INDUSTRY ANALYSIS OF THE WIRELESS SERVICES INDUSTRY

This is a comprehensive analysis of the Wireless Services Industry, which is part of the Telecommunication Sector. According to definition provided by Hoovers.com, the industry comprises of companies that provide wireless communication products and services, including cellular, paging, wireless data and messaging services, and other mobile and wireless telecom services.

The global boom in mobile cellular communications has been truly astounding. More than 500 million people worldwide use wireless communications devices, and that number is expected to surpass 1 billion by 2003. This is clearly a global industry, however the scope of this analysis is limited to the USA market.

FINANCIAL PERFORMANCE

At first glance, the industry is very healthy. The wireless market is continuing to grow strongly and subscribers are being added at a breathtaking pace. Graph 1 below shows the enviable growth in revenues from about $8 billion in 1991 to over $50 billion at the end of 2000. This growth, as shown in graph 2, has been fueled by an even more spectacular 15-fold growth in the numbers of subscribers from around 7.5 million to about 110 million, for the same time period.

But of course new subscribers and higher revenues do not necessarily translate into higher profits. For example Nextel increased its customer base by 21 percent in the third quarter of 2000 and more than doubled its revenues. However it still managed to lose $356 million, which amounted to a loss of 46 cents per share. All the main players, listed in table 1 below, share the same woes. The net profit margin of the industry is a paltry 1.8% and significantly lower than the 11.4% earned by the economy as a whole - measured in terms of the profit margins of the companies in the S&P500 index. Another measure of profitability is return on assets. This measure also indicates that the industry has grossly under performed the wider economy. For example last year’s return on assets for the industry was less then 2 % compared to over 8% average for the S&P500 companies.

Investors have punished the companies for their lack of profitability and the four largest publicly traded wireless companies that offer nationwide coverage--AT&T Wireless, Sprint PCS, Nextel, and Voice Stream - are down an average of 61% from their 52-week highs.

Graph 1

![Graph 1](source: Cellular Telecommunications & Internet Association)
Table 1: Profile of Leading US Wireless Carrier Companies in June 2000

<table>
<thead>
<tr>
<th>Carriers</th>
<th>Number of Subscribers</th>
<th>Market Share (%)</th>
<th>Net Profit Margin(%) 5 Year Average</th>
<th>Return on Assets - % Year Average</th>
<th>EPS - 5 Year Growth rate</th>
<th>Market Cap $ Mil</th>
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Source: Standard & Poor's, Yahoo Finance

DEMAND ANALYSIS

Demand in the industry is measured in terms of subscriber-ship and service usage. Subscribers pay an upfront sign-on fee and a monthly subscription fee, which may include some free usage time. Furthermore subscribers also pay for minutes of use.

Mobile phone subscriber growth has outstripped expectations for years. As graph 2 shows, the industry recorded spectacular growth rates of over 40% annually in the first half of the 1990s. 1994 was a pinnacle year with growth rate of no less than spectacular 50.8%. Since then subscriber growth rate has slowed down to around 25%. In the twelve months ending December 2000, the industry generated over $52.5 billion in revenues and increased subscriber-ship from 86.0 million to 109.5 million. This tremendous growth has resulted in a nationwide subscriber penetration rate of roughly 39 percent.

This is clearly still a growth industry, but as subscriber penetration reaches saturation levels, growth in subscriber-ship will slow down further, resulting in declining revenues from subscriber growth. However, according to analysts, growth in revenues should continue to achieve a healthy increase of 27.55% over the next 5 years, boosted largely by increased per subscriber usage of wireless services. Wireless firms plan to encourage increased usage by providing features and value added services such as Short Message Service, Internet access through the mobile phone, video, gaming, Internet wireless shopping, etc. Therefore it can be safely concluded that the wireless industry has its glory days ahead. Features and functionality spawned by new technology will continue to keep this industry growing at a healthy rate even as the industry moves towards maturity phase.
Graph 2


Source: Cellular Telecommunications & Internet Association

So what are the reasons for the industry’s spectacular growth? The factors fueling consumer demand are falling prices, new technology, marketing and advertising successes and use of versioning, demographic trends, rising income, and positive network externalities.

Prices: Both the subscription fees and usage fees have down. For example, according to the U.S. Department of Labor Bureau of Labor Statistics, the price of mobile telephone service declined by 12.3 percent during 2000. In fact the average price of mobile telephone service has been on a falling trend in the last decade and prices have fallen faster then prices for other goods as measured by the Consumer Price Index (CPI). As shown in graph 3 below, the CPI adjusted average monthly bill has halved from around $73 in 1991. New tariff plans being offered today are much cheaper than they were a few years ago. Handset prices have also dropped tremendously due to growing market sizes, which permit economies of scale, technological enhancements and, in some cases, cross-subsidization of handset prices. Prices have also fallen due to greater competition as more and more companies have been attracted by the high growth rates to enter the industry. In the late 1990s, the licensing of additional companies by FCC resulted in intensified competition and in price-cuts. Another reason for falling prices is that input costs for the operators have been coming down tremendously – more on that below.

Graph 3

Source: Cellular Telecommunications & Internet Association
Technology: In the 1980s when the industry was in its infancy, mobile phones were bulky, expensive and required considerable power to run. Therefore they were used only by businessmen and top executives and were confined to cars. In the 1990s as old analogue systems were replaced by second-generation digital systems. This change removed the technical constraints of scarce spectrum imposed by the old analogue systems and increased capacity considerably. Thus the mobile entered a new, mass-market phase. The “expensive” tag gradually started fading as competition and technological advances forced prices down. Furthermore miniaturization also allowed the mobile phone to become lighter, cheaper and more attractive; a fashion accessory. The phone left the confines of the car and can be seen in briefcases, handbags and even pocket. Today, the mobile phone typically weighs a few hundred grams, is attractively colored and has high-powered miniature batteries, which can support service for hours.

Technological advances have also provided a vast array of features and services. Customers are already familiar with services such as custom calling plans, extended battery life, message waiting indicators, and caller id. New services such as Short Message Service (SMS), mobile Internet, and videophone are already providing a new spurt of growth. For example SMS service, which involves sending text messages from phone to phone, is already a big success among the teenagers in Europe and Asia and is expected to catch on in US in a big way also. 

Marketing: Aggressive marketing and advertising by the major wireless companies has also helped considerably to increase demand by educating the public about the advantages of a mobile phone and the various subscription plans. Newspapers regularly carry full-page advertisements touting various “Family Plans”. Aggressive TV advertising often plays on fears of people stuck in a difficult situation – for example a lone woman driver has car breakdown at night in a rough area. A call over the mobile gets her immediate help.

Also Pre-paid cards, a form of versioning, have been one of marketing notable successes. The offering of these services has helped to generate demand from a group of consumers who are in lower income brackets or have bad credit histories and who would normally not be qualified for a regular service. By getting them to pay upfront, the firms tap into this group and generate secure revenues.

Political effects: Political issues have also helped the industry. Despite the overall economic slowdown, anxiety caused by the September 11 terrorist attacks and anthrax scares have resulted in an increase in demand for wireless phones for security purposes. Texas Instruments, for example, reports an increase in orders of chips for cell phones in the wake of September 11.

Demographic effects, and in particular the teenage consumer group, have played a notable part in the industry’s demand. According to Teenage Research Unlimited (TRU) a market-research firm, 85 percent of teens feel that the mobile phonies is a must-have gadget and 37 percent of kids 12 to 19 use one. Parents are giving phones to their kids in order to keep tabs on them; teens, in turn, use their mobile phones to plan parties on the fly and buy over the Web.

Consumer preferences have also changed further boosting demand. With mobile, users no longer call a place but a person. Small, portable handsets have liberated users from being tied to a geographic location, enabling users to be reached anytime, anywhere.

Considerable positive network externalities have also helped boost demand; value of having mobile service to given customer has increased as number of subscribers has increased. Furthermore mobile phone has become a status symbol and a fashion accessory – something you cannot do without.

Income effects: The 1990s have seen a period of extraordinary prosperity in the US. Unemployment levels have been at record levels and national real incomes have been rising at an average annual rate of 2%. The middle-income group has seen stronger rises in their level of income and net assets (stock, house). These economic trends have made ownership of wireless more affordable.
Role of complements: Success of Internet is already beginning to fuel high growth in the wireless industry and this trend is expected to escalate due to the ability of Internet, to deliver voice and data over mobile telephones, pagers, and handheld computers. The potential for providing services over the wireless Internet is endless. As more and more consumers are able to access the Internet through mobile phones, wireless operators hope to persuade users to shop and entertain themselves using these Web-enabled phones and other devices. Advertisers aim to steer users into the nearest store with marketing messages beamed directly to the mobile device. Emailing over Internet is already catching on fast as operators such as Sprint PCS, are rolling out mini-browsers services and email access. Manufacturers are eagerly putting popular PC applications like IM on mobile phones. For example, in November 2001, handset maker Nokia shipped its 3390 model, which includes an AOL IM interface built directly into the phone. All major wireless operators, such as Sprint PCS, Voice Stream and Verizon Wireless offer phones, which support some form of text messaging or support phone-to-phone IM. The new phones are also popular as handheld videogame systems.

Substitutes: Wireline or fixed phones have been around for decades and are the most obvious substitutes to Wireless. However, for the reasons given above, popularity of wireless service is on the rise, despite the fact that the cost of a mobile call at about 40 US cents per minutes is on average, almost four times higher than the cost of fixed-line service. The number of new mobile subscribers has surpassed new fixed ones every year since 1996. In 1998, there were almost twice as many new mobile subscribers as fixed ones. According to the Cellular Telecommunications & Internet Association (CTIA), sometime, around the middle of the next decade, the number of mobile telephone subscribers will exceed fixed-lines.

Furthermore, many customers are going entirely wireless and giving up their wireline service altogether. Evidence for this trend can be seen in the great year Leap Wireless, a minor wireless operator, has had. Leap's Cricket "Comfortable Wireless" service is basically a wireline replacement play, offering customers flat-rated calling from within their local service area. Leap aimed the service primarily at second-tier markets to minimize competition with other wireless offerings, and has been rolling out those markets at lightning speed this year. The displacement of wireline connections with wireless service is not exclusive to the home. In the late 2000, General Motors issued Nextel mobile phones to 400 of its engineers rather than installing wireline phones on their desks.

Therefore it can be concluded that wireline as a substitute is losing ground to wireless. Most of the wireline companies have noted this development and moved into wireless. Example are Verizon acquisition of several small wireless companies to create a subsidiary Verizon Wireless and the creation Cingular which is a subsidiary owned by two large wireline operators - SBC and BellSouth.

COST ANALYSIS

Wireless service is an information good and as is typical of such goods, they are costly to produce but very cheap to reproduce. The main cost incurred by the industry is fixed capital expenditure, some of it sunk, spread over the following functions: Customer Care/Billing centers, components, antennas, batteries, infrastructure/base stations, microwave equipment, switches, Network design, network installation, system testing, training, tower/masts, software, and terminals. Since this is a service industry, the number of people employed within the industry is considerable, which also adds to fixed costs. Variable costs are roaming/interconnect charges, but these form a small proportion of the overall costs, as discussed in detail below.
In converting from analogue to digital system, wireless companies have had to invest heavily in infrastructure such as cell towers/masts, base stations, switches, etc. Furthermore in order to address strong subscriber growth and future demand, the firms are already laying the groundwork for next generation of wireless networks, the so-called third-generation (3G) networks. They are also broadening geographic coverage to new markets and deepening coverage in cities with strained capacity. All these efforts are highly capital intensive evidenced from the fact that the top six national carriers (listed in Table 1) made more then $17 billion in capital expenditure in 2000 and will spend at least that amount again this year.

Besides expectation of strong future demands, falling equipment prices have also contributed to network expansion. According to data provided by the Bureau of Labor Statistics, producer price index for wireless communications dropped 6.1 percent from December 1999 to December 2000. Plunging equipment and handset costs have made possible by rapidly evolving technology, growing market sizes resulting in economies of scale, and fierce competition among the thousands of equipment providers around the world.

Wireless operators have also seen a downward trend in their average costs resulting from economies of scale; growing base of subscribers has allowed for spreading of high fixed costs. Economies of scope has also reduced average cost per subscriber for Telecom operators (Telcos), such as Sprint PCS and AT&T, who’s main source of revenue is business other than wireless (such as local or long-distance wireline services). Economies of scope have come from sharing of their functions such as customer care, billing and marketing and thus spreading the costs over wireless and wireline businesses.

However, not all costs are going down. Due to large number of firms that entered the industry and due to the fact that subscriber-ship is reaching saturation levels, competition for subscribers has started to heat up. This in turn has increased costs of acquiring and retaining customers, due to increased advertising expenditures and use of customer loyalty schemes. For example, Sprint put blamed a $100 million drop in its projected earnings for the year 2000 firmly and squarely on higher subscriber acquisitions costs.
Non-operational costs are also rising. These are cost of license payments, spectrum fees and taxes, which have all gone up in the last five years. As the government has realized the revenue-earning potential of mobile communications, it has tended to increase the financial burdens on the industry, especially in the form of steep rises in license fees. At the recent government spectrum auctions, operators spent $17 billion on purchasing licenses. The top three bids came from the nation's three largest carriers—Verizon, Cingular, and AT&T—and accounted for 83% of the total spent.

Other fixed costs that have risen are labor costs. According to CTIA, employment numbers in the industry have gone up from around 26,000 in 1991 to about 184,000 in 2000. Average hourly rate for the sector has also gone up from around $10 to $14 in the same period. This adds considerably to the fixed cost incurred by the industry, however as graph 4 shows, labor cost is only a small proportion of the overall fixed costs.

Variable costs, as is typical for information goods, are normally very low and the marginal cost of making a mobile-to-mobile call is almost zero. However, for calls originating or terminating on fixed-line network, operator faces significant marginal costs in the form of interconnection fees. Thus the interconnect arrangements between mobile and fixed-line can make or break the business plan of a new mobile operator. Another variable cost is roaming charges—a charge paid to competitor operators for supporting geographical reach. As carriers have extended their footprint all over US through acquisitions and strategic alliances, roaming charges and in many cases long distance charges are gradually being eliminated.

INDUSTRY STRUCTURE

As rapid growth in wireless telephony attracted a large number of competitors from the wider telecom sector and from outside the traditional telecom sector, the industry became a very competitive free-for-all. Most companies were relatively small and their coverage was geographically limited—mostly to 1 or 2 states. In order to extend their coverage, the companies had to have roaming agreements with other companies, an arrangement which was expensive and not always seamless for customers. This led to an impetus towards national, regional and even global footprints. One way to achieve this was to invest in providing a coast-to-coast seamless coverage at the cost of billions of dollars of investment. Many firms, even large ones, realized that this go-it-alone strategy was not viable and consequently the last 2 years have seen considerable consolidation after a flurry of mergers and acquisitions. What has emerged is an oligopolistic industry with only 8 operators (Table 1) making up the 98% of the industry. Analysts believe that the industry will mirror its wireline cousin, with even fewer huge operators dominating the market. In an oligopoly, profits are substantial over a long run because barriers to entry make it difficult or impossible for new firms to enter. This is indeed the case with the wireless industry. It has high barriers (more about this in section below) and profits are expected to be high over the long run as investment is amortized over the coming years.

Firms can be divided into two broad groups: pure wireless players and multi-service providers. Multi-service providers are Telcos that have other highly profitable businesses to support the high capital expenditure required. Further more they are more able to support competitive pricing due to the fact they can take advantage of economies of scale and scope i.e by sharing their billing and customer service between wireline and wireless businesses. Size provides a definite advantage in this industry and therefore it should come as no surprise that all the major wireless operators in US have parents in the wire-line industry. Verizon wireless is the number one US operator with 28 million mobile subscriber and 3.8 million paging clients nationwide. It is part owned by Verizon Communications (a wireline operator). Similarly Cingular Wireless with its more then 21 million subscribers is owned by SBC and BellSouth and Sprint PCS is a unit of Sprint Corporation.

The slowing growth in the industry has forced terrestrial operators to place increased emphasis on competition for existing subscribers, but even the losers are simply adding fewer subscribers than the winners. No terrestrial operator is seeing its subscriber base shrink. However mobile satellite communication providers have not fared as well as their terrestrial cousins. Iridium, Globalstar and ICO Telecommunications each created its own network of low Earth orbit satellites to provide global wireless coverage. They expected to seize significant market share among highly profitable, globe trotting professionals in need of constant communication. Iridium launched its $5.5 billion network in November 1998 but in August 1999 the firm had only attracted 63,000 customers. This was not enough to cover its costs, which included an interest payment on its huge debt resulting from $5.5 billion cost of establishing
the network and the company filed for bankruptcy. The same fate was suffered by ICO and signs are that Globalstar is not going to last long either.

BARRIERS TO ENTRY

The industry has several barriers to discourage new entry. Large capital investments required for deployment of the networks are an obviously major barrier.

FCC only offers a limited number of licenses and thus creates a regulatory barrier to entry. A new entrant has to merge or form an alliance with a licensed incumbent.

The incumbents have made large investments in their name brand thereby discouraging potential entrants due to the large sum needed to achieve name recognition and market reputation.

There has been a wave of consolidation in the industry. This consolidation was partly motivated by the need to reach wider geographical footprint and partly to spread fixed cost and to benefit for economies of scale and scope. These economies and necessity to have a nation wide reach make it unprofitable for more than a few companies to co-exist and therefore deter new entrants.

Marginal costs of a mobile call are negligible unless the call originates or terminates on a wireline network. In this case interconnection fees can be very high and interconnect arrangements between mobile and wireline operator can make or break the business plan of a new mobile operator. The ability to have profitable arrangements is a necessity to compete in this industry and provides another barrier to entry.

Besides the natural barriers, firms have taken strategic actions to deter entry. Due to the fact that once the infrastructure is in place, marginal cost is negligible compared to fixed costs; the incumbents are able to turn on extra capacity easily. Furthermore investment in 3G not only has the purpose of providing better technology but also increases capacity due to even wider spectrum available. This extra capacity is meant to deter entry.

Despite the high barriers to entry into the broad market, there are opportunities for small-scale entry by highly focused and highly differentiated niche players who can focus on small market segments of high end users.

Barriers to exit, like barriers to entry, are also very high due to the fact that most capital investment is sunk. That would explain why Iridium continued in business for several months even though it was obvious it could not generate enough revenue to cover its costs. When Iridium finally filed for bankruptcy at the end of 1999, it sold its network for a mere $25 million - a huge markdown form $5.5 billion.

NATURE OF COMPETITION

The Federal Communications Commission (FCC) Sixth Report concludes that in the year 2000, the wireless industry continued to experience increased competition and innovation and that this has resulted in lower prices and an increased diversity in service offerings for many consumers.

Because the wireless service is indistinguishable, operators have competed solely on the basis of price, and as a result, the wireless industry has transformed itself into a commodity, with each carrier using low-priced minutes to attract customers. This is inevitably resulting in price competition where each company is trying to cannibalize the other's subscribers. The carriers are gambling that they can keep new subscribers long enough to eventually turn a profit on them. In the past, subscribers used to be discouraged from churning (switching from one operator to another) because of the high registration fee that they had to pay upfront. Last 2 years have seen this barrier to switching lowered because these fees have come down drastically and in some cases operators have totally eliminated them. Analysts suggest that, price competition and the lack of differentiated services between operators are precisely what led to an erosion of profits in the wire-line long-distance market. In order to inject much needed stability, firms are trying to reduce churn, by placing more emphasis on product promotion of contract plans.
Verizon, for example, reported a modest decline in churn and claimed to have 86 percent of its new subscribers on long-term contracts.

The industry is also beginning to reverse the tide of lower prices resulting in lower margins by starting to compete on the basis of product differentiation and innovation and product promotion. The advent of 3G could be a decisive turning point, as operators use the additional capacity to provide unique services, like advanced instant messaging, location-based services, and other multimedia offerings including bundled services of voice, data and video.

Smaller pure wireless players, segment the market on the basis of geography and type of customers. Their network footprint is limited to narrow locations such as metro areas and they focus mainly on high end users such as big businesses. They do not have the same name-brand recognition as the big players but they differentiate by providing highly customized services.

BUYER SUPPLIER POWER

The major firms in the industry follow a broad scale strategy and target customers at all levels of the society from individual consumer to large firms. Individual consumers are fragmented and their monthly bills do not constitute a large part of their disposable income. These factors serve to diminish their power. However they are able to switch service providers at a relatively low cost, which gives them some buyer power. Companies have realized that and in order to reduce the individual consumer’s switching powers, they have begun to promote long-term contracts. Furthermore, as mentioned in the section below, FCC also endows consumers with some power, by acting on their behalf to ensure fair pricing and fair competition.

Large firms also possess some buyer power. They typically consolidate their purchases and tender them to operators for bidding. In order to win big accounts operators, engage in fierce competition resulting in lower prices and better service to the firms.

Some of the largest equipment suppliers are multinational companies such as Nokia, Nortel, Lucent, Ericson, Alcatel, etc. However there are thousands of mid sized firms worldwide licensed to supply equipment and services to the industry. Suppliers have not had much power due to the fact that competition among these firms has been intense. The down turn in the economy since the middle of year 2000 has left these vendors with large inventories which they are desperate to get rid of. Almost all vendors to the industry are bleeding. For example, Nortel posted a $3.5 billion loss for the second quarter in 2001, and Lucent reported a staggering $8.9 billion loss for the same period. This situation explains their current lack of supplier power. However even before the economic down turn, the suppliers did not possess much power evidenced by the fact that most firms gave away equipment with no up front cost to the startups in the wireless industry. They could afford to do that, because technology and vast economies of scale were driving costs down rapidly.

Government as a supplier of licenses and spectrum clearly possesses major power due to its ability to limit the number of operators and due to its ability to impose large fees on them.

ROLE OF GOVERNMENT POLICIES

Regulation of mobile cellular services has tended to be minimal. The relative lack of cellular regulation is partly due to the belief that fixed networks have been too regulated, stifling innovation and network growth. That said, the industry is not completely unfettered from regulation. Federal Communications Commission (FCC) is the main regulatory body. It has three functions: 1) It oversees issue regarding fair pricing, fair-trading and in particular anti-trust activities. 2) It is mandated by the government to sell the precious licenses and frequency spectrums. 3) It is responsible for furthering the interests of consumers.

Anti Trust activities and fair pricing: As mentioned above, frequency constraints, coupled with the high level of initial investment required (either because of significant license fees, network construction expenditures or both) suggest that there are high barriers to entry and that the mobile cellular industry could never be a perfectly
competitive market. As a result, there could be some market distortions or price collusions on part of the firms to fix prices unless there is some regulatory oversight. FCC is the regulatory body that ensures level playing ground and has the responsibility scrutinizing takeover bids. The FCC recognizes the need for consolidation but approves takeovers only if it believes that they would be in the long-term interest of the industry and the consumer. For example, in September 2001, AT&T Wireless got approval for a $2.4 billion acquisition of wireless operator TeleCorp.

Section 276 of the Telecommunications Act of 1996 requires that pay phone service providers be "fairly compensated for each and every call" when a call crosses the boundaries of one company to another. FCC sets rules and guidelines to ensure that companies are compensated fairly for services provided.

**Spectrum licenses:** FCC traditionally issues licenses to limit the number of operators. It also allocates frequency spectrum to ensure services can operate without frequency interference. For example on Sept 24, 2001, FCC announced that it was making the 2500-2690 MHz band available for mobile allocations thereby making it potentially available for advanced mobile and future generations of wireless systems.

In June 2001, the FCC voted to phase out the caps that have limited the amount of radio spectrum a single firm can own in a single urban market. This decision is expected to continue the consolidation frenzy to satisfy the appetite for more spectrum of big players. The repeal of the cap allows them to acquire expansion space and more customers by acquiring or merging with smaller companies. For example NextWave has reached a deal with the FCC that will allow Verizon, Cingular, AT&T Wireless and VoiceStream Wireless to acquire some of the valuable spectrum licenses that NextWave holds but has been unable to exploit.

**Consumer interest:** FCC enhances consumer interest by periodically mandating changes in the wireless services; changes that would benefit consumers. For example, FCC has mandated that all wireless services should support Enhanced 911 feature by June 2002. This feature allows emergency services to locate a person needing assistance through the location of his mobile.

Similarly, FCC has mandated that all wireless handsets be location-enabled by October of this year. Location based technology allows for services such as location of restaurant, gas stations to be provide to the users depending on their location. Location-based services will see some of their strongest growth in personal locator services that can be used to track friends and family members.

**OUTLOOK FOR FUTURE**

The long-term future for the mobile sector is likely to be closely tied to that of the Internet. Analysts expect that the development and deployment of advanced wireless or **Third Generation (3G) services will increase the growth of mobile data services over the next several years.** During 2000 and early 2001, several U.S. mobile telephone carriers announced their 3G roll out plans. At least six carriers expect to begin deploying 3G network technologies during late 2001 and early 2002. These 3G mobile systems will enable Internet access at high speeds. In economies where mobile systems are well advanced, such as Finland and Japan, non-voice services such as short message service (SMS) already account for a significant contribution to total revenue. The demand for mobile access to data services, especially the Internet, is potentially huge and 3G, according to analysts, will create a virtually new industry.

According to Gartner Dataquest, a telecom analyst, “The future is bright, the future is mobile”. This optimism has led analysts to put a figure of over 27% for annual growth in earning for the industry over the next five years. This is well above the 9% estimated for the general telecom sector. As table 2 shows, most of the firms are expected to post healthy annual growth rates of 30% or more.

The industry is expecting mobile gaming to provided a further significant boost to their revenues. According to new findings from the Arc Group, the total number of mobile gamers is set to increase from 4 million this year to almost 45 million by 2006.

**Location based services** are also likely to provide considerable opportunities for profits. Location based services include finder services, buddy list services that are linked to Instant Messaging, and premium subscriptions for
services that track traffic and weather. The key to success with such services is to provide information that is location sensitive, timely and personalized for individual users.

The bright future of the industry does have some dark clouds. There are three competing digital standards: Time Division Multiple Access (TDMA), Code Division Multiple Access (CDMA), and the Global System for Mobile Communications (GSM) currently deployed in the US. Lack of a single standard in the US and the rest of the world, not only threatens to slow development of new services but also makes it difficult for customers to use their mobile phones in different countries. Equipment costs could also be further reduced if at least in US, if not in the rest of the world, a single standard could be adopted.

All in all the terrestrial mobile companies are facing the future with cautious optimism. However the same cannot be said about the future of mobile satellite communication. Standard & Poor’s considers the future of mobile satellite communication to be unpromising. The rapid deployment of terrestrial wireless services and falling retail costs make it questionable whether any satellite-based wireless systems will be able to garner minimal level of market share.

Clearly, due to the massive barriers of entry, this is not a good industry to get into on a broad scale and it would be difficult to compete against the likes of Verizon and Cingular. However, there are opportunities for small, nimble companies to carve out market niches. Such companies could limit their infrastructure to a small geographical location, which could be a university campus or metro areas, and offer customized services to high end users such as businesses. Another niche, which could offer profit potential, is as virtual mobile networks operators (VMOs) whose business model leverages marketing expertise and brand name recognition to offer wireless service with minimal investment in infrastructure. Location based services, which require considerable customization is another avenue for entry into the market. The potential for niche operators is so promising that Wiersema, a market research firm, believes that the new leaders will be the most focused companies, not simply the biggest.

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<th>Carriers</th>
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<td>27.55</td>
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<tr>
<td>Telecom sector</td>
<td>9.22</td>
</tr>
<tr>
<td>Verizon Wireless</td>
<td>28.0</td>
</tr>
<tr>
<td>Cingular</td>
<td>27.0</td>
</tr>
<tr>
<td>AT&amp;T Wireless</td>
<td>30.0</td>
</tr>
<tr>
<td>Sprint PCS</td>
<td>30.0</td>
</tr>
<tr>
<td>Nextel</td>
<td>32.6</td>
</tr>
<tr>
<td>Alltel</td>
<td>12.0</td>
</tr>
<tr>
<td>VoiceStream</td>
<td>32.0</td>
</tr>
<tr>
<td>US Cellular</td>
<td>18.7</td>
</tr>
</tbody>
</table>

*Source: Standards & Poors, Yahoo Finance*

SYNTHESIS

The industry is relatively new and most of the firms are newcomers who entered the industry within the last five years. Therefore long term data, and even in some case 5 year data, on their performance does not exist. Data for the two largest operators, Verizon Wireless and Cingular are also not available due to the fact that both these firms are not public companies and they do not publish their results. However with what data are available, we can see from graph 1 above, that the industry’s performance in terms of profitability and return on assets has been dismal.
Industry Analysis of the Wireless Services Industry

Tariq Butt

compared to the profitability of the economy as measured by the S&P500 index. The lack of profitability is caused by two factors: falling prices and high capital investment costs. Since the industry is relatively new and has been going through a rapid growth phase, firms have had to make massive investments into their digital networks, which are generally less than five years old and still growing rapidly. Consequently, the investments have not yet been amortized. Over time, as the industry matures, capital requirements for mobile operators should decline and the networks would then be “cash cows” able to generate large sums of profits.

Alltel appears to be an exception to the rule showing a 14.6% average profit margin. However Alltel is not a true wireless play because a large part of its earnings and profits are derived from the very profitable wireline industry. The firm does not provided breakdown of data for its different business, but one can safely assume that its wireless business has been unprofitable, just like the other firms in the industry, over the last few years.

Another firm, US Cellular, has been making respectable profits of over 9% annually. This firm had limited its network to just two or three states. It had also not upgraded its outdated analogue networks to digital. These two factors kept the firm’s capital spending low and profits relatively high. The profitability will not last, because customers are demanding higher voice quality and better roaming coverage forcing the firm to upgrade its infrastructure to the next generation equipment and to develop a nationwide coverage.

AT&T Wireless is another firms that has shown profits, albeit small, over the last five years. The reason for its ability to outperform its rivals is that AT&T has smartly avoided unprofitable customers, trying instead to extract as much revenue as it can from each subscriber. This has led to one of the highest average revenue per user (ARPU) numbers in the industry. Also, the company is at the forefront of wireless data, evidenced by the half million subscribers signed up for its PocketNet service. Analysts believe that AT&T will use its profitable growth and leadership in wireless data to benefit the most from 3G technologies.

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Extremely well done report, immensely to see if profits pick in next few years or whether some for merge or exit.