

Requisition of Competition: Spurring Wireless Telecommunications in the U.S.

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Abstract

The U.S. has four major carriers; AT&T, Sprint, Verizon, and T-Mobile who make up over 90 % of the U.S. market collectively. At the end of 2011 Verizon had the largest market share with 36.5%, AT&T was a close second with 32.1%. Sprint, the nation's third largest carrier had 15.4% and T-Mobile held 10.7%. It is imperative that these carriers, and the regional carriers who make up the remaining percentage of the market, operate in an effectively competitive manner in order to keep prices down, promote cellular network usage, and remain innovative in order for the industry to thrive. Due to the high level of concentration in this market, the absorption of just one of the major carriers through mergers or acquisitions could dramatically shift the market by bringing drastically anticompetitive effects on the market and its participants. This research paper validates the necessity of competition in the highly concentrated market of mobile network operators (or carriers) in the United States.

Keywords: competition, mergers & acquisitions, advantages of competition, monopoly, wireless, telecommunications, market/ industry

1. INTRODUCTION

Merriam-Webster defines competition in business as "the effort of two or more parties acting independently to secure the business of a third party by offering the most favorable terms." By having competition in place, customers have more of a variety when selecting a product or service, and the price of the product or service is kept lower than it would be without the existence of competition in a particular industry.

Historically, in the U.S., the telecommunications industry has lacked of competition, particularly in long distance communications, this caused a monopoly to develop. The verb "monopolize"

refers to the process by which a company gains the ability to raise prices or exclude competitors. A monopolistic firm has the ability to set prices that are not competitive. This is typically higher than competitive rates as the monopoly has a majority of the subscriber base.

Another disadvantage of an anticompetitive market is availability. With fewer or no other competitors, customers have fewer choices in the products and services they have to choose from, they will be at the mercy of the monopolized carrier. These are just a few of the disadvantages for the possibility of mergers or acquisitions in the wireless telecommunications industry which weaken competition.

Recently the wireless telecommunications industry has faced a similar issue with the proposed acquisition of T-Mobile by AT&T Wireless. If this proposition were to go through, the industry would have three nationwide carriers for subscribers to choose from, fewer devices to choose from, and we would see AT&T Wireless exhibit behaviors of a monopoly similar to that of AT&T Inc. in the past.

The motivation of this paper is to emphasize the benefits of effective competition in the wireless telecommunication industry. The objective is to substantiate the negative effects mergers & acquisitions have on the industry in the hope that innovative ways to strengthen competition will be found. As competitors implement successful strategies to gain more subscribers they will see the fruits of their labor in the form of revenue generated from new customers and customer retention and innovative products and services to gain a hold a competitive edge over competitors.

Section 2 gives a literature review of the sources that motivated my research. Section 3 defines wireless telecommunications and gives insight into the wireless telecommunications technology used by competing carriers. Section 4 discusses the minimum requirements for creating a competitive market. Section 5 highlights the advantages of competition. Section 6 highlights the disadvantages of monopolization. Section 7 wraps up with the discussion with concluding remarks.

2. LITERATURE REVIEW

Bar and Borrus (Bar & Borrus, 1997, p. 2) describe the six elements that reinforce competition in the telecommunications market. The first two elements make competition possible. The third and fourth make it work, the fifth makes it real/effective and the sixth makes it enforceable.

In an anticompetitive market, a monopolized carrier will lack the incentives to innovate (Faulhaber & Farber, 2010). To give an example of the effects of a monopolistic industry Sullivan and Hertz (Sullivan & Hertz, 1989, p. 235) give background in their article into the establishment of the consent decree that separated AT&T, Bell Labs and Western Electric from the Bell Operating Companies, which created competition amongst local wireline carriers. To aid in the understanding of the

technology used to provide services to customers today, Jamison and Hauge (Jamison & Hauge, 2011, p. 2) give a clear explanation of wireless telecommunications technology. Carriers offer similar services using similar technology and must differentiate themselves from one another in order to stand out and become the choice of subscribers.

Having similar technologies and services creates a competitive market, with that, competitors will employ strategies in order to gain an edge over competitors and increase their presence in the market. In 2011, AT&T proposed an acquisition of their competitor T-Mobile. Grunes and Stucke (Grunes & Stucke, 2011, p. 49) take a look at the proposed acquisition of AT&T and T-Mobile and suggested possible remedies for this anticompetitive proposal and conclude that this merger is not in the interest of competition.

Grunes and Stucke's (Stucke & Grunes, 2012, p. 198) further examination of the proposed AT&T-T-Mobile merger reviews the proposal against section 7 of the Clayton Act and show how the proposed merger violates the incipency standard, which states "*Section 7 does not require proof that a merger or other acquisition [will] cause higher prices in the affected market. All that is necessary is that the merger create an appreciable danger of such consequences in the future*" (Stucke & Grunes, 2012, p. 198).

In their defense of the merger proposal AT&T made several claims of benefits that would be brought about from the merger between AT&T and T-Mobile, such as price declines, the creation of new jobs, and the ability to provide 4G wireless services to 97% of the American population. However, Brunell (Brunell, 2011, p. 5) discusses the anticompetitive effects of the acquisition of T-Mobile by AT&T. He disproves any claims of efficiency AT&T proposes as a result of the merger and explains the merger is not necessary for the growth and improvement of AT&T.

Each section of this paper provides explanation or examples used to promote the understanding of the services offered by competitors and an industry with few major players. It reinforces the disapproval of the merger between two firms that will further concentrate the industry.

3. WIRELESS TELECOMMUNICATIONS TECHNOLOGY

Wireless telecommunications technology allows users to remain connected at all times through the use of mobile and handheld devices providing many of the same functions as their fully-loaded desktop counterparts. It is because of this convenience that the wireless telecommunications industry has shown rapid growth consistently since its inception.

Wireless Technology

Wireless telecommunications can be defined as the transfer of information between two or more points that are not connected via physical media. One of the best-known examples of wireless technology is the mobile phone, also known as a cellular phone, with more than 4.6 billion mobile cellular subscriptions worldwide as of the end of 2010 (Centre, 2010, p. 1).

In the U.S. cellular market, there are two main competing network technologies: Global System for Mobile Communications (GSM) and Code Division Multiple Access (CDMA) (Kayne, 2012, p. 1). Both AT&T and T-Mobile use GSM technology while Verizon and Sprint use CDMA.

GSM divides frequency bands into multiple channels so that more than one user can place a call through a tower. Initially GSM could be described as technologies for second-generation (2G) digital cellular networks. This technology has progressed to offer third generation (3G) services via Universal Mobile Telecommunications System (UMTS). UMTS offers greater spectral efficiency and bandwidth to mobile network operators.

CDMA networks layer digitized calls over one another, and unpack them on the back end with sequence codes. This underlying technology has evolved to offer 3G speeds and rebranded as CDMA2000. Network speed is important to those who use the phone for more than making phone calls. Having 3G provides superior data services over 2G, but lacks sufficient bandwidth for many video and web-based services, such as streaming video (Jamison & Hauge, 2011).

Figure 1 highlights some of the differences between CDMA, GSM and the upcoming Long Term Evolution (LTE) technology. Traditionally, CDMA technology has been faster than GSM; however both technologies continue to leapfrog

one another while advancing toward the next generation of data speeds using 4G technology (Kayne, 2012, p. 1).

4G LTE is the next generation technology all four nationwide carriers are moving to. It is based on the GSM and UMTS network technologies; increasing the capacity and speed using new modulation techniques. The innovation behind LTE technology will bring data transmission speeds comparable to the fastest wired internet services currently available.

Although LTE is based on UMTS/High Speed Packet Access (HSPA), and UMTS is derived from GSM technology, all carriers, both GSM and CDMA, will have to develop and roll out LTE on their networks. In fact, CDMA-based Verizon is the farthest along in their LTE roll out with 230 cities while AT&T covers a far less portion of the U.S with only 32 cities (Bilton, 2012).

Figure 1: A Comparison of Mobile Network Technologies

	CDMA	GSM	LTE
3G Standard	CDMA2000	UMTS	UMTS/HSPA
Worldwide Market Coverage	14%	73%	33.7%
Data Transfer Speeds	300-700 kilobits per second (kpbs)	275-380 kpbs	3-8 megabits per second (mbps)

Source: (Eric, 2011, p. 1; Lambert, 2012, p. 1)

Growth in the Wireless Industry

As with the technology in the wireless industry growing at a rapid pace, so has the subscriber base. Since the 1980s, the number of users of cellular services has grown tremendously. Figure 5 gives a broad view of the growth of the industry. A drastic leap in subscribers between 1985 and 2011 is observed shortly after the year 2000. In 2002 the number of cell phone subscribers move over 100,000,000 in the U.S.

Observing the magnitude of the growth in mobile communications, mobile cellular telephones showed the greatest growth as shown in figure 2 which takes a look at Information and Communication Technologies (ICT) in a 10-year period. Taking a deeper look into the composition of the cellular market, reveals voice data makes up the largest segment of the market (figure 3). There has

been a growing desire for people to have communication capabilities wherever they go.

A comparison between the minutes used in cellular voice calls and texts sent using text messages in the U.S has come to a point of equilibrium. Figure 4 it shows that as the use of cellular phones has grown over the years, the use and convenience of sending a text message has become as desired as making a voice call on the fly. Notably, minutes has flattened out and predicted that in the future messaging will exceed voice minutes used (Cooper, 2012).

Figure 2

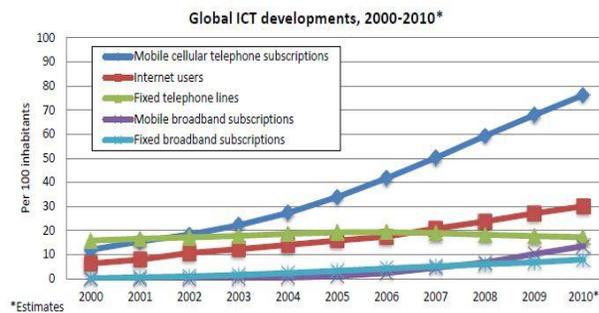
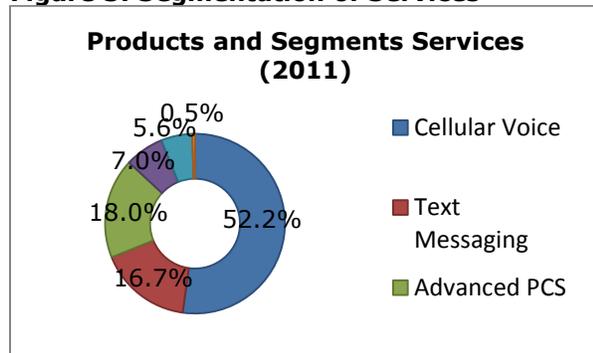
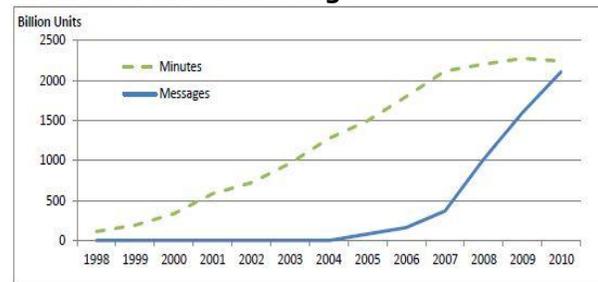


Figure 3: Segmentation of Services



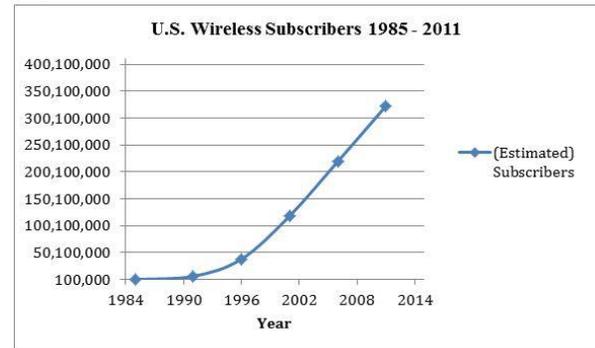
Source: www.IBISWorld.com (Thormahlen, 2011, p. 5)

Figure 4: Minutes vs. Messages in the U.S. Growth of Wireless Usage



Source: THE CENTRAL ROLE OF WIRELESS IN THE 21ST CENTURY COMMUNICATIONS ECOLOGY: ADAPTING SPECTRUM AND UNIVERSAL SERVICE POLICY TO THE NEW REALITY (COOPER, 2012, P. 15)

Figure 5: Subscriber Growth Since 1985



Source: CTIA-Annual Wireless Industry Survey, 2011

The number of wireless subscribers has grown significantly in the five years leading to 2011. There were an estimated 306.2 million subscribers in the U.S. in 2011 (Thormahlen, 2011, p. 5). That's a growth of approximately 5.9% per year while the industry revenue has increased at an annual rate of 3.9% (Thormahlen, 2011, p. 5). In the years leading to 2016, the wireless carriers industry is expected to grow at an annual rate of 3.2%. Even during the recession industry growth slowed, but never declined. Revenue increased at a rate of 1.1% and 2.4% in 2009 and 2010, respectively (Thormahlen, 2011, p. 5).

Convergence of Services

As wireless telecommunications technology advances, the distinction between voice, text, and data services is becoming blurred. All of these services demand radio spectrum utilization. Unfortunately spectrum is a limited resource and appropriate spectrum management and regulation mechanisms are needed in place to allocate its use. To aid in the management of this scarce resource, telecommunications or network convergence can help. Convergence involves converging of previously distinct technologies such as telephony and data communications into common interfaces on single devices. It is defined as "the degree to which diverse media such as phone, data broadcast and information technology infrastructures are combined into a single seamless all-purpose network architecture platform" (Menon, 2011, p. 2).

Communication networks were initially designed to carry different types of information independently. The idea of telecommunications convergence began with the emergence of the mobile phone and the Internet. Traditionally,

application architectures were tied to a specific network (fixed, mobile or Internet Protocol (IP)) and different networks required diverse software implementations of the same services. Convergence allows operators to make use of a single IP network to provide multiple services such as voice, data, mobile and television at the network level. At the terminal level, users are able to access all these services via a single device such as a cellphone. Lastly, service convergence allows a single service, such as email, to be accessed from various devices, such as PCs, handhelds and cellphones (Tan, 2006, p. 1).

4. HISTORY OF U.S. TELECOMMUNICATIONS WIRELESS MERGERS & ACQUISITIONS: 1982 – 2011

It was through a series of mergers/acquisitions and advances in mobile technology, that the four nationwide wireless service providers in the U.S. were formed. These factors are responsible for the competition in the U.S. wireless telecommunications industry. Harold McCracken recalls the mergers and acquisitions that have taken place in the U.S. since the end of AT&T's monopolization of the telecommunications industry. The result of these mergers and acquisitions has minimized the competition in wireless telecommunications and created AT&T Wireless, Sprint, Verizon Wireless. T-Mobile was brought into competition as a subsidiary of Deutsche Telekom, a German telecommunications company.

It was in 1984 when the consent decree took effect and AT&T's local exchange carriers broke up into the companies Ameritech, Bell Atlantic, BellSouth, NYNEX, Pacific Telesis, Southwestern Bell, and US West. In 1986, the General Telephone & Electronics Company (GTE), a company independent of AT&T and the RBOC, formed Sprint with US Telecom to compete against AT&T in providing long-distance service (McCracken, 2011, p. 1).

In 1988 Pacific Northwest Cellular was found under the Western Wireless Corporation. Pacific Northwest Cellular changed its name to VoiceStream in 1994. AT&T purchased wireless pioneer McCaw Cellular who was the joint owner, along with Southwestern Bell of the Cellular One brand name. AT&T dropped the Cellular One name in favor of AT&T; however Southwestern Bell continued to use the name. Pacific Telesis

spins off its wireless service into AirTouch (McCracken, 2011, p. 1).

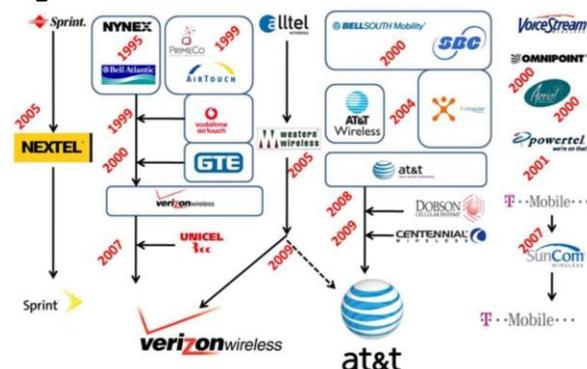
In the first major reversal of the Bell divestiture, Bell Atlantic was approved to acquire NYNEX in 1996. Southwestern Bell, rebranded as SBC, acquires Pacific Telesis in 1997 and WorldCom, a long-distance company with roots dating back to 1983 acquired MCI to form MCI WorldCom. In 1999 SBC was approved to purchase and AirTouch merges with Vodafone of the United Kingdom to form Vodafone AirTouch (McCracken, 2011, p. 1).

Qwest, founded in 1996, acquires US West in 2000 and Vodafone AirTouch along with Bell Atlantic form a joint venture named Verizon Wireless. A few months later Bell Atlantic merges with GTE to form Verizon Communications, the parent company of Verizon Wireless. In 2001, SBC and BellSouth were allowed to merge their wireless businesses to form Cingular. AT&T spun off their wireless business to create AT&T Wireless Services in 2002 and German telecommunications company, Deutsche Telekom, acquired VoiceStream and brands their U.S. operation T-Mobile (McCracken, 2011, p. 1).

After WorldCom was found guilty of an accounting scandal in 2002, they changed their name to MCI in 2003. Cingular Wireless acquires AT&T's wireless service in 2004 and Qwest, which already offered its own wireless service, becomes a reseller for Sprint. In 2005 Sprint bought Nextel and formed Sprint Nextel, SBC acquires AT&T and adopts its name, and Verizon acquires MCI. In 2006 AT&T purchases BellSouth and renames the Cingular Wireless AT&T (McCracken, 2011, p. 1).

On March 20, 2011 AT&T announced its plan to purchase T-Mobile, for \$39 billion in stock and cash transaction (Grunes & Stucke, 2011, p. 48). The approval of this merger would form the largest wireless telecommunications company in the United States. If the merger were to be approved the new firm would have approximately 132 million connections across the United States and more than \$72 billion in mobile wireless telecommunications services revenues ("Amended Complaint : U.S. and Plaintiff States v. AT&T Inc., et al.," p. 6)

Figure 6: U.S. Wireless Carriers



Source: <http://www.deadzones.com/2011/05/history-of-us-wireless-telecom.html> ("History of US Wireless Telecom Consolidation," 2011, p. 1)

Figure 6 provides a visual representation of the formation and inclusion of all four of the nationwide carriers in the U.S.

5. CREATING A COMPETITIVE MARKET

In order for competing carriers to effectively compete and remain relevant in an industry with rapid growth such as wireless telecommunications, there are specific conditions that need to be present. The consolidation of the wireless telecommunications industry has caused a deficiency in wireless telecommunications competition, however, at its inception there were several carriers competing for subscribers in the new submarket of telecommunications.

Competition in the Wireless Industry

Establishing a market of competitors does not establish an effectively competitive market. There are elements that are necessary to in order create effective competition and seize new opportunities for economic growth. Market competition is "a means to generate and capture new opportunities for economic growth and industrial innovation opened by the new information technologies" (Bar & Borrus, 1997, p. 2). Real access to telecommunications networks is the key to making competition possible. For example, rural regions may have less competition due to a lack of competing network services in that area. There may be a need for unrestricted resale/reuse of the dominant carriers' facilities and services. Without these resale rights, new entrants would require a costly, complex acquisition of rights of way resulting in substantial delays before entry.

Having the possibility of competition is not enough; two conditions are essential if competition is to work effectively. "Any form of discrimination between the conditions under which the dominant carrier offers access to new entrants, and the conditions it grants to itself, places a new entrant at a disadvantage" (Bar & Borrus, 1997, p. 6). Second, there should be non-discriminatory, reasonable pricing of access and interconnection. Another area where unfair pricing could take place is with access charges. Access charges refer to payments made to local service providers for originating and terminating calls on their networks. Prior to the FCC governing access charges for making and terminating calls, local network providers could charge long distance carriers higher rates than others for calls.

Competition is only real and effective when foreign competition exists in the domestic market (Bar & Borrus, 1997, p. 7). What foreign access does is bring crucial technological, market and managerial know-how to the wireless telecommunications industry in the U.S.; this is essential for stimulating growth of the domestic market, local production and innovation (Bar & Borrus, 1997, p. 7).

The sixth condition that is necessary, or else all other conditions are meaningless, is the need for an independent, neutral, regulatory authority (Bar & Borrus, 1997, p. 7). This entity should be vested with the power to settle disputes, set and enforce the rules transparently, and fairly allocate scarce resources like spectrum. Competition cannot effectively exist without all six conditions. These conditions are interrelated and absence of one can substantially disrupt effective competition.

Barriers to Entry

The entry barriers into the wireless telecommunications industry are high. New participants in the wireless market must establish services by 1) building out a network of their own, obtaining spectrum through auctions held by the government, which has a high cost, or 2) piggy-backing off existing carriers. This way is much quicker, but more restricted as network access, contract terms, and growth are all dependent on the competitor's willingness to allow the use of resources.

New entrants require spectrum, towers, network equipment as components to create an effective competing network. If a firm were to build a network of its own, it would first have to acquire a massive amount of capital in order to build it. It would need to purchase network equipment from manufacturers that would be placed within the geographic footprint. Towers would have to be setup within this area which also carries a hefty cost. Not only would they have to gain capital in order to build this network they are also subject to regulatory agencies such as the FCC.

Entering participants will have to purchase spectrum in order to offer wireless services to its subscribers. Spectrum is purchased through auctions held by the government. If firms plan to enter wireless industry they have the option of using the network resources of its competitors in order to provide services to subscribers. Although this could be a cheaper alternative to building their network, it is not ideal as they are subject to the conditions of the resource owner.

6. ADVANTAGES OF COMPETITION

There are several advantages to market competition from competitive pricing which give customers an attractive deal and attracts new customers to innovation to keep customer interest and hold an edge over competitors. Competitive markets exist when there is genuine choice for consumers in terms of what is sold and how many players in the market offer the desired product or service.

In March of 2011 the FCC adopted new rules that would assist in facilitating competition among wireless carriers. The FCC voted 3-2 to require nationwide wireless carriers to open their data networks to smaller regional operators in places where their service does not extend (Tessler, 2011, p. 1). The nationwide carriers will have to offer these network resources at a reasonable price and the FCC will resolve any conflicts. These newly set "data-roaming" rules are intended to level the playing field in local markets. This is one example of how the U.S. government has recognized and facilitated competition in the wireless telecommunication industry.

Competitive Pricing

In an economy with effective competition, competitive pricing will be present. Investopedia defines competitive pricing as "*setting the price of a product or service based on what the competition is charging.*" AT&T Mobility, Sprint Nextel, Verizon and T-Mobile have resorted to price cutting in the face of an increasingly saturated and competitive market. This strategy is typically used by competitors to set a price for a product or service that has reached a level of equilibrium.

When mobile network operators use competitive pricing to attract customers, the customers reap the benefit of paying a lower price for carrier services and new devices on the market. This may adversely affect profitability for carriers, but they are able to gain and maintain more customers than their competitors. Both customers and carriers are able to see benefits from competitive pricing.

Innovation

Product and service innovations can be a crucial weapon against competitors. Recently, CTIA documents reported that there are at least 33 device manufacturers selling over 630 different handsets in the United States (Faulhaber & Farber, 2010, p. 78). One example of an innovative product that changed the industry is Apple iPhone. "*In the first 30 hours of sales, customers activated 146,000 iPhones. By the end of 2007, approximately 2 million U.S. consumers were enjoying a groundbreaking mobile experience on a brilliant screen with a simple flick of their finger*" (AT&T, 2007).

Software vendors and developers are able to create an application specific to a platform such as the iPhone and sell it for a fee or free to owners of the device. Applications for productivity, emails, games, etc. continue to hold the interest of device purchasers and motivate them to purchase fully capable smartphone devices in order to utilize these applications. Platforms left without popular applications may see a lack of purchases due to incompatibility.

Figure 8 shows the financial performance of the four major carriers in the U.S. from 2006 – 2011. With the exception of Sprint, each carrier has shown growth over the five year period. The wireless telecommunications market is not yet saturated. What this means is there are still new subscribers purchasing a cell phone for the

first time. New customers have made it easy for carriers to see large spikes in growth in the past few years. However, once the market has become saturated, carriers will not see the same trend and growth will be far less each quarter and each year.

Product and application innovation will become the main resources that will boost revenue for carriers and give them an advantage over competitors. Additionally, continuing to innovate infrastructure and services which will provide new capabilities and aid in growing their subscriber base after market saturation.

7. MERGERS & ACQUISITIONS AND ITS IMPACTS

Concentration in Local Markets

Market concentration, sometimes referred to as industrial concentration, refers to the low number of firms competing in a particular market that make up the majority share of the market. When a market is high in concentration there are a few major participants in the market. If two or more of these major participants in the market were to merge, this would produce largely anticompetitive effects on the market and cause a trend towards monopolization of the wireless telecommunications industry.

On May 11, 2011, Senator Herb Kohl stated, *"The proposed merger between AT&T and T-Mobile will bring together two of the four remaining national cell phone carriers to create the nation's largest cell phone network, with an estimated 43% market share. This would significantly increase concentration in ninety-seven of the nation's top one hundred local markets"* (Grunes & Stucke, 2011, p. 54).

According to a survey compiled by the FCC to investigate the possibility of the merger, 99 of 100 local markets would suffer from the anticompetitive effects of this merger ("STAFF ANALYSIS AND FINDINGS," 2011, p. 10). This statistic came from the usage of the Herfindahl-Hirschman Index (HHI) — a widely accepted indication of how competitive a market is.

Efficiencies vs. Synergies

The most common reason behind the decision for firms to merge is the benefit of efficiency gains (Yaylaccigi, 2005, p. 44). It is important to note the differences between efficiencies and

synergies given this context. Synergy, according to dictionary.com, is defined as *"the interaction of elements that when combined produce a total effect that is greater than the sum of the individual elements, contributions"*. In wireless telecommunications industry, synergies would refer to the combination of unique and irreplaceable assets of two firms such as towers or spectrum.

A recent attempt at synergism was seen with the proposed acquisition of T-Mobile by AT&T. AT&T intended to use T-Mobile's resources to expand their coverage to other areas of the United States and build out their 4G LTE network. Figure 12 defines the different types of acquisitions and their objectives. The proposed acquisition of T-Mobile defined as a horizontal merger, which is a merger between two companies in the same industry. AT&T and T-Mobile offer similar services, using similar network technology, and compete for the same customers.

A merger between the two firms would not produce efficiency through synergy because AT&T will continue with its same efforts in the market; it will just have a greater market share and more resources, which will position the company as a monopoly. Also, the other competitors not using GSM technology will give AT&T an additional advantage.

AT&T Proposed Benefits of Acquisition

After the merger was proposed, AT&T and T-Mobile claimed that the acquisition would not have adverse effects on competition in wireless services because T-Mobile USA was not an effective rival of AT&T. They contended they could replace any competition that was lost as a result of this merger because of the efficiencies that would be created would be so substantial they would dwarf any anticompetitive effects on the industry (Besen, Kletter, Moresi, Salop, & Woodbury, 2012, p. 2).

Figure 7 show the market share of AT&T Wireless before and after the proposed merger with T-Mobile. Before the merger, AT&T held a strong second place for market share in the U.S. while Verizon was number one. If the merger were to go through it would boost AT&T past Verizon and further widen the gap between the second and third largest carriers in the nation.

AT&T boasted several benefits to the proposed acquisition of T-Mobile; from improved wireless service for all its customers to the creation of jobs. AT&T claimed it would be able to use T-Mobile towers and spectrum to extend its wireless broadband to consumers across the United States. It also claimed it would spend an additional \$8 billion to grow its wireless network in rural areas despite its pre-merger plan to cover 80% of the population with its move to 4G network technology.

Similarly, such claims were proposed by the local exchange carriers prior to their approved mergers and acquisitions and after the approval the company canceled such plans which had the public interest in mind. For the AT&T-BellSouth proposed merger, the firm committed to providing *"Internet access service at speeds in excess of 200 kbps in at least one direction) to 100 percent of the residential living units in the AT&T/BellSouth in-region territory"* (Bruce Kushnick & Goldman, 2009). The company also claimed it would sell DSL service for \$10 to new customers. However the acquisition resulted in most customers not being offered \$10 DSL and the company never fulfilled their 100% of their territories having broadband capable of 200kbps in one direction (Bruce Kushnick & Goldman, 2009).

AT&T claimed the merger would result in immediate network improvements, however in the report by the FCC, *"the Applicants did not provide the backup materials necessary to verify the engineering analysis of signal quality and 3G roaming improvements from integrating the networks"* (Brunell, 2011, p. 31).

Prior to the SBC-Pacific Telesis acquisition, in 1993 Pacific Bell committed to spending \$16 billion and rewiring 5.5 million homes in California by the year 2000, however in 1997 after the merger closed occurred all previous broadband commitments were cancelled with only a fraction of the money spent and no finished fiber-based homes deployed (Bruce Kushnick & Goldman, 2009).

In the AT&T-T-Mobile merger proposal, AT&T promised the Department of Justice it would bring 5,000 wireless call center jobs back to the United States if the deal were allowed. This claim would assist the U.S economic by providing jobs to its citizens, however the FCC said its staff found AT&T's claims that the deal would create U.S. jobs "to be inconsistent with

AT&T's internal analyses." The company has a history of downsizing after merger, with the company dropping well over 100,000 jobs in the past decade ("Why the AT&T-T-Mobile Merger is Bad for America," 2011, p. 1).

Customer Dissatisfaction

James Cole, deputy attorney general, said in a press conference, *"we feel the combination of AT&T and T-Mobile would result in tens of millions of consumers across the U.S. facing higher prices, fewer choices, and lower quality products for wireless services"* (Goldman, 2011, p. 1).

ne disadvantage customers would experience is the difference in T-Mobile 3G frequencies from AT&T frequencies. Ralph de la Vega, AT&T's head of wireless and consumer services stated, *"The spectrum they [T-Mobile] use for third-generation services, or 3G, will be re-purposed for 4G, which is faster. That would leave current T-Mobile phones without 3G. They would need to be replaced with phones that use AT&T's 3G frequencies"* (DeRuvo, 2011, p. 1). De la Vega assured customers it would be a gradual process and that the switch would occur after contracts were expired and renewed. This transition would happen over time and would not be immediate.

With T-Mobile customers being moved over to a different network over time, and expecting to pay higher prices with new contract installments it can be expected that some customers will move to other carriers simply because of the disapproval they feel over their carrier and plans being replaced if competition exists in the local market they are in.

8. CONCLUSION

Based on my research examining the existing Telecommunications Act of 1996, reviewing the history of mergers and acquisitions in the telecommunications industry, reviewing and calculating HHI numbers, and the literature review of authors researching the state of the industry I have concluded that, in a deregulated market such as the U.S. wireless telecommunications industry, efficient competition is necessary.

Competition will force competing carriers to check-and-balance competitors by keeping them from raising prices too high and motivating them

to conceive innovative ideas to attract and maintain customers. This will cause carriers to differentiate similar services from competitors and by doing so competitors will have no choice but to provide new and inventive wireless solutions that attract new subscribers thus stimulating the economy.

Figure 10 examines the wireless telecommunications industry. It provides the strengths, weaknesses, opportunities, and threats that occur in the industry. By displaying it in this way it is possible to see the current issues in the industry and what is going well in the industry. It also show the potentially threatening aspects that carriers, and consequently the industry, may experience while giving the opportunities carriers and the industry have for future development. Based on this, conclusive discussion, contributions, and implications can be made.

My contribution with this paper focuses on the negative impact of mergers & acquisitions in the wireless telecommunications industry and emphasizing the benefits of competition. Policies should be established to foster and nurture a competitive environment for nationwide and local carriers. A lack of competition in this highly concentrated industry has the disadvantage of monopolization. A company that holds a monopoly in a concentrated industry can control the buying and selling of supplies to that industry thus having an effect on other industries.

To avoid monopolization, not only should nationwide carriers be considered to provide effective competition, regional carriers should as well. Carriers large and small should be able to provide subscribers with similar levels of service in different regions.

From past to present, we have seen how industry-leading companies such as AT&T have held a monopoly in the industry and what kind of affect it's had over other industry participants. It has been the responsibility of the FCC to prevent another industry-wide monopoly by a single company.

With the collapse of the AT&T/T-Mobile acquisition, other carriers still have the opportunity to grow and gain more market share. With Acts such as the one of 1996, accommodations for wireless technologies and competition should be made in a new Act

covering past, existing, and future technologies. With the existence of competition all industry, participants will benefit and we will see the U.S. economy stimulated through purchases by customers and profitability to businesses.

Without recognizing and taking precautions to maintain an effective level of competition in this industry we could see such implications as an impeding of innovation in the telecommunications market. A comparison of industry concentration could be done between the wireless telecommunications industry, having only four major carriers, and the accountancy market having four major forms or the television industry having seven major companies.

Consequently, in the telecommunications industry, we could see a limitation in the availability of handsets for consumers to purchase as well as limited or no service in rural areas. Future research should be in the exploration of polices that will maintain an effective level of competition amongst carriers as well as even the playing-field for local carriers. This will allow for more choices to customers and force competitors to find new ways to distinguish their network, products, and services from others.

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Appendices and Annexures

Figure 7: Market Share Before & After the Proposed Merger

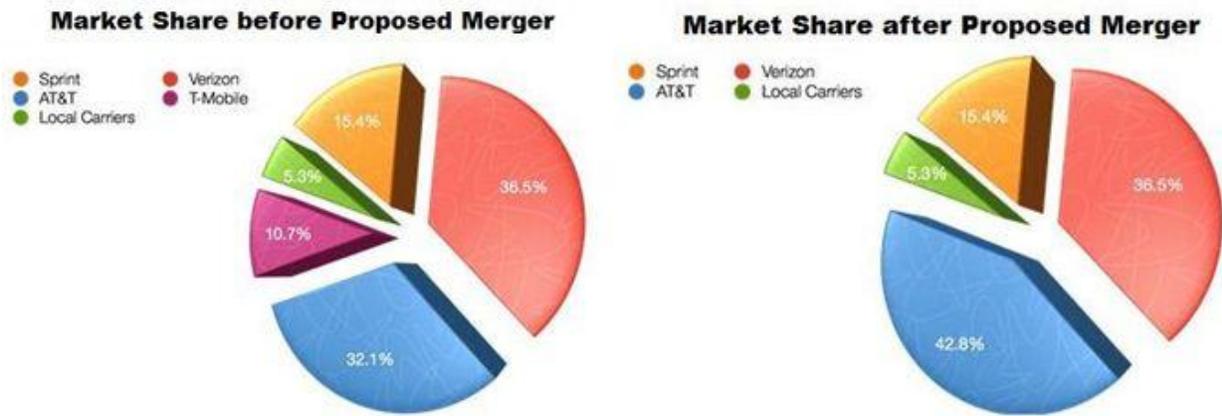
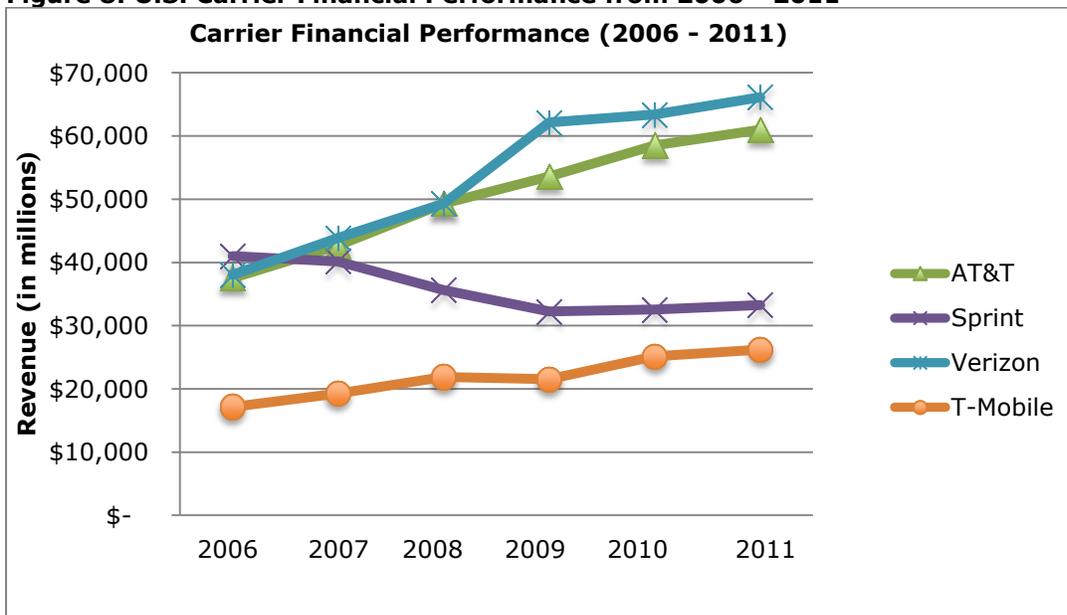


Figure 8: U.S. Carrier Financial Performance from 2006 - 2011



Source: www.IBISWorld.com (Thormahlen, 2011, pp. 31, 32, 34, 35)

Figure 9: Types of Mergers/Acquisitions

Types of Acquisitions	Definition	Objectives
Conglomerate	When two merging companies are in two different industrial sectors.	Synergy arising in the form of economies of scale Cost reduction as a result of integrated operation Risk reduction by avoiding sales and profit instability Achieve optimum size and carve out optimum share in the market
Horizontal	When two merging companies manufacture similar goods and belong to the same industry.	Efficiency gains through economies of scale or market power Transformation from the failing firm's inferior assets to successful rising firms efficiently (Dewey, 1961; Tremblay & Tremblay, 1988) Growth utilization of larger firms via acquisitions (Galbraith; Solow, 1967) Business Cycle (Lynk, 1984; Tremblay, 1985)

Figure 10: SWOT Analysis

SWOT Analysis Wireless Telecommunications			
Strengths	<ul style="list-style-type: none"> • Long Term Evolution (LTE) • Smartphone demand • Application development for mobile devices • Synergism • Convergence of services 	Weaknesses	<ul style="list-style-type: none"> • Concentrated industry • Current regulatory framework • Barriers to entry • Dependency on spectrum • Oligopolistic market division • Poor customer service
Opportunities	<ul style="list-style-type: none"> • Subscriber growth • Increased network coverage • Increased Competition • Mergers and acquisitions • Increased revenue 	Threats	<ul style="list-style-type: none"> • Monopolization or larger carriers • Market saturation • Increased churn for carriers • Limited spectrum availability • Competitive pricing