams?

As little or no historic returns exist, what are the real risks and sensible returns for FTTH? Are they the same as the average for a fixed operator incumbent or the entire telecoms industry?

A big issue with FTTH is that failures are now very likely. The technology choice is still correct. Nothing has the capacity and long term capability – it was seen as the “the way” over 30 years ago. Readers may consider why it has taken so long to even get properly started in so many countries when Japan and Sweden commenced c20+ years ago. This is useful to fully understand the business economics, strategic thinking, technology and regulatory factors. Perhaps this understanding is essential for leaders and advisors.

There are too many FTTH operators in some countries, so failures and/or consolidations are inevitable. What percentage of players will fail? This makes a 12% assumed WACC to cover this, rather doubtful. An investor may get say 10-15% and generally could be happy. But there can be a one in three chance that the company goes Chapter 11. This potential *is high*, and the investment is likely to be almost totally written off (think, and the reasons should be obvious, else: look at history). An incumbent fixed operator is very unlikely to fail, though its FTTH venture might also not be so good, with low returns. FTTH is then part of a portfolio of projects. But an FTTH builder may be 100% dependent on that one plan. History will likely

show this in the likes of UK<sup>5</sup>. So the risk underlying a WACC calculation is not the same for most (small) new entrants as it is for the incumbent operators.

Consider: company specific risk versus market risk. Making just 10% and not a 12% WACC for a venture among many ventures is not a disaster. But if the entire business is in FTTH, the investor may get 10-12% or more return, or almost nothing<sup>6</sup> if it fails. An average of many ventures is perhaps not appropriate. Alternatively, the investor takes the hit of losing almost everything, but it was also making many other telco-venture investments in a broader portfolio.

A single FTTH-only business is not a diversified portfolio. A major fixed integrated mobile operator *can* be diversified within the telecom market. This raises the questions about sub-markets and WACCs of say just mobile, or just fixed or just access (including just FTTH). That FTTH-only *sub-market* may not have the same cost of capital as a single *FTTH-only business*.

## **Avoid making WACC based prices and regulations**

Regulators like to regulate. Attendees at courses on cost/pricing/regulation, run by this report's author, likely had a discussion on *not* regulating anything and then only acting on major problems. Minimal regulation. Other countries regulate everything and later reduce some regulations. Which is best for your situation?

Regulatory plans or threats can imply cost based (WACC) prices. But this could lead to the wrong pricing signals and so some do not invest. Why risk high FTTH investment if wholesale resale might be enforced later<sup>7</sup>? Especially if resale prices are possibly based on debatable cost modelling and WACC risk factors. No doubt this led to some operators *not building* any FTTH, or choosing a broadband technical approach that disabled any unbundled access. Others think the future FTTH should be priced based on cost models and an industry-wide-WACC or just possibly a FTTH-specific WACC.

No correct solution exists. That depends on circumstances, desired outcomes, the quality of the analysis and the decisions to be made.

One solution was to set the FTTH price controls based on existing broadband services. They then anchor future prices. If known and if regulatory certainty (less risk) results, then returns can be defined by the investor, knowing what the price controls are. This works if the anchor prices are above WACC based returns and likely costs. It removes the unknown outcome (and risk) of later regulatory intervention. This is a case of higher prices helping with the primary need in most countries – to get the investment made. Regulatory uncertainty and risk are avoided. This also avoids the need for “heroic” cost models that the industry must then effectively pivot around.

---

<sup>5</sup> There are >70 new FTTH builders. It is reasonable to expect some to fail, and when this happens most of the investment is lost. “Fire sale” telco’s assets are often close to worthless – almost unrelated to the accounting values and investors’ input

<sup>6</sup> Those who have been involved in “fire sale telcos” will know this. This report’s author has seen c5-10%% values placed on assets. One FTTH failure resulted in the entire c100million investment being written off

<sup>7</sup> The buyer gets the benefit of pre-existing services that were a found to be a success, after the investment was made. The investors acted without this hindsight and arguably took a higher risk

## Cost models need a WACC input

Making cost models and analysis tools for operators, regulators and investors is bread and butter to many telecom consultants. The WACC definition is usually a separate project, and the modellers just insert the value given. Another team defines the value. A regulator often defines the *regulated* WACC. Other consultants do it or it is done as another project.

In one project on cost modelling, a telco submitted an unsolicited WACC report. Over 200 pages with detailed analysis in annexes. The “thud factor” was passed (remember documents were once all on paper with bindings, company stamps and signatures). The costing team of course looked at it.

The unknown outcomes were: could anyone at the client sponsoring the cost model *really understand* this? Would they read every page? What could it be compared to? Would 25 pages have been more powerful? The consultants managed to keep a review of the WACC analysis out of the *costing* project and the client still had to decide on the input value to the cost model: using its own or other analysis. Was that input allowed to be influenced by the submission?

## WACC is not a price control, but it affects prices

It is often hard to separate the issues. Ideally WACC and price controls are compartmentalised. But workers in this field need to understand the issues of both and how they relate.

Prices need not be set at WACC based rates. If efficient competition and investment is desired than WACC based prices may be best. Often other prices are set. Many other factors are used: Short term or longer term outcomes. Service level competition or competition based on investment in assets in the lower layers (cables, towers, switches) rather than competition in retail branding and customer service, which is often based on bought-in services that are then re-sold. So the market outcomes and bias to infrastructure or service level competition, is shaped by regulations and related prices.

Pricing can consider many factors. Strategic thinking is required. Market understanding is vital.

One regulator had a WACC set after a large consultation. Regulatory accounts were robust and were used over many years. The regulator was strong on the principle that competition would be the best way to decide on the market outcomes. If competition was insufficient, then regulated efficient WACC based prices would be enforced. Yet prices were allowed by a regulator to be above the WACC level for many years. Other operators complained. Why?

Readers should be able to think of several reasons both for the complaint and the regulator’s position. Protection of incumbent’s employees or shareholders’ dividends are within the options list. Making prices low is good in the short term, but will this allow prices to rise later for future new investment for modernisation (including fibre)? Super profits (>WACC) can help with investment by all parties. So what is the real aim of the ministry or regulator? They have to think strategically and have a deep understanding of the market, telco management, technical trends, cost structures etc.

In one case, an above-WACC pricing was allowed so that future FTTH moves did not require broadband prices to jump back up after being low. Old assets like copper or ducts may have very low values (heavily depreciated), so applying WACC (even if high) to them still results in a low cost-calculation. This price regime (above WACC returns on old assets and

technology) gave super profits to the incumbent but sadly did not result in rapid fibre building until many years later – the regulatory aims were valid but did not get fulfilled. The reasons for this can be debated, but readers should be able to guess. So *how* the WACC is used and what the future asset base will be, are factors to be understood<sup>8</sup>.

Pricing is rarely as simple as “setting it close to efficient future cost, with WACC based returns and an appropriate contribution to the common costs.” Which certainly is a good logic and has been successfully/widely been used.

Should WACC be adjusted to help give the pricing outcome desired, or how else should pricing be done? The choice should be clear, in most cases even if the best price method is less clear.

## **Regulate WACC or prices to give low returns**

At a cost/regulation/pricing conference a regulator asked over coffee what I thought of low regulated prices for a key wholesale service. “Lower than WACC was not a big risk issue, as many ventures do not do well. “S\*\*t happens in business,” he said. “So an operator cannot expect everything to be profitable and give WACC type returns. Some ventures do less well.”

Think of your reply to a proposed decision to regulate and force a low profit and dilute value to (say) help other operators or consumers. What might investors say if they heard that was under consideration? Is this crossing the regulatory Rubicon or is it totally reasonable? This approach can be separated from some social tariffs and universal service obligations that cause low prices for special customer groups – these *are* widely seen as sensible in the right situations.

## **Past not future**

Calculations usually use historic data or maybe current interest rates. This is an *ex poste* view. The application is for future controls and future economic costs, an *ex ante* view. Were the past measures representative for desired future returns? Were past markets of the right competitive structure that is expected or desired in the future? This could result in the application of a non-competitive return. Too high if there was a lack of past competition or too low if there needed to be a technical step change with attendant high costs (low returns) in that measurement period.

Perhaps a new entrant or strategic decision (or mistake) caused a price war that reduced margins that are not long term sustainable. The low returns, as actually seen, may be used to set an overly low WACC.

Could operators ever make a major mistake and price too low and go out of business? Could regulators force an overly low return market, say by using non-sustainable regulated retail prices or wholesale prices for re-sellers? As if...

---

<sup>8</sup> A variation of this was seen when the EC dictated that old copper can be costed using any asset base and calculation model so long as the outcome was a cost-based price of €8-10, per month. This was partly nonsense but also sensible as it ensured copper values and copper-based services were not priced very low, as that would make fibre investments very difficult. How to sell any 100M fibre versus very cheap copper DSL at 10M, when that was still an adequate speed for most premises?

## **WACC in emerging economies**

Some investors focus on emerging markets. These can have wildly different risk factors and hence different WACC values to established markets. There may be little stock market data that is useful. The market is subject to factors that are not part of a normal WACC economic analysis.

One investor said of its plans:

- One venture might fail
- One might just about make some money
- One might get nationalised or stolen by the government
- One might get destroyed in a coup or civil war
- We hope one will make decent money.

So the business risk evaluation needs some wider issues to be thought about. How would you combine the above, with other factors, to define the business WACC for evaluation of a business plan?

## **What are the risks from strategic decisions and the business leaders' ability?**

A telco makes many investments, and some succeed and some fail. Free markets mean that competition kills off the poorer ideas. On average the business will hopefully provide a WACC return. But what if the decisions to invest in certain ventures are based on CEO's view and not a balanced diverse portfolio of likely winners or losers. In more recent years many telcos are arguably more concentrated in just a few primary services. Some have also entered markets that are surely far more risky, and/or are not in the familiar home markets, of telecoms.

Dangers and failures should have been obvious for some decisions and beliefs, "I am a CEO so I am smarter than the likes of Richard Branson and Rupert Murdoch." Most consultants should be able to list some ventures and thinking that should have been seen as suspect, at the time.

The logic [*sic*] in some major decisions is arguably not part of the diverse success/failures that gives on average a decent return. The risks of some such ideas are huge. Any one of these ideas can (and often did) fail. The decisions are arguably not based on totally solid data with sensible risks evaluations. It is a strategic decision based on a few managers' views.

The risks and WACCs of these individual ventures could be evaluated. But most WACC is based on a wider view of the industry and with little segmentation to smaller sub-markets. But if decisions are not rational and balanced over different ventures, maybe the inherent risks are much higher. Can a factor be added for "dubious CEO prone to vanity projects?" In the long run this will get shown up in the share price. Major falls of some telcos have been seen, when it was once seen as a relative safe expanding high-tech-centred business with some utility aspects including it being an essential service. Remember how mobiles were seemingly "the future" and made big returns? Even to the level of the amusing belief, by some, that fixed networks were doomed. Hyped up predictions (and hopes) for some ventures seem to differ from reality. This is surely part of some share price falls – the real returns are seen to be lower than what optimists (or fools) predicted.

Telecoms technology always develops - change is the “normal.” Example: look at the c30% annual traffic growth, that is an almost permanent feature of the business. Who invested on hype and thought the future returns would be better based on this? Traffic growth is not a prediction of profit growth. In fact total revenues and margins are often almost static or even fall, despite the huge traffic growth.

Maybe a more sensible view than speculative ventures into TV content or services already supplied by internet giants, is to focus on the telco’s investment in infrastructure. If sensibly chosen, then these will almost always be needed. So ducts, cables, masts, core transmission, sub-sea connectivity etc will always be sound physical assets that can be re-sold and the demand for which is likely to remain or rise. This is reflected in some telcos’ recent focus. See the many mast deals or the building of FTTH – such assets get built then bought, leased or sold. They are physical entities, easy to define and manage and the capital values are relatively easy to define. See also the major internet content companies’ investment in sub-sea cables. Risks are not removed but maybe a more reliable 9% return is a better risk than a 20% return from some speculative (hyped?) service that connects autonomous cars to road accident reports and maps<sup>9</sup>. Certainly the car venture can be sensible if one accepts that the implied risk means a fair chance of a zero return (Chapter 11, if based only on that service). That type of risk is potentially not within the economic analysis of such ventures and the calculated-WACC that was needed to compensate for the risk.

Some services and ventures do not exist so real returns of a market that does not yet exist are speculative. Perhaps a WACC prediction needs to be based on sound experience of the industry and also needs a sound sanity check of the managers, the market and technology.

There were ventures into satellite phones some 20 years ago. Many failed. High risk, and we should salute the effort and technical developments of the day. Failure is not a terrible outcome, so long as the risks were understood. Failure *is a good outcome*, as without that we would not benefit from the successes<sup>10</sup>. Did it really pass the sanity test? Hindsight was not needed. Just think. The author of this report was (and is) an international consultant who then had large mobile roaming bills, and suffered from poor mobile performance depending on location. Older readers will remember “I will call you back on a fixed line” – mobile was far from a fixed substitute and a possible satellite alternative was appealing. All calls were on expenses (>\$500 per month bills were then seen by some consultants and business

---

<sup>9</sup> Higher return implies higher risks. Investors are aware of this. A possible problem is when investments focus on the one venture and the expected returns do not reflect the real risk. Or the investment is not diversified. Does anyone really expect big profits from an app like this? It is included here as a mildly humorous example. You can just use the Internet over 4G (or WiFi) for this and many 5G ideas “that will be transformative.” Spot many 5G-specific-service unicorns? But it does provide good additional capacity for basic mobile broadband data

<sup>10</sup> This is a subject worth further discussion. New ventures and technologies often have failures. Some develop and then succeed. A division may be made between worthy ideas that *could* have been successful, given reasonable assumptions but it did not work out. All plans have uncertain assumptions. Yet other plans were far too optimistic, and investors should have seen the dangers. There are reasonable/honourable failures and “stupid” ideas. We should applaud the honourable efforts. Consultants could benefit from listing past failures and placing them in categories: worthy plan, but market or some factor was not right; risky plan but almost succeeded and so was worth trying; a plan with high risks that were seemingly not understood and failure *should* have been predicted; vanity plans backed by a few individuals or by management whim. Note that some poor ideas get copied (lemming outcomes) so popularity is not proof of low risk. There is a separate category for past plans that were based on almost totally false assumptions and data that verged on fraud: like such as “revenues that will follow traffic volumes.” Was that a fraudulent claim or was it just fools (investors) easily parted from their money?

travellers). But the satellite rates were *much* higher than even the high mobile roaming prices. Also, almost every consultant (and other international business worker) is located in the capital or second city in a country. This usually already had mobile signals and roaming.

This report's author did not consider a satellite phone for more than a few minutes, yet was surely a natural market target. The market was for the few travellers who need connectivity in any country and any location, but can talk out of doors (needed sometimes to get a satellite signal) and would pay huge fees per minute and are often out of the main cities. Such business users will also have a normal GSM mobile, so substitution was unlikely. At that time handsets were a big issue – Nokia phones were cool/desirable. Satellite phones were anything but cool. Adding the factors *at the time*, need one be surprised at the outcome? Did it pass a sanity test? It was a good idea and rightly did have a *niche* market. The idea of a huge satellite phone market was surely speculative. Just because huge areas or huge populations have no coverage it is not a reason for taking a service<sup>11</sup> if the price is untenable. Of course to get the economies of scale, given the high launch costs etc. at the time, a plan probably had to assume this large market. Over optimistic?

So WACC is subject to special risk factors in some ventures. If the venture is not credible to an even slightly cynical reviewer, then it probably is not going to fly, or the chances are low. So a one in ten win-chance is perhaps part of the evaluation.

Telecoms is a complex business. Are the leaders and decision maker really knowledgeable on all of the regulatory, market, technical, customer and business complexities? This is not in a WACC formulae.

A fashion seemed to be that a CEO from general retail is what is needed. Or from TV. Anything but telecoms. “Telcos are like shops and just need branding and a focus on margins.” Can this impact the risk factors and how might these include the suspicion that the CEO's strategy is not entirely thought through and no one in management remembers the past failures and lessons?

## Two economists mean three opinions

The cliché is still partly relevant. WACC and business modellers may believe their method to define the parameters is solid and the best possible. The problem is that other teams follow similar thinking but almost never come up with the same value.

Even one team or one analysis will often produce a WACC value, plus an upper and a lower value. So decisions are based on a range of numbers. Clearly any one number is often not totally solid. Can the decision maker evaluate the solidity of the numbers and likelihood of values being higher or lower than the mid value? Assumptions have to be made on the parameters. How sensible are these?

Things get better if a separate party with *different strategic aims* comes up with a number and range that overlap with the other party. But this might not happen, if all parties have inherent

---

<sup>11</sup> This remains a huge global problem. Huge numbers have little or no service. The ITU has been trying to help. Some valiant efforts have looked at drones or balloons to get a service to the unserved. The demographic, technical and economic factors are complicated. Telzed (author) has assisted in getting services to the unserved. Please contact Telzed for further help or discussions

bias. How then to decide which one to pick or how to average the numbers. Are *any* really robust?

Upper and lower ranges are good for insights. But what is the probability distribution? Are values within the range considered to be 90% or 30% likely? More than just a number is needed – some confidence factors are desired to show the relative solidity of a calculation.

## **Maybe WACC does not matter**

Price decisions or investments may be based on many factors. Prices can be set well above WACC based costs. This can be to achieve other aims, like to encourage investments or reward the telco (look at who owns the telco, as this just might be a factor). If prices are set this way, then the WACC is not very important.

If the WACC is the return expected for an efficient business in a competitive market, what if the reality is far from this? Some telcos are not pressured by competitive forces, or were not pressured so, until recently. The investments are distorted by political or historic decisions. So why apply the WACC to this asset base?

Costs used in decisions also include operational costs. Although not subject to WACC, the total costs define the target revenues. What if these are subject to historic factors? Some telcos have (or had) employment rules that mean no one can be removed (government rules or maybe lifetime employment contracts prior to privatisation). So the cost base is not ideal. There may be little incentive to modernise and optimise the asset base or operational costs. Competitive pressures are possibly small. Governments might never allow the incumbent to be threatened. Look carefully at the national strategies. This might mean the *practical* WACC is low for some players - no real risk of failure, as that will never be allowed. Investors can be assured of a return.

Depending on the country, decisions are not made in a competitive market or even required to reflect a notional competitive market that could exist in the near future. If such factors are large, then maybe the WACC value is not very important.

Could defining a WACC and claiming regulatory decisions are based on this, be a message to imply regulations are sound, but they are not strictly based on notional competitive-cost-based decisions?

## **Fashions change**

Some might believe the rules, principles and formulae are solid and do not change. Some certainty in this world is welcome. But how they are applied seems to vary over time. Inherent in WACC is the balance of debt and equity. Attitudes to this seem to have varied over time. Telcos (especially incumbents) were seen as conservative low risk businesses, so low debt was taken. The cost of debt and the telco's risk rating depend on the finance communities' attitudes. So low risk and top credit rating for a telco was seen as desirable.

This paper's author noted one telco "Would never risk its credit rating to be ever reduced" - as claimed by a colleague. It became fashionable to optimise the debt ratios and minimise the WACC. This enabled more investment and so implied possibly more returns to investors. More borrowings were made, then seen by the investment community as a good thing to expand the business and network. The credit rating later fell. Share prices also later fell – it seemed that the investment community altered its view and the fickle attitudes altered. They later scorned higher debt, after encouraging it.



A strategy on debt levels may be altered by decisions or circumstances. Of course, no one wants to later recall that the investors were possibly the instigators of the movement to more debt and so to lower credit ratings and so to higher costs of debt later on. They always know better than a CEO or CFO.

The optimal debt level is not a constant, even if the formulae might not change. Perhaps erring on the lower debt levels is more sensible for some operators. So, what *is* the current (or future) fashion towards prudent/conservative attitudes to debt or to a more aggressive borrow and grow attitude? Just because the investment community fashion is for low (or high) debt levels in one year, there is no certainty this will be true the next year.

So an optimum borrowing may exist. But the optimum is not a constant over time. Attitudes to what is optimum also change. Others can argue that actual debt levels or prudent levels should be used instead.

### **Applying WACC to assets**

The WACC applies to the asset base. This is a related but mostly separate story. What are the real values of the assets? What are the future values? What are the long run costs? Future investments need new assets – how many and bought at what price?

This is another business problems that is tackled in many ways. Please discuss business modelling, costing and asset valuations with Telzed, if help is needed. For example, Telzed offers a mobile cost model that defines the opex and assets over time covering past and future costs. WACC is an input.

Making business models of the required asset (capital) investments is a separate task to defining the WACC value.

## 3 Conclusions

This report shows that a seemingly simple formula and concept is in fact far more complex than many realise.

This report provides a range of issues that may need considerations. This emphasises that defining a cost of capital value, even if based on a widely accepted WACC formula, may not be sufficient for defining values or making decisions. Wider understandings are needed.

The numerical complexities when defining the values using WACC are not covered here. This is more complex than many realise, and in-depth expertise is often needed. Consultants and analysts should be careful about offering a quick analysis or check. Use WACC specialists.

This report looks at the wider context that should be a supplement to a WACC value.

Some managers will be confident that their own WACC methods or cost of capital definitions in the business plan fully take this report's factors into account. The ideas in this report can then be safely ignored.

This report is not a solution or a list of recommendations. Readers should make their own decisions.

The lack of agreement on the methods and values means that decision-makers need to take a balanced view. This report shows that there *are* different views. Which is the right one to choose?

Some recommendations follow from this discussion:

- If looking at costs, demand, revenues, assets and a business plan, WACC is “just” a single input to the analysis. Often it is best to leave that input calculation to specialists
- Investors can decide on the risks and returns. The business modelling “simply” uses that value – so the *modelling* tasks can be separated from WACC definition that is done by others
- The lack of a consensus value or steady values over time are factors that ought to be considered. Make a decision on *which* number?
- WACC is not the only method to define a cost of capital
- There are factors in many assessments that are not within standard WACC analysis. How to evaluate the risk of poor management or technically/commercially unsound plans? This needs more than economics and “basic Excel calculations.”

Perhaps the primary points to consider are:

- Step back. What are you trying to achieve? Does a WACC value actually matter? Is a precise number needed or “just” a general indication of the values, and implied risks and returns
- Think.

This report does not undermine the work of WACC calculations. It remains both vital and valid (the author has been involved in such projects). If a wider perspective is taken then the broader factors of business management, markets and the history of the telecoms industry become factors in decisions. Although new ventures are not the same as old ones, there are lessons from the past that remain valid for today, and the future. If managers do not understand the past, they are likely to not properly plan for the future. They must also understand the technology, markets, competition, regulations, political drivers, customers etc. Understandings and sound decisions are not in a few pages of Excel calculations.

Please contact Telzed for further advice and help

See Telzed web site for additional papers

