ACCESS ECONOMICS Pty Limited

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Response to the ACCC MTAS Pricing Principles Determination 1 July 2007 to 30 June 2009

Submission by Access Economics Pty Limited for

The Competitive Carriers' Coalition (CCC)

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EXECUTIVE SUMMARY

The Competitive Carriers' Coalition (CCC) has commissioned Access Economics to undertake an appraisal of the Australian Competition and Consumer Commission Mobile Terminating Access Service (MTAS) Pricing Principles Determination 1 July 2007 to 30 June 2009 (ACCC MTAS Pricing Principles), February 2007. In particular, the CCC has requested that Access Economics assess:

- the merits of the "adjustment path" used by the ACCC in the indicative prices it recommend for the MTAS from 1 July 2004 to 30 June 2007, and based upon this, whether there is any economic justification for adopting a similar adjustment path for the period from 1 July 2007 to 30 June 2009; and
- the appropriateness of weighted average cost of capital (WACC) used by WIK-Consult in its Mobile Network and Cost Model (the WIK Model), in deriving the estimate for the Total Service Long-Run Incremental Cost with a mark-up to account for common network costs (TSLRIC+), for the MTAS.

Access Economics finds that there is no economic justification for the ACCC using an adjustment path for indicative prices over the period from 1 July 2007 to 30 June 2009. Access Economics bases this conclusion on an examination of the effect of the adjustment path used by the ACCC from 1 July 2004 to 30 June 2007 which shows that:

- **the reduction in the MTAS rates from 1 July 2004, limited as they were, did not result in any apparent upward rebalancing of retail prices by mobile network operators (MNOs).** A stated reason for not adopting cost-reflective rates from the outset was the stated fear about the significant and harmful disruption to the operation and planning of mobile carriers and thus the ACCC decided to err, as it saw it, on the side of caution. While theory suggests that a rebalancing of retail prices will occur when an additional constraint is introduced on service in a competitive two-sided market, in practice there has been no empirical evidence amongst the MNOs to support this so-called "waterbed effect". Instead of retail mobile prices increasing and handset or subscription subsidies being eliminated due to a fall in the MTAS rates, there has been a decrease in retail prices for mobile outbound calls and an increase in the level of handset subsidies accompanying the fall in the MTAS rates;
- **the adoption of the adjustment path led to a delay in the realisation of substantial gains in allocative efficiency in the market for mobile retail and fixed-to-mobile (FTM) services.** By allowing the price of the MTAS to be above the upper-bound estimate of the cost for some time, the adjustment path has resulted in retail prices for MTM and FTM call services being artificially inflated, and held higher than they otherwise should have been over the three-year period. The result is highlighted by the fact that data from Telstra's Half-Year and Annual Reports suggest that the reduction in the MTAS in each period has been met by a subsequent significant reduction in the average FTM rate it charges; and
- **the resultant regulatory distortion particularly affected those service providers that only operate fixed-line networks**. As vertically-integrated fixed and mobile network operators (e.g. Optus and Telstra) can supply their on-net FTM calls at actual cost-based rates, they have a competitive advantage over those service providers who only operate fixed-line networks (e.g. AAPT, MCI, MCT, PowerTel, Primus, etc) and face the above-cost MTAS rates allowed over the transition phase of the adjustment path. In order for fixed-only operators to compete with vertically-integrated fixed and mobile network operators in supplying a bundle of fixed-line services, they will require a significant cost advantage on either long-distance or local calls. Consequently, the

adjustment path serves to lessen competitive pressures in this market. This cost disadvantage in providing FTM services has been most keenly felt in supplying fixed-line services to the corporate customer segment of the market, where on average FTM prices are much lower.

Based upon this assessment, Access Economics believes that the ACCC should not utilise a similar adjustment path over the period from 1 July 2007 to 30 June 2009. Rather, the indicative price for the MTAS should be the appropriately chosen cost-based outcome from the WIK model, which based upon the scenarios used by WIK-Consult, lies in the range between 5 and 7.3cpm. This will ensure that the competitive pressures are maintained in the market for FTM calls, and that the full allocative efficiency gains are realised in the market for FTM and MTM calls.

The second matter that Access Economics has been asked to review is WIK's calculations of the WACC. For the most part, WIK's calculations are reasonable. Nevertheless, Access Economics believes there are some minor conceptual adjustments to WIK's estimates are warranted. Our concerns relate to the risk-free rate adopted by WIK and the sensitivity of the estimated WACC to assumptions on a number of key parameters:

- WIK has used an estimate for the risk-free rate based on a weighted average of rates in international markets. The choice of risk-free instrument should be consistent with the currency in which cash flows of the project or firm are estimated. As such, since cash flows of a mobile network in Australia are estimated in nominal Australian dollars, the appropriate risk-free rate is either a long-term Australian government bond rate or a weighted average of international rates hedged into Australian dollars. We propose a risk-free rate of 5.70% rather than the 4.434% figure chosen by WIK;
- Considerable uncertainty is attached to the estimates for a number of the key parameters including the market risk premium (MRP), the equity beta and the level of gearing (or debt share). WIK's assumptions on each of these parameters can be defended although:
  - its estimate of the MRP is lower than that generally adopted by regulators; and
  - Access Economics judges that its estimates for the equity beta may be at the upper end of reasonable estimates and its estimate for the debt share may be at the lower end of reasonable estimates.
- In light of this uncertainty, we conducted examined how sensitive estimates of the WACC were to changes in key parameters. Overall, WIK's central estimate for the WACC of 11.68% is near the centre of the range of estimates calculated by Access Economics which runs from around 10% to 14%.

Importantly, however, the impact of changes in the estimated WACC of such a scale on the TSLRIC+-based MTAS price would be minimal. In particular, the results of the sensitivity testing reported by WIK in Table 6-4 of their report shows that an increase in the pre-tax WACC from 11.68% to 15.0%, leads to an increase of 0.3 cents per minute (from 5.9 to 6.2 cents per minute) in the TSLRIC+ estimate for mobile voice termination.

1. INTRODUCTION

The ACCC declared the mobile terminating access service (MTAS) — a wholesale input used by fixed and mobile network operators in order to complete calls to mobile subscribers connected to other networks — in 1997. The pricing principles that the ACCC released in July 2001 involved relatively light-handed regulation of the declared MTAS. This established that the price of the service should decrease in line with the average price for a bundle of mobile retail services.

In the event, the price of the retail bundle did not decline as much as anticipated over following two years, suggesting that the marketplace was not ensuring that the MTAS price was adjusting towards cost. In response, the ACCC concluded that a more direct mechanism was required. In the *Mobile Services Review — Mobile Terminating Access Service Final Decision*, June 2004, (referred to here as the "ACCC Final Report 2004**"**), the ACCC considered that the total service long-run incremental cost with a mark-up to account for common network costs (i.e. TSLRIC+) was the appropriate measure of costs towards which the price of the MTAS should trend.

Relying upon data from the Regulatory Accounting Framework (RAF) and a report by the consultant Analysys on previously modelled international cost-based rates, the ACCC determined that the TSLRIC+ for the MTAS should lie in the range of 5-12 cents per minute (cpm). As the ACCC had not formally modelled the TSLRIC+ for the MTAS, it outlined that the access price should trend towards the top of this range — i.e. 12cpm — and that over the longer term, a reduction below 12cpm could be supported by the development of a bottom-up engineering-economic cost model. Further, to alleviate concerns it had about the likely significant and harmful disruption to the operation and planning of mobile carriers that an immediate decline in price to 12cpm would have,[1] the Commission outlined that this target price should be reached gradually over a succession of periods.

Using 21cpm as the initial rate for 1 July 2004, a level the ACCC determined to be the lowest price available in the market, the ACCC proposed an indicative price for the MTAS that involved a steady 3cpm decline on 1 January over each of the following three years. The outcome is summarised in Table 1-1.

TABLE 1-1: MTAS PRICING PRINCIPLES DETERMINATION JULY 2004

Time Period	Price Related Terms and Conditions (cpm)
1 July 2004 - 31 December 2004	21
1 January 2005 - 31 December 2005	18
1 January 2006 - 31 December 2006	15
1 January 2007 - 30 June 2007	12

To provide guidance for it in setting the appropriate indicative prices for the MTAS for the period from 1 July 2007 to 30 June 2009, the ACCC engaged WIK-Consult in 2006 to construct a bottom-up engineering-economics cost model for the TSLRIC+ of providing the

[1] In the ACCC, *Mobile Services Review — Mobile Terminating Access* Service, Draft Decision, March 2004, this potentially harmful disruption was summarised by the term "rate shock". This word did not appear in the ACCC, *Mobile Services Review — Mobile Terminating Access* Service, Final Report, June 2004.

termination of voice calls on mobile networks in Australia.[2] The WIK model shows that for the reference scenario of a stand-alone 2G mobile network, with 25% market share; 96% network coverage; and a WACC of 11.68%, the TSLRIC+ estimate for the MTAS will be 5.9cpm. Doing sensitivity analysis on these parameters WIK-Consult shows that, all other things being equal:

- an increase in the WACC to 15% causes the TSLRIC+ for the MTAS to increase to 6.2cpm;
- a decrease in the market coverage to 92% causes the TSLRIC+ to decrease to 5.6cpm;
- an increase in traffic of 10% decreases the TSLRIC+ to 5.6cpm;
- an increase in market share to 31% decreases the TSLRIC+ to 5.3cpm;
- an increase in market share to 44% decreases the TSLRIC+ to 5.0cpm;
- a decrease in market share to 17% and a decrease in coverage to 92% (i.e. the outcome for a small operator) increases the TSLRIC+ to 7.3cpm;
- assuming an integrated fixed and mobile network operator decreased the TSLRIC+ to 5.5cpm;
- the impact of the introduction of 3G technology would lead to site sharing, which would reduce the TSLRIC+ to 5.8cpm; and
- the impact of the introduction of 3G technology would lead to an increase in data traffic, which decreases the TSLRIC+ to 5.4cpm.

All of these TSLRIC+ estimates of the MTAS by WIK-Consult are well below the 12cpm rate that the ACCC previously used.

Based upon the request made by the Competitive Carriers' Coalition (CCC) Access Economics in the paper examines:

- the merits of the "adjustment path" used by the ACCC in the indicative prices it recommend for the MTAS from 1 July 2004 to 30 June 2007, and based upon this, it would be in the long-term interests of end-users (LTIE) to adopt a adjustment path for the period from 1 July 2007 to 30 June 2009. This would involve a path going down from 12cpm to what is considered the appropriate TSLRIC+ cost estimate for the MTAS, which based upon the scenarios run by WIK-Consult ranges between 5 and 7.3cpm; and
- the choice of parameters used by WIK-Consult in their WACC.

[2] WIK-Consult (authors M. Brinkmann, K. D. Hackbarth, D. Illic, W. Neu, K-H Neumann, A.P. Figurears), *Mobile Termination Cost Model for Australia*, January 2007.

2. ASSESSING THE ADJUSTMENT PATH

Assuming that the ACCC concludes the appropriate TSLRIC+ estimate for the MTAS is below the 12cpm rate currently on offer, the ACCC would again have the option of adopting an adjustment path to its estimate of an appropriate level for MTAS rates. The impact that the current adjustment path from 1 July 2004 to 30 June 2007 has had on mobile network operators (MNOs), fixed-line only operators, and the consumers in the retail market provides a basis for assessing whether it would be appropriate for the ACCC to again adopt an adjustment path.

In particular, Access Economics examines:

- The effect that the regulated reduction in the MTAS rates has had on MNOs and examines if there has been any so-called "waterbed effect" in mobile pricing;
- Whether there has been any cost pass through of the MTAS rates, and if there has been, the implications that the adjustment path has on the level of allocative efficiency achieved in the MTM and FTM retail markets; and
- The effect that the adjustment path has on fixed-line only operators competing with vertically-integrated mobile and fixed-line operators.

2.1 THE IMPACT OF THE MTAS REDUCTION ON MNOS

The ACCC expressed a concern in 2004 that an immediate decrease in the MTAS to 12cpm would lead to a significant and harmful disruption to the operation and planning of mobile carriers. In particular, Optus and Vodafone suggested in their respective undertakings that as a result of the regulated reduction in the MTAS rates there would be a corresponding undesirable increase in the retail price for mobile services to consumers — i.e. a rise in the price of outgoing mobile calls and subscription services or handset fees. Labelled the "waterbed effect", the carriers argued that on the basis of economic theory, such an outcome would arise due to MNOs wishing to maximise profits or maintain revenues in a two-sided mobile telecommunications market where the cost of termination was being unnecessarily constrained by regulation (whether or not the market were competitive).

Optus, based upon the advice of CRA, submitted that a complete (i.e. 100%) waterbed effect was likely to operate in the markets within which mobile services are provided in Australia,[3] and along with Vodafone, claimed that the resulting retail price increases in the mobile market would lead to a decrease in subscriptions and mobile voice calls, and due to the relative elasticities of demand across the different service markets, an overall loss in allocative efficiency. While the theory suggests that such a rebalancing of prices will occur when an additional constraint is introduced on the operation of a competitive two-sided market, only the empirical evidence from the mobile market can really ascertain whether or not the regulated reduction of the MTAS in the mobile market has had such an effect.

If there is evidence of a waterbed effect occurring over the period from 2004-07, then the adjustment path used by the ACCC for MTAS rates could arguably be seen as beneficial to the consumer and the MNOs. That is, the price rises on retail mobile services would then occur more slowly and there would only be a gradual decrease in subscription, and minor disruption in the operation and planning of mobile carriers. However, if there is no evidence

[3] ACCC, *Optus Undertaking with Respect to the Supply of its Domestic GSM Terminating Access Service (DGTAS)*, Final Decision, February 2006, p 219.

of any waterbed effect or price rebalancing occurring, then it suggests that there is no allocative efficiency justification for the ACCC adopting such an adjustment path.

2.1.1 THE RETAIL MOBILE SERVICE MARKET

Based upon the reasoning of Vodafone and Optus, if any 'waterbed effect' were material in the mobile market, this should be reflected by increasing mobile retail service prices and/or decreasing handset subsidies from June 2004 until now. In turn, such reactions would have had a dampening effect on overall subscription rates.

All available evidence, however, suggests quite the opposite. That is, it appears that over the relevant period:

- retail prices for mobile services have decreased; and
- subscription or handset subsidies have increased, and the level of subscription has risen.

The Retail Price for Mobile Services

At around the same time as the indicative MTAS rates were released, "bucket" or "capped" mobile plans were being offered to the Australian mobile market by the MNOs and carriage service providers.[4] These plans provide mobile subscribers with a deeply discounted package of mobile services for a fixed price — e.g. a $79 cap can provide up to $500 worth of calls, text and multimedia messaging, and data services. They have become increasingly popular, with Optus reporting that for December 2006 approximately 25% of post-paid subscribers are now on capped plans, up from 14% a year ago.[5] The available industry data and commentary indicates that such plans have led to an overall decline in the average price for retail mobile services.

The ACCC notes in the *ACCC Telecommunications Reports 2004-05*[6] on pp 71-3 that:

- there was a 6.6% fall in telecommunication service prices, and almost all the decline was attributable to a13% decrease in prices paid for mobile telephony services;
- the fall in the average mobile prices for consumers was "mainly due to the introduction of capped or 'bucket' plans by carriers, which resulted in a large decrease in the prices paid by consumers for post-paid services"; and
- post-paid GSM and CDMA retail mobile prices fell by 15.3% and 14.2% respectively, whilst prepaid GSM and CDMA retail mobile prices fell by 5.6% and 12.4%.

Further, ACCC data from the *Telecommunications Market Indicator Report 2004-05*[7] illustrate that between the financial year of 2003-04 and 2004-05, there was a decline in the revenue per minute derived from retail mobile services by all MNOs. That is, as illustrated in Table 2-1, the minutes of use increased at a greater rate than the overall revenue derived from retail mobile services, and the average revenue per minute derived by Telstra, Optus, Vodafone, Primus and AAPT for 2004-05, declined by just over one-and-a-half cents.

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[4] "Telstra Joins Capped Call Frenzy", *Sydney Morning Herald*, Fleur Leyden, 28 October 2004.

[5] See *SingTel Financial Results presentation Quarter ended 31 December 2006*, 8 February 2007, Slide No.16, available at **http://home.singtel.com/investor_relations/financial_results/default.asp**, and "Going Gets Tougher for Optus", *Sydney Morning Herald*, Matt O'Sullivan, 9 February 2007.

[6] ACCC, *ACCC Telecommunications Reports 2004-05 — Report 2*, April 2006.

[7] ACCC, *Telecommunications Market Indicator Report 2004-05*, July 2006, p17, Table 4.

TABLE 2-1: REVENUE AND USAGE OF MOBILE SERVICES 2003-04 & 2004-05

	FY 2003-04	FY 2004-05	Change	% Change
Retail mobile services (m)				
Telstra	$ 3,287	$ 3,494	$ 207	6.30%
Optus	$ 2,379	$ 2,622	$ 243	10.21%
Vodafone	$ 1,037	$ 1,231	$ 194	18.71%
Other[a]	$ 173	$ 118	-$ 55	-31.79%
Total	$ 6,876	$ 7,465	$ 589	8.57%
Minutes (m)				
Telstra	7,315	8,026	8,026	9.72%
Optus	4,971	5,527	5,527	11.18%
Vodafone	2,044	2,628	2,628	28.57%
Other[a]	241	180	180	-25.31%
Total	14,571	16,361	16,361	12.28%
Ave Revenue/Minute				
Telstra	$ 0.4494	$ 0.4353	-$ 0.0140	-3.12%
Optus	$ 0.4786	$ 0.4744	-$ 0.0042	-0.87%
Vodafone	$ 0.5073	$ 0.4684	-$ 0.0389	-7.67%
Other[a]	$ 0.7178	$ 0.6556	-$ 0.0623	-8.68%
Total	$ 0.4719	$ 0.4563	-$ 0.0156	-3.31%

Source: Telstra, Optus, Vodafone, Primus and AAPT RAF reports

[a] Where a carrier has less than 5 per cent market share, its data is aggregated with next largest carrier and presented as 'Other' category.

Source: ACCC, *Telecommunications Market Indicator Report 2004-05*, p 17, Table 4.

The decline in average retail mobile prices for voice services is also evident from data obtained from the *Telstra Results and Operations Review* for the Half and Annual Financial Year from 2003-2007.[8] By simple manipulation of the revenue and minutes of use (MOU) data, half-year and calendar year figures are derived for the access fee and call charge revenues and MOU. From this, an average access fee and call charge revenue per minute fee is calculated for each time period. The results are presented in Table 2-2.

TABLE 2-2: TELSTRA AVERAGE ACCESS FEE AND CALL CHARGE REVENUE AND MOU

Half Year	**1h- 2004**	**2H - 2004**	**1H - 2005**	**2H - 2005**	**1H - 2006**	**2H - 2006**
Access Fees and Call Charges (m)	$1,310	$1,402	$1,363	$1,387	$1,316	$1,375
Minutes (m)	3,134	3,404	3,342	3,610	3,701	4,147
Access Fees and Call Charge Revenue/Min	$0.4180	$0.4119	$0.4078	$0.3842	$0.3556	$0.3316
Δ Access Fees and Call Charge Revenue/Min	-	$0.0061	$0.0040	$0.0236	$0.0286	$0.0240
Calender Year	**2004**		**2005**		**2006**	
Access Fees and Call Charges (m)	$2,804		$2,750		$2,691	
Minutes (m)	6,538		6,952		7,848	
Access Fees and Call Charge Revenue/Min	$0.4289		$0.3956		$0.3429	
Δ Access Fees and Call Charge Revenue/Min	-		$0.0333		$0.0527	

Source: *Telstra Results and Operations Review*, for the Half and Annual FY from 2003-07.

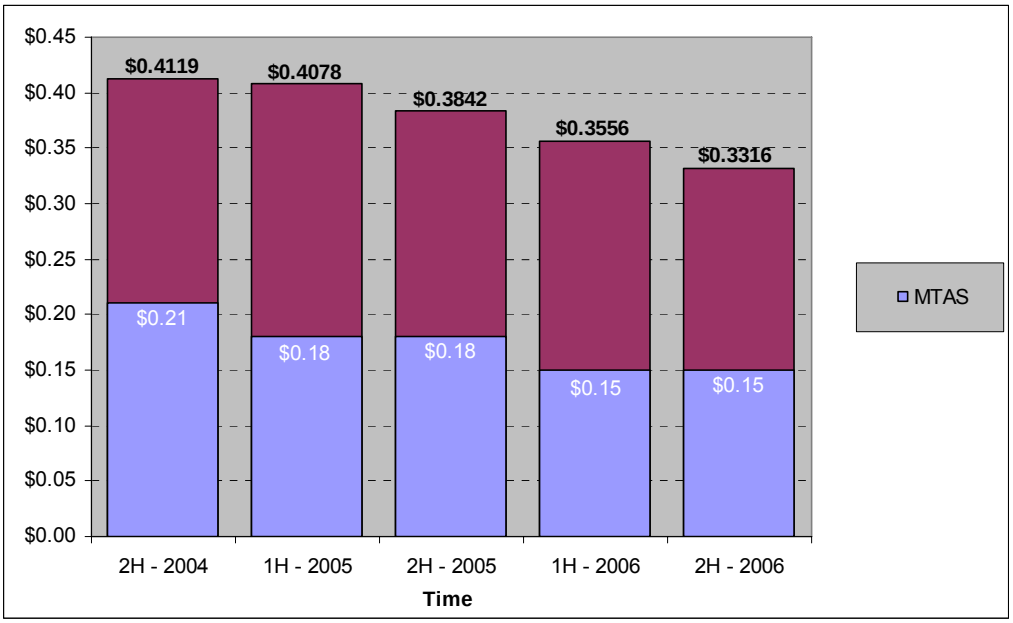
Note: There was a slight discrepancy between the FY 2005 Access Fee and Call Charge revenue figure tabled in the 2005 and 2006 *Telstra Results and Operation Review* Reports. As a result, the more recent FY2006 figure was taken to derive the access fee and call charge revenue for the first-half of the 2006 calendar year. If the

[8] These Financial Highlights reports for the Annual and Half Financial Year can be found on the Telstra website at **http://www.telstra.com.au/abouttelstra/investor/index.cfm**

FY2005 figure was instead used, the access fee and call charge for the first-half of 2006 calendar year would have instead been $1,300.

Telstra's average access fee and call charge revenue/minute are graphed along with the indicative rates for the MTAS for the period from June 2004 to December 2006 in Figure 2-1.

FIGURE 2-1: TELSTRA AVERAGE ACCESS AND CALL CHARGE REVENUE/MINUTE



The results do not show any sign of a waterbed effect, as the decrease in the MTAS has not resulted in an increase in Telstra's average retail price for mobile services.

In addition, it should be noted that, as Telstra indicates that there were 7,604 subscribers in June 2004 and 8,892 subscribers in December 2006, if there has been an increase in the overall access fee revenues due to this increase in subscription, then the above will actually understate the level of the overall decrease in the mobile call charge/minute.

Similarly, Optus' financial data on post-paid subscribers from the September 2006 quarter and the December 2006 quarter do not reflect signs of a waterbed effect. They illustrate that:[9]

- the Optus' post-paid subscriber ARPU has remained reasonably steady — i.e. $75 for the September 2006 quarter and $76 for the December 2006 quarter;
- there has been an increase in the level of MOU — i.e. 6% in September 2006 quarter and 2% in the December 2006 quarter; and
- revenue from data services as a proportion of the total service revenue has been increasing.

These factors, along with Optus' acknowledgement in the September 2006 quarter that the MOU increase has mitigated ARPU and margin erosion for post-paid customers, implies that

[9] See *SingTel Financial Results Presentation Q2 FY07: Quarter ended 31 September 2006*, 8 November 2006, Slide No.17, *SingTel Financial Results Presentation Q3 FY07: Quarter ended 31 December 2006*, 8 February 2007, Slide No.16, available at **http://home.singtel.com/investor_relations/financial_results/default.asp**

there has been a decrease in the price/minute of mobile calls. Optus' results for the 2005 and 2006 Calender Years, (which does not show MOU increase), are presented in Table 2-3.

TABLE 2-3: OPTUS MOBILE RESULTS FOR THE 2005 AND 2006 CALENDER YEARS

Calender Year	2005 (A$)				2006 (A$)			
Optus Mobile Revenue and Profit	**Mar***	**Jun**	**Sept**	**Dec**	**Mar**	**Jun**	**Sep**	**Dec**
OPTUS MOBILE								
Outgoing Revenue	-	638	649	665	655	664	697	718
Incoming Revenue	-	200	220	251	216	212	216	231
Total Service revenue	-	**838**	**869**	**916**	**871**	**876**	**913**	**949**
Equipment Revenue	-	127	127	149	139	138	130	149
Total Mobile revenue ($m)	**993**	**965**	**996**	**1,065**	**1,010**	**1,014**	**1,043**	**1,098**
Operational EBITDA	363	376	374	399	379	355	379	401
Margin %	36.56%	38.96%	37.55%	37.46%	37.52%	35.01%	36.34%	36.52%
Selected KPIs								
Mobile								
Cellular subscribers (000s)								
Prepaid	3,100	3,196	3,244	3,427	3,590	3,647	3,675	3,738
Postpaid	2,821	2,830	2,841	2,870	2,896	2,908	2,926	2,939
Total mobile subscribers	**5,921**	**6,026**	**6,085**	**6,297**	**6,486**	**6,555**	**6,601**	**6,677**
Cellular ARPUs (A$)								
Prepaid	21	20	22	24	23	22	23	25
Postpaid	75	74	76	77	71	71	75	76
Acqusition cost per subscriber (A$)	111	156	133	120	120	146	146	131
Data as % of service revenue	17%	17%	18%	18%	20%	21%	23%	24%

Source: SingTel Optus, *Historical Financial Summaries*, adjusted to get data in a calendar year format, available at **http://home.singtel.com/investor_relations/financial_results/default.asp**

* There was no breakdown between outgoing, incoming and equipment revenues supplied by SingTel Optus for March 2005.

Handset (or Subscription) Subsidies

While there appears to have been a decline in handset subsidies in FY2003,[10] the evidence from 2004 onwards shows an increase in the level of handset subsidies. This has occurred at the same time as the regulated reduction in the MTAS rates and the lowering of the retail mobile prices due to the introduction of capped rates.

The increase in handset subsidies over 2004-2006 has been attributed, in part, to MNOs attempting to entice existing subscribers and new customers onto their new third-generation (3G) networks, which were all operational by 2005. For example, Vodafone opted to reintroduce handset subsidies in 2005 for its newly data-focused 3G network, and Citigroup analyst Tim Smeallie noted that this was part of a more general trend, stating that:[11]

> *We believe the introduction of 3G services by all mobile operators over the next three months will see a resurgence of handset subsidies, which could go as high as 100 per cent of the phone's value if we look at Hutchison's latest initiatives.*

[10] For example, *Telstra Results and Operations Review* for the FY2003 notes on p 26 in Table 24, - that from June 2002 to June 2003, the level of handset subsidies decreased by $129 million from $410 million to $282 million. Telstra outlined on p 26 that while this decline was due to the progressive removal of subsidies from 31 October 2001, it had introduced subsidies on selected special offerings since late November 2002.

[11] "Vodafone U-Turn on Subsidies", *The Australian*, 12 October 2005, Michael Sainsbury.

Optus CEO, Paul O'Sullivan, acknowledged that subsidies had continued throughout 2005 stating that:[12]

> *…during July and August, the competition in mobiles continued to be intense and we saw an increase in customers choosing mobile caps. We saw high levels of handset subsidies continuing…*

Further, it has been reported in 2006 and 2007 that:

- Optus was attempting to sign more 3G customers, with their CEO Paul O'Sullivan stating in August 2006 that the company was "at a level now where we believe we can effectively support handset subsidies to massmarket customers and you'll see that over the next few quarters";[13]
- the level of saturation in the mobile market and the aggressive marketing by Telstra had forced Optus to spend more on handset subsidies and advertising;[14] and
- Telstra has been spending more than ever on handset subsidies,[15] and in the six month period from July 2006 to December 2006 has almost doubled its mobile handset subsidies, spending $417 million.[16]

Using data from Telstra's annual reports, Table 2-4 provides figures for the level of handset subsidies by Telstra over the period from 2003-2006. This illustrates that there has been an increase in the level of handset subsidies in each calendar year.

TABLE 2-4: TELSTRA HANDSET SUBSIDIES

Half Year	1H 2003	2H 2003	1H 2004	2H 2004	1H 2005*	2H 2005	1H 2006	2H 2006
Telstra Handset Subsidies (m)	$119	$125	$161	$177	$230	$211	$293	$417
Calender Year	2003		2004		2005*		2006	
Telstra Handset Subsidies (m)	$244		$338		$441		$710	

Source: *Telstra Results and Operations Review* Half and Annual FY Reports 2003-2007.

*There was a change in the methodology used to calculate the cost of the handset subsidy from July 2004 onwards. Whereas previously, the cost of the handset was amortised over the term of the contract, Telstra, in July 2004, opted to instead expense the entire cost of the subsidy at the time it was incurred. This led to the reported level of the handset subsidy increasing from $177m to $194m for December 2004, and the handset subsidy for the 2005 FY increasing from $361m to $424m. To avoid inconsistent measures for the handset subsidy costs derived for the calendar years, the new methodology was only employed to calculate the total handset subsidy costs from 2005 onwards. Hence, the figure of $177m is still reported for the December 2004 period.

The levels of the handset subsidies in Table 2-4 are also illustrated in Figure 2-2.

[12] "Optus Joins Bad Calls in Downgrade", *The Age*, 20 September 2005, Garry Barker.

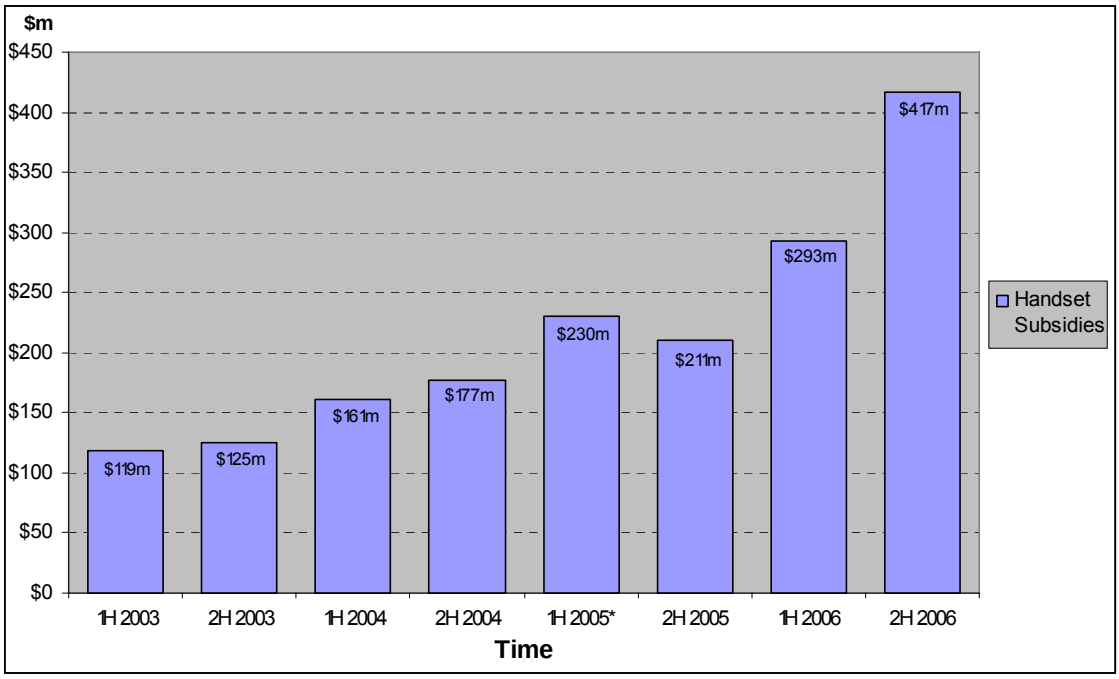
[13] "Don't Count on Numbers — O'Sullivan", *Australian*, 3 August 2006, Rhys Haynes.

[14] "Optus Mobile Slowing Down", *The Australian*, 8 November 2006, Michael Sainsbury.

[15] "Telstra Returns Fire on Voda", *The Australian*, 5 October 2006, Michael Sainsbury.

[16] This outcome has been reported in numerous newspaper articles, such as: "Telstra on the Chase", *The Herald Sun*, 17 February 2007, Fleur Leyden; "Analysts divided in call on Telstra", *The Age*, 17 February 2007, Matt O'Sullivan; "Telstra in the Middle of a Risky Transformation", *The Age*, 17 February 2007.

FIGURE 2-2: TELSTRA HANDSET SUBSIDIES FROM 2003-2006



Telstra outlines that:

- the increase in costs between FY2005 and FY2006 was attributable to a rise in the take up of handsets on subsidised plans, as well as higher average subsidies being offered. As a result of this, the average subscriber acquisition cost for Telstra increased from $120 to $137;[17] and
- the increase in the level of handset subsidies in the second half of 2006 is due to the launch of the Next G network in October 2006 and a larger range of handsets being subsidised. As a result of this the average subscriber acquisition and retention cost for the half-year increased for Telstra from $121 in December 2005 to $183 in December 2006.[18]

Finally, in contrast to the waterbed effect arguments made by Vodafone and Optus, not only has the level of handset subsidies increased, but there has been no decrease in the number of overall subscribers since the increase in the MTAS.

2.1.2 OTHER IMPACTS ON THE MOBILE MARKET

In addition to their being no evidence of a waterbed effect, the regulated reduction in the MTAS:

- **does not appear to have had any adverse impact upon investment.** In late 2004, both Hutchison and Telstra, and Optus and Vodafone, opted to undertake a shared 3G network investment. Further, Telstra launched its Next G 3G network in October 2006,

[17] *Telstra Results and Operations Review* FY2006, p 34

[18] *Telstra Results and Operations Review* Half FY2007, p 38.

and Optus has recently announced that it will spend $800m to expand its national 3G network and take its coverage from 55% to 96% of the Australian population;[19] and

- **does not appear to have had any adverse impact on the overall profitability of the MNOs**. To the extent that there has been a slight decrease in level of ARPU, recent data from both Optus and Telstra suggests that any price decrease in traditional voice services being supplied by MNOs is being offset by increasing MOU and data usage by its customers.

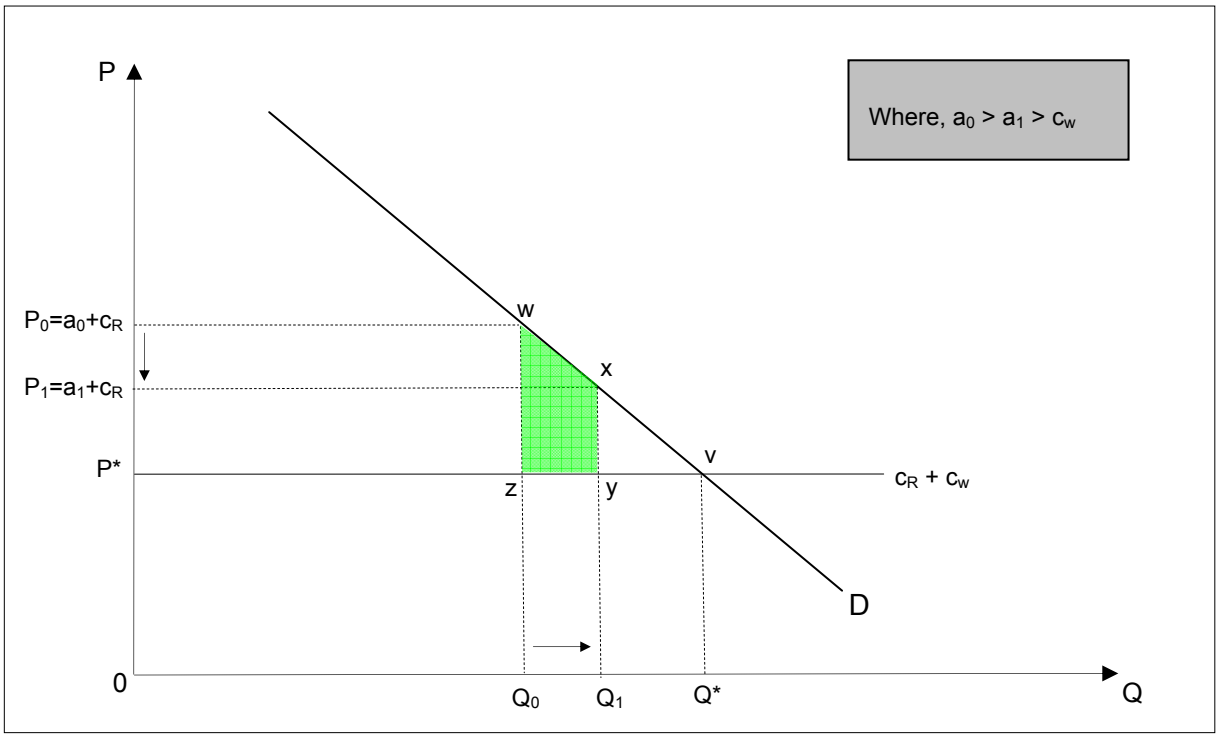
2.2 COST PASS THROUGH OF THE MTAS, THE ADJUSTMENT PATH, AND EFFICIENCY

The MTAS is an essential input in the provision of mobile-to-mobile (MTM) and fixed-to-mobile (FTM) calls between subscribers on different networks. Consequently, provided that cost pass through occurs in these retail markets, a regulated reduction in the MTAS charge towards its true cost, should lead to a lower retail price in the markets where MTM and FTM calls are provided, and result in an increase in the level of allocative efficiency.

Figure 2-3 highlights the type of allocative efficiency gains that will arise in the retail market where FTM and MTM calls are provided, where there is a regulated reduction in the wholesale MTAS rate and cost pass through. The diagram captures a scenario where it is assumed for simplicity that there is a perfectly competitive retail market, and that in order to supply the retail service, all suppliers must have access to an intermediate input purchased from an access provider. Therefore, the retail price P is simply the sum of the per unit access price denoted by the term a, and the cost per unit of retail, origination and transmission of the service, denoted by the term c_R (i.e. $a + c_R$). In this example, as the retail market is assumed to be competitive, a decrease in the access price from a_0 to a_1, (e.g. due to regulation of the access provider's service), leads to 100% cost pass through and a reduction in the retail price from P_1 to P_0. The fall in retail prices increases the level of quantity of the service consumed from Q_0 to Q_1, and as the consumer values these additional units of the service by area wxyz, but it only costs society zyQ_1Q_0 to provide these extra units, there is an overall gain in allocative efficiency equal to the green-shaded area wxyz. Further, this overall welfare gain is higher, the closer the access price is set to the true per unit cost of supplying access, which is denoted by c_w. That is, if the access price were reduced from a_0 to a*, where a* is equal to c_w, then the socially-optimal outcome will be realised, where the retail price P^* is charged on each of the Q^* units of the service supplied, and the overall allocative efficiency gain is equal to area wvz.

[19] For details about Optus' expansion of the coverage of its 3G network, see **http://www.optus.com.au/dafiles/OCA/AboutOptus/MediaCentre/SharedStaticFiles/SharedDocuments/07.01.30%20Slides.pdf**

FIGURE 2-3: THE INCREASE IN ALLOCATIVE EFFICIENCY FROM REDUCING THE ACCESS PRICE



Of course, this example is far from realistic, especially given that the ACCC has stated its belief that "the market within which FTM calls is provided is far from effectively competitive."[20] However, even where there is a monopoly outcome in the retail market, with linear demand, there will still be 50% cost pass through of the reduction in the access price.

Evidence that the regulated reduction in the MTAS has led to some level of cost pass through, and a subsequent decrease in the average price per minute for FTM calls, can be found in the *Telstra Results and Operations Review* for the FY1999-2006. The results are summarised in Table 2-5, and show that in the three years prior to July 2004 — i.e. where there was light-handed regulation of the MTAS — there was very little decrease in Telstra's average FTM price per minute. However, since the regulated reduction in the MTAS following the adjustment path set out in Table 1-1, there has been a much larger reduction in Telstra's average FTM price per minute. While this could be due to things other than the regulated reduction in the MTAS, such as the introduction of new lower cost technologies, the increased growth in FTM retail minutes, and pass through of economies of scale experienced in providing the service, it is interesting to note that Table 2-5 shows that the growth in retail FTM minutes for Telstra recently appears to be declining. The results in Table 2-5 are captured in the chart in Figure 2-4.

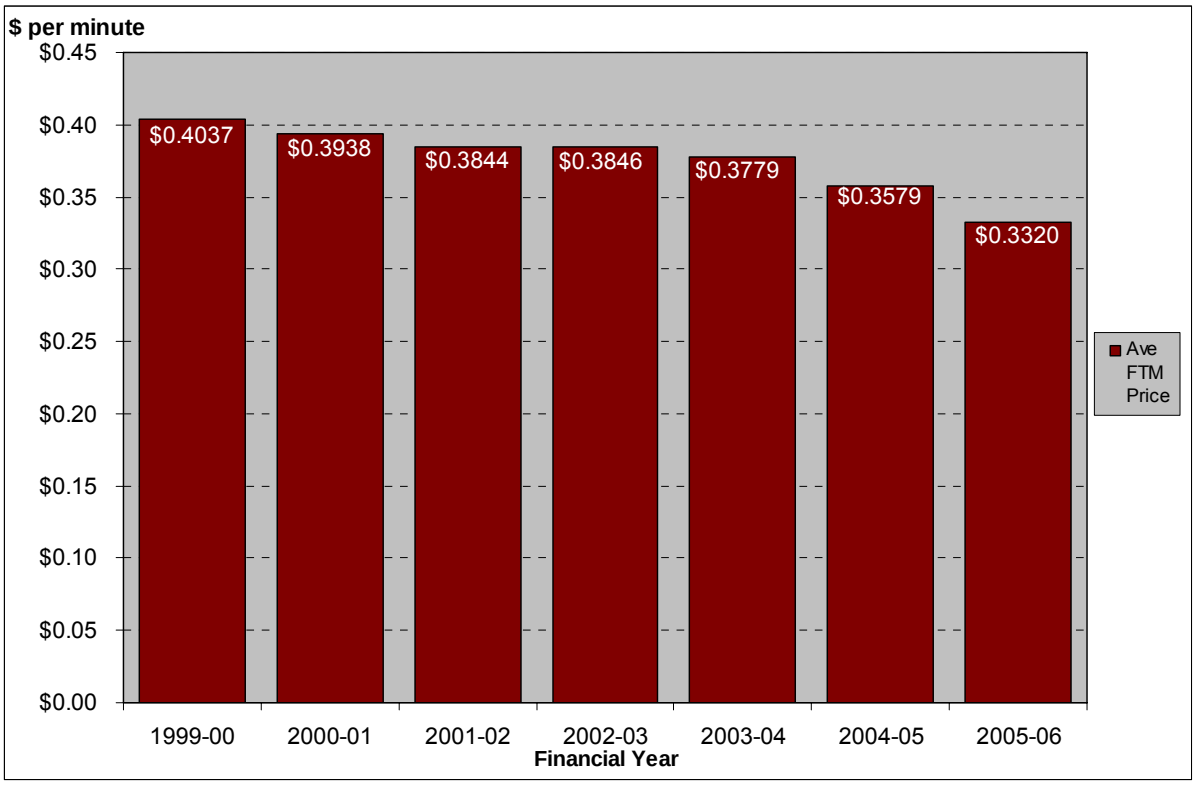
[20] ACCC, *Mobile Services Review — Mobile Terminating Access Service*, Final Report, June 2004, p ix.

TABLE 2-5: TELSTRA AVERAGE FTM PRICES 1999-2006

Financial Year	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
FTM Minutes (milliions)	3,022	3,268	3,691	3,944	4,226	4,375	4,491
Δ FTM Minutes	-	246	423	253	282	149	116
FTM Revenue (millions)	$1,220	$1,287	$1,419	$1,517	$1,597	$1,566	$1,491
Ave FTM Price	$0.4037	$0.3938	$0.3844	$0.3846	$0.3779	$0.3579	$0.3320
Δ Ave FTM Price		$0.0099	$0.0094	-$0.0002	$0.0067	$0.0200	$0.0259
% Decrease in Price		2.45%	2.38%	-0.05%	1.75%	5.28%	7.25%

Source: *Telstra Results and Operations Review* Annual FY Reports 1999-2006.

FIGURE 2-4: TELSTRA AVERAGE FTM PRICE 1999-2006



Using the *Telstra Results and Operations Review* for Half and Annual FY2004-2007, it is possible to track the change in Telstra's average price for FTM services over the same period as the decrease in the MTAS. The results are summarised in Table 2-6, and show that there was 75.53% pass through of the reduction of the MTAS from 21cpm to 18cpm in 2005, and a further 78.82% pass through of the reduction of the MTAS from 18cpm to 15cpm in 2006. This decrease is even more notable given that there has also been an annual rate of inflation of between 2-3% over this period. One thing that should be noted though is that this Telstra data is highly aggregated. Therefore, while there appears to have been significant cost pass through, much of this is likely to be occurring in the corporate customer segment, rather than residential segment of the market. This is examined in more detail in Section 2.3.1.

TABLE 2-6: TELSTRA AVERAGE FTM PRICE 2004-2006

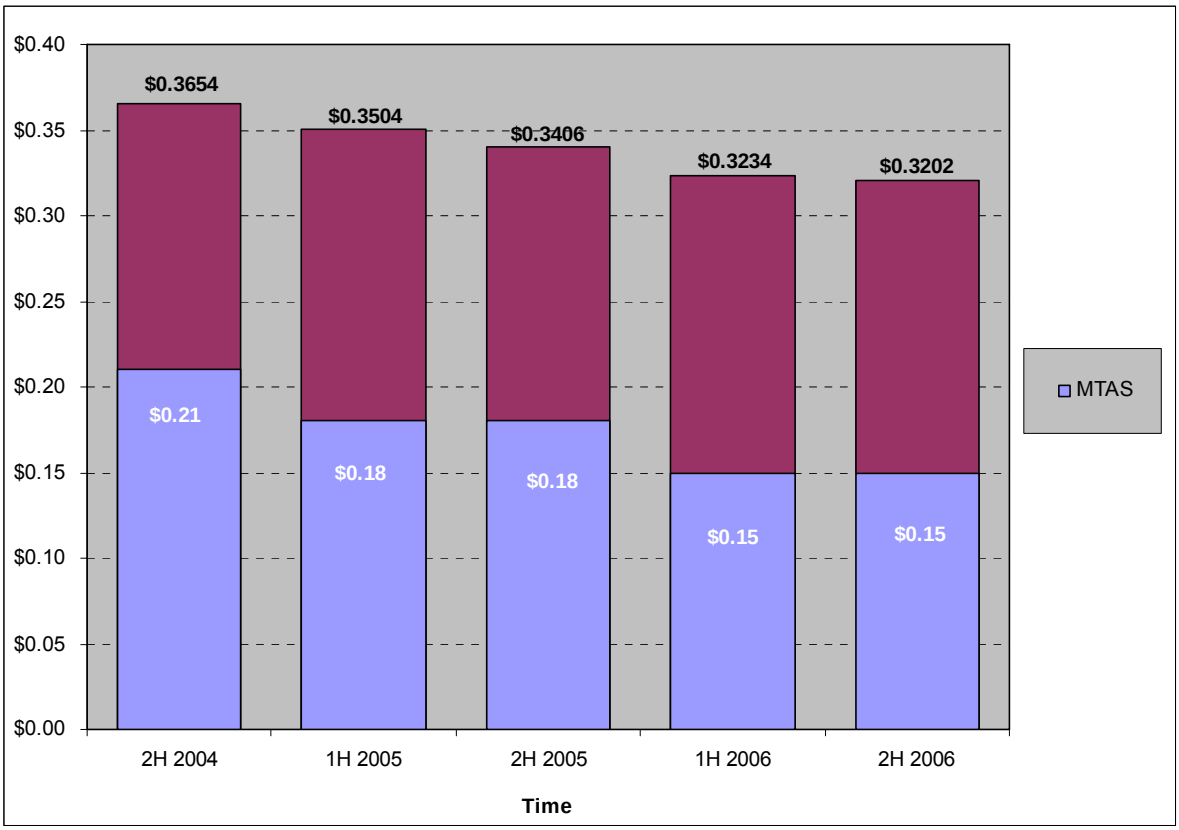
Half year	1H 2004	2H 2004	1H 2005	2H 2005	1H 2006	2H 2006
Ave FTM Price	$0.3709	$0.3654	$0.3504	$0.3406	$0.3234	$0.3202
Calendar year	2004		2005		2006	
Ave FTM Price	$0.3681		$0.3454		$0.3218	
MTAS Rate*	$0.21		$0.18		$0.15	
Cost Pass Through	-		75.53%		78.82%	

Source: *Telstra Results and Operations Review* Half and Annual FY Reports 2003-2006.

*The indicative MTAS rate for 2004 only applied from 1 Jul 2004- 31 Dec 2004.

The average FTM price and the indicative MTAS rates are graphed in Figure 2-5.

FIGURE 2-5: AVERAGE TELSTRA FTM PRICE AND THE MTAS



Telstra Results and Operations Review from 2003-2006, also show that along with the decrease in the average price per minute of FTM calls, there has been a growth in the level of FTM call minutes made by the average fixed-line subscriber. This is highlighted in Table 2-7 and suggests that the decrease in price has stimulated a growth in demand for FTM calls.

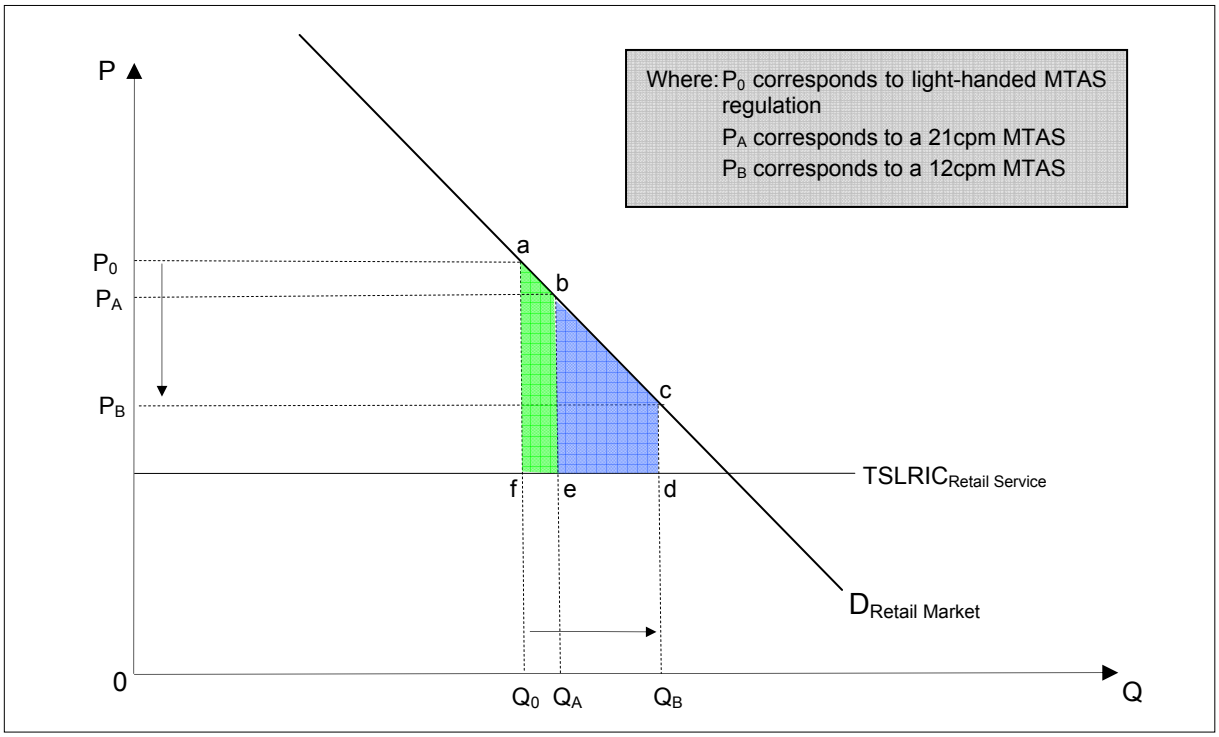
TABLE 2-7: THE ANNUAL RETAIL FTM MINUTES PER SUBSCRIBER

Financial Year	2003/04	2004/05	2005/06
FTM Minutes (milliions)	4,226	4,375	4,491
Retail Subscribers (millions)	8.44	8.05	7.78
FTM Ave Price	$0.3779	$0.3579	$0.3320
Minutes/Subscriber	500.71	543.48	577.25
Minutes/Subscriber/Mth	41.73	45.29	48.10

Source: *Telstra Results and Operations Review* Annual FY2003-2006.

While it is more difficult to assess the average change in the MTM price per minute — as mobile outbound minutes reported capture calls made to both fixed and mobile subscribers and there are no figures isolating revenues for such calls — it is apparent from the work done in Section 2.1.1 and the chart in Figure 2-1, that at the same time as the regulated reduction in the MTAS has been occurring, there has also been a decrease in the Telstra access and retail mobile charges per minute.

FIGURE 2-6: EFFICIENCY FROM AN INCREMENTAL VERSUS FULL DECREASE IN THE MTAS



In Figure 2-6, if the level of the decrease in the MTAS immediately went down to the upper-bound TSLRIC+ estimate for the service of 12cpm, the retail price would drop from P_0 to P_B, and quantity would increase from Q_0 to Q_B. This would result in a welfare gain equal to area acdf in the first period. However, by instead allowing an MTAS of 21cpm in the first period, the retail price only falls to P_A and quantity only increases to Q_A. This implies that there is a welfare gain equal to area abef in the first-half-year, but compared to outcome where the MTAS was lowered to 12cpm immediately, there is an efficiency gain of area bcde that is foregone in this period due to the use of an adjustment path. Similar types of foregone efficiency gains will arise in the other periods, although these are likely to be successively smaller in magnitude provided the demand curve does not significantly change shape over

time. The only time where no such loss exists will be in the final period of the adjustment path.

Based upon the evidence of cost pass through of the MTAS in the average retail FTM and average retail mobile services prices, there are strong allocative efficiency grounds for the ACCC not engaging in a further adjustment path when recommending the next indicative price for the MTAS. In particular, realising welfare gains in the market where FTM calls are provided should be a priority for the ACCC, as it has previously maintained that this market "is far from effectively competitive", and that this has led to "higher-than-cost prices for FTM calls, and, consequently, substantial losses in consumers welfare."[21] The ACCC having estimated — using a mid-point TSLRIC+ estimate for the MTAS of 9cpm and a cost of origination, transmission and retail of 5cpm — that the underlying cost of the FTM service should be 14cpm.

Hence, if based upon the analysis of the WIK-Consult the ACCC believes the appropriate TSLRIC+ for the MTAS is for example the WIK reference scenario estimate of 5.9cpm,[22] it should use this as its indicative price for the MTAS over the period from 1 July 2007 and 30 June 2009. Any adjustment path from the current rate of 12cpm down to the appropriate TSLRIC estimate, will simply serve to decrease the overall level of efficiency that could otherwise have been achieved in the retail markets where FTM and MTM services are provided, and will represent another lost opportunity to increase competition and consumer welfare.

2.3 THE ADJUSTMENT PATH AND NON VERTICALLY-INTEGRATED SERVICE PROVIDERS

The ACCC has acknowledged that above-cost MTAS rates create problems for fixed-line network only operators competing with vertically-integrated carriers in the supply of FTM services. The ACCC has stated that:[23]

> *…fixed-line only operators (such as AAPT, Primus, MCI, PowerTel, MCT etc), must pay above-cost price to terminate* ***all*** (emphasis in original) *FTM calls. Vertically-integrated carriers such as Telstra and Optus, however, will only need to pay above-cost prices for calls that terminate on other mobile carriers' networks. For all FTM calls that terminate on a vertically-integrated carrier's own mobile network, the vertically-integrated carrier will only face the actual cost of terminating these calls.*

The ACCC recognised that the result of allowing the price of MTAS to remain above cost is that, in the retail market where FTM calls are provided there would be:

- problems of anti-competitive conduct or vertical-price squeezes by vertically-integrated carriers, who can potentially offer retail FTM prices below the MTAS rates that they are providing to fixed-line only operators; and

[21] ACCC, *Mobile Services Review — Mobile Terminating Access Service*, Final Report, June 2004, p ix. Further discussion of the issues in the FTM market resulting from above-cost termination rates are provided in Chapter 4 of this Final Report. The ACCC, *ACCC Telecommunications Reports 2004-05 — Report 1*, April 2006, p 31 also notes that, "the ACCC estimates that average retail mobile termination prices are currently more than double their underlying costs."

[22] WIK-Consult (authors M. Brinkmann, K. D. Hackbarth, D. Illic, W. Neu, K-H Neumann, A.P. Figurears), *Mobile Termination Cost Model for Australia*, January 2007.

[23] ACCC, *Mobile Services Review — Mobile Terminating Access Service*, Final Report, June 2004, p viii.

- a reduction in the competitive pressure faced by vertically-integrated carriers supplying these services. This would lead to prices for FTM calls being maintained well above their underlying cost, and reduce the incentives for vertically-integrated carriers to find lower-cost and more efficient ways of supplying the service. The result would be smaller price decreases and quality improvements of FTM services in the future.

The adjustment path, by allowing the MTAS to exceed the upper-bound TSLRIC estimate over some period, creates the potential for each of the above issues to still arise. That is, the small incremental decreases in the MTAS rate means that in the interim periods as the access charge converges towards costs, there is still the possibility of vertical-price squeezes occurring in markets where FTM services are provided, and it will still be difficult for a fixed-line only operator to compete with a vertically-integrated carrier in providing a bundle of fixed-line services. These problems appear to have been most keenly felt in the corporate customer segment of the market. Accordingly, the following sub-sections examine:

- FTM prices for business and residential customers;
- how a vertical price squeeze occurred in the FTM market prior to the introduction of direct regulation of the MTAS charge, and the possibility of such a squeeze occurring again when an adjustment path is employed; and
- the impact the adjustment path has on competition for fixed-line bundles.

2.3.1 FTM Pricing for Business and Residential Customers

Telstra's Quarterly Accounting Separation Reports to the ACCC provide evidence that the average per minute FTM price for business customers is lower than that faced compared by residential customers. The results of these data are summarised in Table 2-8.[24]

Table 2-8: Telstra Average FTM Price for Business and Residential Customers

Half Year	2H 2004	1H 2005	2H 2005	1H 2006
Business				
FTM Revenue	$232,818,897	$215,915,016	$211,669,856	$190,662,941
FTM Minutes	688,266,293	658,649,198	661,900,004	638,891,721
Ave FTM Price	$0.3383	$0.3278	$0.3198	$0.2984
Residential				
FTM Revenue	$417,866,557	$396,094,939	$393,944,352	$388,472,055
FTM Minutes	960,260,833	931,796,024	950,002,805	953,083,044
Ave FTM Price	$0.4352	$0.4251	$0.4147	$0.4076
MTAS	$0.21	$0.18	$0.18	$0.15

Source: *Telstra Accounting Separation Report Data*

Telstra's Quarterly Accounting Separation Reports to the ACCC provide evidence that the average per minute FTM price for business customers is lower than that faced compared by residential customers. The results of these data are summarised in Table 2-8.

Table 2-8 shows that:

[24] See ACCC, *Imputation Testing and Non-Price Terms and Conditions Reports relating to the Accounting Separation of Telstra*, at **http://www.accc.gov.au/content/index.phtml/itemId/670198/fromItemId/670063**

- the average price for FTM services/minute for business appears to be around 10cpm lower than the average price for FTM services/minute faced by residential customers;[25] and
- both average FTM prices/minute have been falling over the period where the MTAS has decreased, however there has been a greater decrease in the average FTM price for businesses.

The ability to charge higher average prices to residential versus business customers, and the smaller average price decrease to residential customers, suggests that business customers demand for FTM services is relatively more responsive to price changes than residential customer demand. Further, the ACCC has highlighted that large business or corporate customers are both able to achieve particularly low FTM prices due to the bundled or "whole-of-business/Government" nature of the services being acquired (e.g. contracts sometimes involving the supply of a suite of fixed-line, mobile and managed data services) and are able to bargain for off-tariff discounts on services.[26] An ACCC report examining price changes for telecommunications services in 2004-05 shows that, from 2003-2004 to 2004-05, the average price of FTM calls decreased by 3.9%, and that this was comprised of:[27]

- a 1.8% **decrease** in FTM price for residential customers;
- a 19.9% **increase** in FTM price for small business customers; and
- a 21.3% **decrease** in FTM price for other (larger) business customers.

The report also notes that in 2004-05 the FTM margin for business customers was 24%, which is smaller that the FTM margin for residential customers, which was 41%.

2.3.2 VERTICAL PRICE SQUEEZES IN THE FTM MARKET

The vertical-price squeeze argument that was traditionally made in the context of FTM pricing, claims that because vertically-integrated operators with a fixed and mobile network were able to cost their on-net FTM calls on the basis of the true cost of termination, which was much lower than the light-handed regulated MTAS charges, it was possible for these operators to set retail FTM prices that were below the wholesale MTAS rates. The possibility of such a vertical price squeeze emerging, when access prices are allowed to be set above the cost of providing the service, is highlighted using the simple stylised example in Box 2-1.

BOX 2-1: AN EXAMPLE OF A VERTICAL PRICE SQUEEZE

The following notation is used for this example:

a_w = the access price per minute for the MTAS

c_w = the true per minute cost of the MTAS

c_R = the per minute cost of retail, origination and transmission

P_{FTM} = the FTM price charged by the vertically-integrated (VI) operator

α = the proportion of on-net traffic for the VI operator

[25] We have been unable to reconcile the average FTM price per minute derived from using the Telstra Accounting Separation Report data with the Telstra Annual and Half-Year Financial Report data. The average price for FTM services for the combination of residential and business customers from the Accounting Separation Reports appears to be significantly higher than that derived from the Annual Report data. For example for the 1H 2006, the Accounting Separation Report suggests the average FTM price/minute is $0.3638, while the Telstra Annual and Half-Year Report Data implies an average FTM price/minute of $0.3234.

[26] ACCC, ACCC, *ACCC Telecommunications Reports 2004-05 — Report 1*, April 2006, p 28.

[27] ACCC, *ACCC Telecommunications Reports 2004-05 — Report 2*, April 2006.

Box 2.1 (Cont): An Example of a Vertical Price Squeeze

$1-\alpha$ = the proportion of off-net traffic for the VI operator

Assuming for simplicity that the VI operator sets its retail price based upon the cost it incurs, the resulting retail prices for FTM services it sets will be:

$$P_{FTM} = \alpha \times c_w + (1-\alpha)a_w + c_R \quad (2.1.1)$$

A vertical-price squeeze will occur if $P_{FTM} - a_w < 0$ — or alternatively, substituting in for the expression P_{FTM} in equation (2.1.1) — where:

$$-\alpha(c_w - a_w) > c_R \quad (2.1.2)$$

Equation (2.1.2) highlights that whether or not a vertical price squeeze can be maintained will depend upon the proportion of on-net versus off-net traffic of the VI provider, the amount by which the access price for the MTAS is allowed to exceed cost, and the cost of retail, origination and transmission of the service. All other things being equal, the higher the proportion of on-net traffic, the greater the amount by which the MTAS charge exceeds cost, and the lower the cost of retail, origination and transmission, then the more likely that the constraint in equation (2.1.2) will be satisfied.

For example, if c_R = 5cpm, α = 1/3, and c_w = 6cpm, then only if a_w > 21cpm, is a vertical price squeeze possible in the FTM market. However, if α = ½, then a_w > 16cpm will create the possibility of a vertical price squeeze occurring in the FTM market.

The more direct regulation of the MTAS rates from 1 July 2004 has decreased the possibility of a vertical price squeeze occurring by a vertically-integrated operator. However, there have still been allegations of such behaviour in the corporate customer segment of the market over the early stages of the adjustment path. In 2005, at the time when the indicative rate for the MTAS was 18cpm, an article in *The Australian* claimed that:[28]

> *Evidence has emerged that Optus is offering its biggest customers prices below those it is offering its rivals to access its networks, raising the spectre of possible anti-competitive behaviour….Documents obtained by The Australian reveal that Optus is offering Victorian Government Rates of 14.5c a minute for the same fixed-to-mobile calls its 1 million residential customers 37c a minute…Last October, Optus won the fixed-line portion of the contract know as TPAMS (Telecommunications Purchasing and Management Strategy), which covers telecommunications services for the whole of the Victorian Government.*

While these claims were never substantiated, such a possibility would be unlikely to arise at all if the ACCC, instead of adopting its adjustment path, had opted to set the price of the MTAS at 12cpm from the outset at 1 July 2004.

2.3.3 THE ADJUSTMENT PATH AND COMPETITION

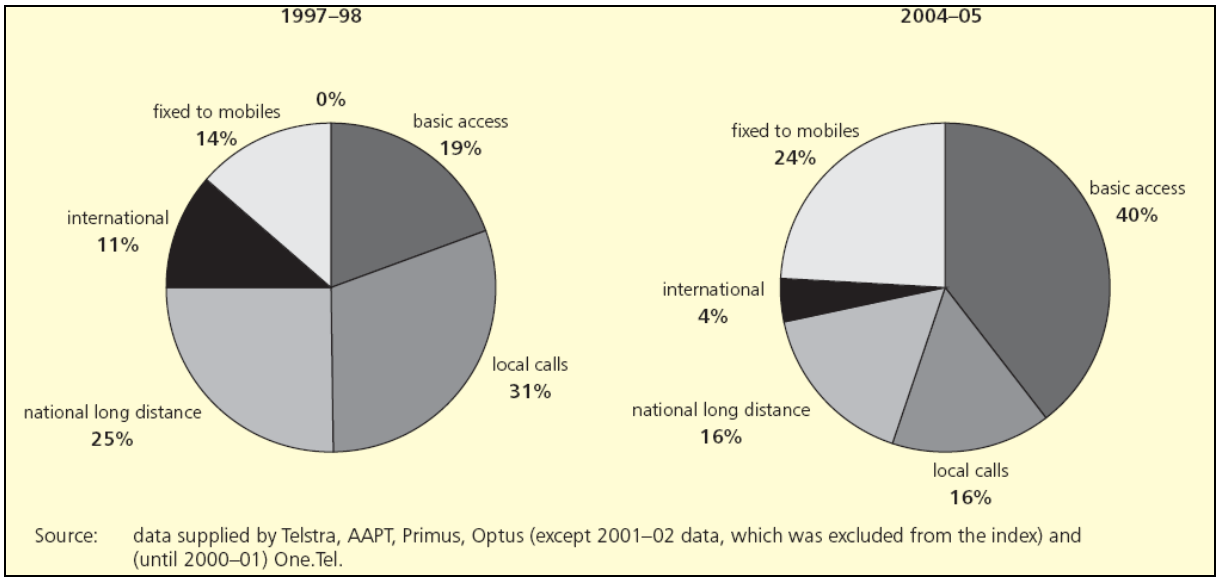
Even if fixed-line only operators were not subject to a vertical price squeeze under the adjustment path, the above-cost MTAS rates still created problems for these providers in competing with vertically-integrated operators. By allowing an above-cost MTAS rate over some time period, it placed fixed-line only operators at a temporary disadvantage when attempting to compete with a vertically-integrated carrier in the provision of a bundle of fixed-line services. That is, because fixed-line only operators were not able to charge as low a price on FTM calls, to be as profitable as vertically-integrated carriers — who only face the true cost of the MTAS for their on-net calls — the fixed-line only operator needed to have

[28] "Watchdog Probes Telco's Mates Rates", *The Australian*, 25 January 2005, Michael Sainsbury.

some kind of competitive advantage or lower cost technology in the supply of another service in its fixed-line bundle.

The fixed-line only operator's task of achieving a cost advantage in another fixed-line voice service during the period of the adjustment path, was made more difficult by the fact that, while the MTAS rate has converged towards cost, this effect was partially offset by the general industry trend of an increase in the percentage share of expenditure and minutes on FTM calls over time relative to other fixed-line products — see Figure 2-7 and Table 2-9 — and the low average price per minute for the other fixed-line calling products — see Table 2-9. This problem is highlighted using the stylised example in Box 2.2.

FIGURE 2-7: COMPARISON OF THE SHARE OF TOTAL CONSUMER PSTN EXPENDITURE BY SERVICE 1997-98 AND 2004-05



Source: ACCC, *ACCC Telecommunications Reports 2004-05 — Report 2*, April 2006, Figure 4.2, p 83.

TABLE 2-9: COMPARING TELSTRA'S CALLING PRODUCTS

Financial Year	2003-04	2004-05	2005-06
FTM Minutes (milliions)	4,226	4,375	4,491
FTM Revenue (millions)	$1,597	$1,566	$1,491
Ave Price FTM Calls	$0.3779	$0.3579	$0.3320
NLD Minutes (millions)	8,520	7,743	7,215
NLD Revenue (millions)	$1,121	$1,013	$913
Ave Price NLD Calls	$0.1316	$0.1308	$0.1265
INTLD Minutes (millions)	651	580	534
INTLD Revenue (millions)	$266	$234	$201
Ave Price INTLD Calls	$0.4086	$0.4034	$0.3764
Local Calls (No.) (m)	9,397	8,469	7,432
Local Calls Revenue (m)	$1,504	$1,284	$1,023
Ave Local Call Price	$0.1601	$0.1516	$0.1376
Rev Call Products (m)	$4,488	$4,097	$3,628
% Exp Calling Products			
FTM	35.58%	38.22%	41.10%
NLD	24.98%	24.73%	25.17%
INTLD	5.93%	5.71%	5.54%
Local Calls	33.51%	31.34%	28.20%

Source: *Telstra Results and Operations Review* Reports Annual FY 2005-2006.

BOX 2-2: THE ADJUSTMENT PATH AND COMPETITION FOR FIXED-LINE SERVICES

The difficulty faced by a fixed network only (FNO) operator competing with a vertically-integrated (VI) operator when there is an above-cost MTAS rate, is shown by extending the example in Box 2-1. For the purposes of illustration it is assumed here for simplicity that:

- the customer purchases a bundle of fixed-line services;
- each provider charges the same price for the calling products and the VI provider charges each price on the basis of the cost of the service it faces (i.e. it marginal cost prices);
- there are no economies of scale enjoyed by the VI provider in providing services; and
- the only difference in the costs of supplying services arises between the FTM and national long-distance (NLD) service.

These imply that for the FNO operator to be able to compete with the VI operator in supplying the service, it must face a lower cost in the NLD market. To see how the magnitude of this cost advantage required by a FNO operator in the NLD market will be affected by the quantity of FTM minutes relative to NLD minutes, and the price level of the two services, the notation adopted here is:

a_w = the above-cost access price per minute for the MTAS

c_w = the true per minute cost of the MTAS

c_R = the per minute cost of retail, origination and transmission

c_{NLD} = the per unit cost of the FNO supplying NLD

Q_{FTM} = the Minutes of FTM calls

Q_{NLD} = the Minutes of NLD calls

α = the proportion of on-net traffic for the VI operator

$(1 - \alpha)$ = the proportion of off-net traffic for the VI operator

θ = the proportion of FTM to NLD call minutes (i.e. $\theta Q_{NLD} = Q_{FTM}$)

P_{FTM} = the FTM price charged by both operators (As outlined in equation (2.1.1) in Box 2-1)

P_{NLD} = the NLD price charged by both operators

γ = the proportion of c_{NLD} to P_{NLD} (i.e. $\gamma P_{NLD} = c_{NLD}$)

Box 2.2 (Cont): The Adjustment Path and Competition for Fixed-Line Services

As the lowest price the FNO operator can charge in the FTM is $a_w + c_R$, the loss experienced in the FTM market by FNO as a result of matching the price of the VI operator on the service is:

$$(a_w + c_R - P_{FTM})Q_{FTM} = \alpha(a_w - c_w)Q_{FTM} \quad (2.2.1)$$

Therefore, the FNO will only be able to earn a normal profit from supplying the service at the same price as the VI operator in both markets if c_{NLD} satisfies:

$$(P_{NLD} - c_{NLD})Q_{NLD} = \alpha(a_w - c_w)Q_{FTM} \quad (2.2.2)$$

As $\theta Q_{NLD} = Q_{FTM}$ and $\gamma P_{NLD} = c_{NLD}$, the outcome in equation (2.2.2) can be rewritten such that:

$$c_{NLD} = P_{NLD} - \theta\alpha(a_w - c_w) \quad (2.2.3)$$

This shows that if the retail price for the other fixed-line voice product is too low, it is possible for c_{NLD} to be less than zero, meaning that there will be no cost advantage in the other market that will ever allow the FNO to effectively compete with the VI operator for a bundle of fixed-line voice services. Further, equation (2.2.3) indicates that all other things being equal, the FNO operator will require a greater cost advantage in supplying NLD calls:

- the lower the level of the NLD price;
- the higher the proportion of FTM minutes to NLD minutes is;
- the higher the MTAS rate is above cost; and
- the greater the level of on-net traffic for the VI operator.

More generally, the results imply that while the regulated adjustment path gradually decreases the amount by which the MTAS charge exceeds cost, FNO operators may still require a similar size cost advantage on other services, as this benefit will be partially offset by an increase in FTM minutes relative to other types of fixed-line voice traffic, and the level of the price of the other services in the fixed-line package being much lower than the FTM price.

To see this outcome assume that in c_R = 5cpm, α = 1/3, c_w = 6cpm, and that:

- in period 1, P_{NLD} = 8cpm, a_w = 21cpm and θ_1= 0.75
- in period 2, P_{NLD} = 7.8cpm, a_w = 18cpm and θ_2 = 0.9

(Note: The Price of NLD here is based on the relativities between the average prices for business FTM and NLD appearing in Telstra's Accounting Separation Reports. Further, the θ values have been chosen on a similar basis using the business data on minutes of the service in the Accounting Separation Reports.)

In this setting:

- in period 1, the P_{FTM} = 21cpm and the required c_{NLD} = 4.25cpm. That is, the FNO operator must have a 3.75cpm or 46.88% lower cost than the VI operator in the supply NLD services, in order to compete with the VI operator for the bundle of fixed-line services.
- in period 2, the P_{FTM} = 19cpm and the required c_{NLD} = 4.2cpm. That is, the FNO operator must have a 3.6cpm or 46.15% lower cost than the VI operator in supplying NLD services, in order to compete with the VI operator for the bundle of fixed-line services. Note, that if the NLD decreased to 7.5cpm in period 2, then the required c_{NLD} = 3.9cpm, and the FNO must have a 48% lower cost than the VI operator in supplying NLD services.

Given the lower prices and margins experienced in the corporate customer/Government market, the adjustment path for the indicative price of MTAS has created the greatest issue for fixed network only operators competing with vertically-integrated operators in that segment.

Thus, to ensure that more effective competition can arise in the markets where FTM call services are provided — in particular, the corporate customer segment of the market — the ACCC should not use an adjustment path in the period from 1 July 2007 to 30 June 2009.

3. THE WIK MODEL – AN ASSESSMENT OF THE WACC

The weighted average cost of capital (WACC) is one component in the estimation of the TSLRIC-based MTAS in the WIK model. Access Economics comments on the crucial components to the calculation of the WACC, namely:

- the risk-free rate;
- the market risk premium;
- the equity beta; and
- the assumed level of gearing (i.e. the 'debt share').

WIK's calculations for the WACC are sensitive to each of these parameters.

In addition, it is important to emphasise that any estimate of the WACC will be subject to a high degree of uncertainty because of both theoretical and practical reasons, which will not be discussed here.[29]

Finally, despite the inherent imprecision involved in estimating the WACC, WIK's modelling found that the estimate of costs (the TSLRIC+) was ***not*** sensitive to changes in the WACC within a realistic band.

3.1 RISK-FREE RATE

The WIK model uses a risk free rate of 4.434%. They calculate this by using a weighted average of 10-year government bond rates for the US, UK, Singapore and Australia. Annex C in the WIK report provides eight years of quarterly interest rate data for 10-year government bonds in the countries of interest. The interest rate series were averaged over the eight year period and then weighted across countries to derive the estimate used in their model. The US, UK and Singapore bond rates were all given a weighting of 30% with Australia making up the difference.

There are two elements of this calculation with which Access Economics disagrees, namely:

- the use of interest rates averaged across an eight year period; and
- the use of a global estimate of a risk free rate rather than a rate denominated in Australian dollars.

The WACC is intended to represent the cost of capital for investments that will be in place over the period of the regulations in question. The cost of capital at any point will be dependent on the interest rate structure at that point, not an average of interest rates over history (or into the future). Accordingly, the appropriate risk-free rate will relate to current interest rates. For practical reasons, some averaging over short time periods may be appropriate, but not over a period of years.

WIK argues that, since telecommunication firms in most countries are actually subsidiaries of overseas-based global companies and therefore have access to financing from international

[29] For example, the estimate of the WACC is based on the capital asset pricing model which, while it has some attractive theoretical features, has not been very successful in empirical studies. For a discussion on WACC determination, see P. Grout, "The Cost of Capital in Regulated Industries", *Regulatory Challenge, M. Bishop, J. Kay and C. Mayer (eds.),* Oxford University Press, 1995, pp 386-407.

capital markets, the risk-free rate should be based on a weighted average of interest rates across relevant markets. While it is true that mobile operators in Australia generally do have access to international capital markets for financing, this is not a justification for the approach used by WIK. Rather, it is important that the choice of risk-free rate (and other components of the WACC) is calculated on a basis that is consistent with the cash flows for the investment in question. As these cash flows are implicitly denominated in Australian dollars, the risk-free rate could be based on either:

- a measure of the Australian risk-free rate, taken to be rates on 10-year Commonwealth bonds; or
- a weighted average of world rates (possibly along the lines of the WIK calculations), hedged back into Australian dollars.

In practice, since country risk premia for the countries in question are relatively low, the two calculations will yield similar results. For convenience, Access Economics suggests that the first option be adopted. The most recently quoted interest rate for a 10-year Australian government bond (obtained from Bloomberg on 15th March 2007) is 5.7%.

3.2 UNCERTAINTY SURROUNDING KEY PARAMETERS

As the WIK study highlights, there is considerable uncertainty to some of the key parameters on which the WACC is based. Three assumptions that WIK adopt warrant comment, namely those for the market risk premium, the beta and the debt share.

3.2.1 MARKET RISK PREMIUM

The market risk premium (MRP) is an *ex ante* concept that is not directly observable in market prices. Estimates have traditionally been based on *ex post* returns. Since these returns have fluctuated significantly across countries and across time — even in terms of decades — estimates of the MRP has usually been based on returns calculated over many decades.

Against the backdrop of a wide range of estimates, regulators in many developed economies have tended to assume that the MRP is around 6%. Indeed, the tight range of estimates that have been adopted mask the considerable uncertainty attached to the underlying data. There is some indication that regulators today are questioning whether their previous assumptions for the MRP have been on the high side, but at this point there is not a broad consensus for the need for a substantial revision to past practice.

WIK settled on a risk premium of 4.5% for their model — which they deem to be a conservative choice. WIK based this estimate on its assessment of a number of recent studies which suggested that the value of the risk premium is somewhere between 3% and 5%.[30] The main study that they cite is by Dimson, Marsh and Staunton[31] which calculates the market risk premium using both arithmetic mean returns as well as geometric mean returns. They find that on a geometric mean basis, the equity premium for the world market is between 3% and 3.5%, while on an arithmetic mean basis the equity premium is approximately 4.5% to 5%.

There are three crucial assumptions underpinning various estimates for the MRP:

[30] WIK-Consult, *Mobile Termination Cost Model for Australia*, January 2007, p 32.

[31] E. Dimson, P. Marsh and M. Staunton, "The Worldwide Equity Premium: a Smaller Puzzle," *London Business School Working Paper*, 2006.

- whether averages are calculated based on geometric or arithmetic means. Arithmetic means generate higher estimates (often of the order of 1 to 2 percentage points) and have generally been used in regulatory decisions. However, there is an active debate in the literature as to whether this is appropriate;[32]
- the choice of market – WIK adopts a global market (the precise definition of which is not clear) whereas many previous studies have tended to use specific domestic markets. The global indices tend to generate lower estimates for the MRP than do domestic indicators. For example, for the period between 1900 and 2005, Dimson *et al*. found that the MRP was:
  - 4.0% based on geometric means and 5.2% based on arithmetic means for the world;
  - 4.5% based on geometric means and 6.5% based on arithmetic means for the United States; and
  - 6.2% based on geometric means and 7.8% based on arithmetic means for the Australia; and
- the choice of sample period, with the MRP for more recent decades tending to be a little lower than those for earlier periods.

It is not the intention of this report to review in detail the arguments for the selection of a particular estimate of the MRP but rather simply note the wide range of possible estimates. Estimates anywhere between a low of 3% and a high of 7% or more may be justified with, for example, the choice of arithmetic means and Australia as the choice of market generating high estimates, while geometric means and a global index generating low estimates.

3.2.2 THE EQUITY BETA AND DEBT SHARE

WIK adopted an estimate of 1.32 for the equity beta. In arriving at this estimate, WIK reported equity betas for five international mobile phone companies that range from 0.51 to 1.81. WIK arrive at an estimate of 1.32 by removing the outlier value of (0.51 and 1.81) and averaging the remaining three beta values.

It is not clear what time period or market is assumed for each of these betas, but we assume they relate to the betas derived from the main individual markets where the different companies are listed (rather than for the global index) and for price movements over the past few years. As such, the estimates are likely to be very imprecise and are unlikely to closely relate to circumstances facing MNOs in Australia. Indeed, the small sample and the range of estimates is a cause of concern.

What is more, a recent study by UBS Investment Bank[33] provides a practical guide to calculating equity betas (and WACC); they estimate betas and the WACC for various

[32] For example, A. Damodaran, "Estimating Equity Risk Premiums," Stern School of Business Working Paper, NYU, 1999, p7, points out:

"Conventional wisdom argues for the use the arithmetic average. In fact, if annual returns are uncorrelated over time the arithmetic average is the best unbiased estimate of the premium. In reality, however, there are strong arguments that can be made for the use of geometric averages. First, empirical studies seem to suggest that returns on stock are negatively correlated over time. Thus, the arithmetic average is likely to overstate the premium. Second, while asset pricing models may be single period models, the use of these models to calculate returns over longer periods, (such as five or ten years), suggests that the single period may be much longer than one year. In this context, the argument for geometric average risk premiums becomes even stronger."

[33] UBS Investment Bank, "The WACC User's Guide," *Mimeo*, UBS Investment Bank, 2005.

industries and sub-industry classes. According to this study, the beta for the telecommunications industry varies between 1.06 and 1.10 — significantly lower than the beta proposed by WIK.

In light of this evidence, and related estimates for betas in other sectors of the market, we judge that the WIK estimate of 1.32 as an equity beta may be on the high side. Nevertheless, the degree of uncertainty makes it difficult to provide a definitive number and we therefore calculate the WACC using two different values for the beta with various combinations of other parameters — 1.10 and 1.32.

3.2.3 THE DEBT SHARE

WIK adopts a figure of 17.2% for the debt share. The figure for the debt share is simply an average of estimates used previously by overseas regulatory authorities and tends to be a little higher than the gearing levels observed for MNOs in the international marketplace.

While the use of previous practice by overseas regulators is not unreasonable, Access Economics judges the assumed level of gearing to be relatively low compared with like businesses in the broader marketplace. Accordingly, the sensitivity analysis in the following subsection includes a scenario where the debt share is set at 30% (which is at the upper end of the ranges adopted by overseas regulators).

3.3 SENSITIVITY OF THE ESTIMATED WACC TO KEY PARAMETERS

In light of the above discussion, the following examines how sensitive the estimates of the WACC are to changes in key parameters, namely the MRP, the equity beta and the debt sahre. In each case, the higher estimate for the risk-free rate has been adopted as per the discussion in Section 3.1.

The vanilla WACC and pre-tax WACC are calculated for various combinations of parameter values. The differences between these estimates are WIK's central assumption for the WACC, and are outlined in Table 3-1.

TABLE 3-1: SENSITIVITY OF WACC ESTIMATES TO CHANGES IN KEY PARAMETERS

	AE	AE	AE	WIK	AE	AE	AE
Risk-free rate	5.700%	5.700%	5.700%	4.434%	5.700%	5.700%	5.700%
Market risk premium	3.0%	3.0%	4.5%	4.5%	6.0%	6.0%	7.0%
Beta	1.10	1.32	1.10	1.32	1.32	1.10	1.10
Debt share	30.00%	17.20%	17.20%	17.20%	30.00%	17.20%	30.00%
Debt premium	1.02%	1.02%	1.02%	1.02%	1.02%	1.02%	1.02%
Debt Issuance cost	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%	0.08%
Effective coporate tax	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%
Vanilla WACC	**8.34%**	**9.17%**	**9.99%**	**9.53%**	**11.57%**	**11.35%**	**11.42%**
Pre-tax WACC	**9.92%**	**11.17%**	**12.19%**	**11.68%**	**13.96%**	**13.90%**	**13.77%**

In conclusion, the approach used by WIK-Consult in their calculation of the WACC is standard and, for the most part, reasonable. Our main two concerns have been (i) the underestimate of the risk-free rate in the WIK calculations; and (ii) the uncertainty surrounding all estimates. As Table 3-1 illustrates, a range for the WACC of between 10% and 14% is quite reasonable.

Importantly, however, the impact of changes in the estimated WACC of such a scale on the TSLRIC+-based MTAS price would be minimal. In particular, the results of the sensitivity testing reported by WIK in Table 6-4 of their report which shows that an increase in the pre-

tax WACC from 11.68% to 15.0% (in their reference scenario with an MNO with 25% market share and 96% coverage), leads to an increase of 0.3cpm (from 5.9 to 6.2cpm) in a TSLRIC+-based voice termination charge.

4. CONCLUSIONS

Access Economics finds that there is no economic justification for the ACCC using an adjustment path for indicative prices over the period from 1 July 2007 to 30 June 2009. Access Economics bases this conclusion on an examination of the effect of the adjustment path used by the ACCC from 1 July 2004 to 30 June 2007. The indicative price for the MTAS should be the appropriately chosen cost-based outcome from the WIK model, which based upon the scenarios used by WIK-Consult, lies in the range between 5 and 7.3cpm. By using such a rate, the ACCC will ensure that competitive pressures are maintained in the market for FTM calls, and that the full allocative efficiency gains are realised in the market for FTM and MTM calls.

Estimates for the WACC are subject to a wide range of uncertainty. However, Access Economics judges the WIK estimate for the WACC lies near the centre of a reasonable range for estimates of the WACC given the uncertainties associated with key parameters. Also, the TSLRIC+-based estimates for the MTAS in the reference scenario are not sensitive to changes to the estimate of the WACC.