I

GETTING STARTED IN TELECOM

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TELECOM BASICS

How we communicate today is largely a direct result of the transformation of the Telecommunication Services (i.e., "Telecom") industry. Drums, smoke signals, semaphores, and carrier pigeons are out. Mobile phones, e-mails, and tweets are in. Today, even remote campsites have wireless Internet connections. In developing countries, many people without electricity and running water in their homes still have cell phones! This dramatic increase in access to information has changed the way we live, to say the least. Thanks to modern telecommunications, we now know what is going on globally in real time. So much information can be overwhelming, however, especially when it comes to investing in the stock market. What is noise and what is actually important?

The purpose of this guide is to create a structure and process for investing in the Telecom sector. Also, note this is an *investment* guide to Telecom, not a *technical* guide. We're not going to scrutinize the differences between CDMA2000 and CDMA2000 1xEV-DO. Instead, you will learn what questions to ask and the critical thinking required to understand what makes Telecom likely to perform better

A Little Bird Told Me

People have always sought timely and superior telecommunications to prosper. In 1815, the British surprised the world by defeating Napoleon's army at Waterloo. The news spread slowly from the battlefield, but in London, Nathan Rothschild learned the outcome before anyone else. How? By employing cutting-edge telecommunication—carrier pigeons. When he received the news, Mr. Rothschild bought British government debt securities (which subsequently shot up when the public learned the result of the battle) and added to his family's legendary fortunes.

or worse than the overall market in the period ahead—over the next 12, 18, or 24 months at the outset. By learning the process for forming a forward-looking opinion, you'll also learn to pick what types of Telecom stocks are likely to be best for the prevailing economic conditions, political environment, and market sentiment.

TELECOM 101

These days, the term *telecommunication* often refers to an electronic transmission of signals via telephony, radio, television, etc., but for our purposes, it primarily applies to telephony companies (more on why in the Sector Composition chapter). Telecom firms traditionally sold just landline phone services, but have now expanded their offerings to wireless phones, Internet access, and even television. Providing such services requires tremendous capital investments—just think of the incredible web of phone lines and cell phone towers connecting the whole world. Because of the high costs involved, Telecom firms have historically been either government owned or monopolies and are therefore heavily regulated. However, with time comes change—the speedy pace of innovation and new technologies has driven progressive deregulation in the Telecom sector. Ma Bell (a term referring to the Bell System organization, formerly led by the American Bell Telephone Company and AT&T) is no longer the only player in town, and many firms now compete to provide customers a variety of services.

Thank the French

For millennia, humans have communicated over distances, but it wasn't until the 1930s that the French coined the word télécommunication, from *télé-* "at a distance" + *communication*, obviously, "communication." Although the French typically refuse to tarnish their language with foreign words, the world demonstrated greater tolerance and added the word to its lexicon.

Despite such change and greater diversity in the types of Telecom companies, they all share general characteristics. Typically, firms in the Telecom sector:

- Have defensive characteristics
- Provide services with relatively inelastic demand
- Are capital intensive
- Are heavily regulated

A DEFENSIVE SECTOR

When the broader market rallies, the Telecom sector has traditionally underperformed, but when the broader market falls, Telecom often remains relatively resilient—this is the sector's defining characteristic. And as a typically *defensive* sector, Telecom:

- Typically performs better than the market during bear markets
- Has lower volatility relative to the market
- Usually pays a dividend

Best in a Bear

One could say that in any given year, the stock market can do only one of four things: It can go up a lot, up a little, down a little, or down a lot—a bear market. During a bear market, most sectors, if not all, will fall—even those generally considered defensive (such as Telecom, Health Care, Consumer Staples, and Utilities, for example). Though a defensive sector, like Telecom, may be down on an absolute

Table 1.1 S&P 500 Telecom Versus S&P 500 Composite in Bear Markets

Bear Market Start	Bear Market End	S&P 500 Telecom	S&P 500 Composite	Relative Return
12/31/1961	**06/30/1962**	**–24.9%**	**–22.2%**	**–2.7%**
01/31/1966	09/30/1966	–11.2%	–15.7%	4.5%
11/30/1968	06/30/1970	–25.9%	–29.2%	3.3%
12/31/1972	09/30/1974	–16.2%	–42.7%	26.5%
11/28/1980	08/12/1982	28.4%	–16.7%	45.1%
08/31/1987	11/30/1987	–11.2%	–29.6%	18.4%
07/16/1990	10/11/1990	–7.6%	–19.2%	11.6%
03/24/2000	**10/09/2002**	**–73.9%**	**–44.8%**	**–29.1%**
10/09/2007	03/09/2009	–47.6%	–55.3%	7.6%
Annualized Bear Market Returns		**–23.3%**	**–27.8%**	**4.6%**

Source: Global Financial Data, Inc., S&P 500 Index Total Returns, S&P 500 Telecom Index Total Returns. Closest month-end price from 12/26/56 to 8/30/89; daily data from 9/11/89 to 3/9/09.

basis, it's also more likely to outperform the market on a relative basis. As an example, the broad market might fall 30 percent in a bear market, but a defensive sector might be down 10 percent—which is a positive 20 percent relative spread.

Table 1.1 shows annualized returns for the S&P 500 and the S&P 500 Telecom Sector during the last nine bear markets. (Though we generally encourage you to think globally, we are using US stock data here because we have more historical sector-specific data. Also, because the US stock market is large and well diversified, it can at times serve as a useful proxy for global stocks.) Telecom has underperformed the broad market only twice during a bear market—in 1962 and the 2000–2002 bear market. Most times, Telecom outperformed during a bear.

However, Telecom's limited sensitivity to a booming economy means Telecom has underperformed in six out of the eight last bull markets (shown in Table 1.2). Again, note that in a bull market, Telecom can rise too, but probably not as much as the broad market. Here, we are focusing on the performance relative to the broad

Table 1.2 S&P 500 Telecom Versus S&P 500 Composite in Bull Markets

Bull Market Start	Bull Market End	S&P 500 Telecom	S&P 500 Composite	Relative Return
06/30/1962	01/31/1966	*37.1%*	*89.6%*	*–52.4%*
09/30/1966	11/30/1968	*21.9%*	*51.6%*	*–29.7%*
06/30/1970	12/31/1972	*51.3%*	*75.6%*	*–24.3%*
09/30/1974	11/30/1980	*87.3%*	*195.2%*	*–107.8%*
07/31/1982	**08/31/1987**	***288.2%***	***278.3%***	***9.9%***
11/30/1987	07/16/1990	*57.8%*	*75.7%*	*–17.9%*
10/11/1990	03/24/2000	*447.6%*	*546.2%*	*–98.6%*
10/09/2002	**10/09/2007**	***171.1%***	***110.4%***	***60.7%***
Annualized Bull Market Return:		**18.0%**	***21.7%***	***–3.7%***

Source: Global Financial Data, Inc., S&P 500 Index Total Returns, S&P 500 Telecom Index Total Returns. Closest month-end price from 12/26/56 to 8/30/89; daily data from 9/11/89 to 3/9/09.

market. And there have been notable periods when Telecom has significantly outperformed, even during a bull market. Understanding the Telecom sector can help investors identify those periods and determine how to optimally position their portfolios.

Bear Market Telecom Bets

Telecom has fairly consistently outperformed during bear markets and underperformed during bull markets. Consider this: Absent taxes and trading costs, if you'd invested $1 million in the S&P 500 Composite in 1962, you'd have earned approximately $72 million by the end of 2009.[1] However, if you'd played defense by putting your entire portfolio in the Telecom sector during every bear market, you'd have approximately $122 million. That's a whopping $50 million more![2]

Sounds great! Except such a move is likely foolhardy for most investors. It's extraordinarily difficult to call the top and the bottom of a bear market precisely and even more difficult to do so with any degree of consistency. Plus, putting your entire portfolio in one sector is a massive bet that, should you be wrong, could seriously harm your relative performance for years to come. (For more information on forecasting bear markets, see Ken Fisher's *The Only Three Questions That Count*.)

Because bull markets tend to be longer and stronger than bear markets, the Telecom sector has often lagged the market for considerable periods of time. But its value as a defensive sector is reason enough to not ignore Telecom.

Low Volatility

Another characteristic contributing to Telecom's defensive nature is the sector's historically lower volatility relative to the market.

Why is understanding volatility so important? When investing, it is paramount to understand not only potential returns or rewards, but risks too. If we take more risk, we expect to earn a higher rate of return. But how best to assess risk? Although the best method for computing risk is fiercely debated, the most common method and the one we will use is an investment's historical volatility, or *beta*. Beta describes a given stock's (or sector's) historical returns in relation to the returns of the stock market as a whole. A beta of less than one means the stock tends to be less volatile than the market, whereas a beta of more than one indicates the stock tends to be more volatile than the market.

Figure 1.1 shows the beta of the MSCI World Telecom Sector in relation to the MSCI World Index over rolling five-year periods. Over the last 35 years, Telecom's average beta has been 0.71—one of the lowest-beta sectors, along with other traditionally defensive sectors like Utilities, Health Care, and Consumer Staples. Theoretically, this means if the MSCI World Index moves up (or down) 10 percent, the Telecom sector tends to move up (or down) 7.1 percent.

Figure 1.1 shows Telecom has historically been much less volatile than the market, with the exception of the dot-com and telecom madness in the late 1990s that ended dramatically in 2000. Even more striking is Telecom's upward sloping trend line, which has been increasing since the early 1980s. (Bookmark this page. By the time you've finished reading this guide, you should be able to apply your knowledge of things like high inflation in the late 1970s and regulatory trends to hypothesize what caused major moves on this chart. By understanding the past, we can hope to be more proficient at forecasting the future.)

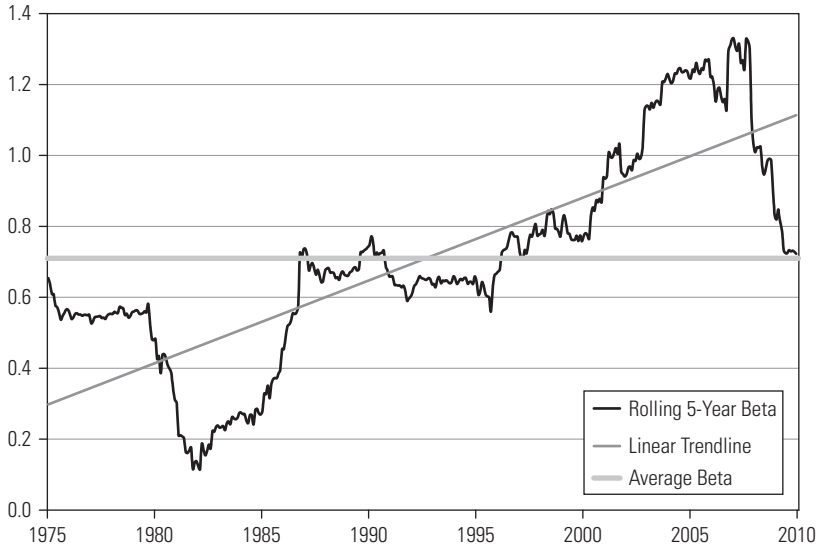

Figure 1.1 Telecom Sector Beta Relative to MSCI World Index (12/31/74–12/31/09)

Source: MSCI Original Classification Sector Index from 12/31/1969 to 12/30/1994, MSCI, Inc.,[3] MSCI World Index from 12/31/69 to 12/31/09. Beta calculated using rolling five-year monthly total returns.

Although Telecom again proved its defensive nature in the recession of 2007 to 2009 when its beta fell back to its historical average, the progressive deregulation over the last couple decades has likely increased competition within the sector, as well as overall volatility. Moreover, Telecom services like mobile phones, Internet access, and television may be more discretionary in nature than the traditional landline, contributing to more volatility in companies' performance.

Low volatility helps the sector outperform during a bear market, but it has uses in all market conditions as well. Blending components that move differently—i.e., have different degrees of volatility—is a standard diversification tactic. And diversification in any market condition is a smart risk management strategy.

High Dividend Yields

Telecom firms also tend to have fairly high, stable dividends, which is another common characteristic of classically defensive sectors. As

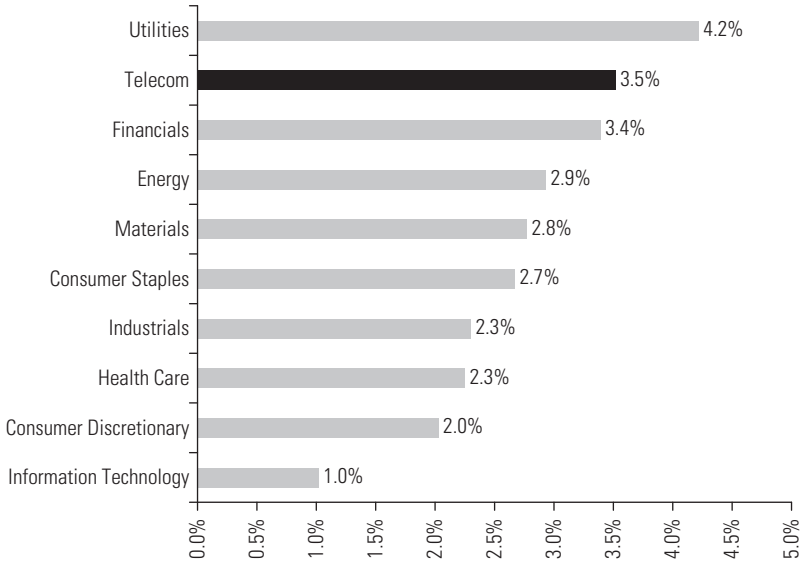

Figure 1.2 Sector Dividend Yields

Source: Thomson Reuters, MSCI Inc.,[4] annualized yield from 12/31/99 to 12/31/09.

Figure 1.2 illustrates, over the last decade, Telecom has provided a higher dividend yield than every sector other than Utilities.

A dividend represents a return of profit to shareholders. Some firms pay dividends, others don't, preferring to reinvest profits into firm growth—neither necessarily results in better or worse total return over time. Because Telecom companies have relatively steady cash flows and historically limited growth opportunities, they tend to distribute profits through dividends rather than reinvesting profits. Many investors like the perceived safety of higher dividends, which helps contribute to greater demand for Telecom during economic downturns and bear markets.

But keep in mind: While many investors consider dividends to be safe, this is perception only. (Though in the near term, perception—i.e., sentiment—can be a powerful demand driver.) Dividends are not a guaranteed source of income. Dividends are only as good as a company's fundamental business prospects because a company can't pay a dividend if it is unable to generate sufficient capital to do so. (Many investors will

Dividends and Taxes

One of the most important factors in determining the value of dividends is tax policy. Although different investors have different tax considerations, dividends may be taxed at a different rate than normal income or long-term capital gains. When tax rates change, it could materially affect the value of dividends relative to other forms of income. Further, tax policy can influence whether a firm chooses to pay a dividend and how much.

remember well when numerous firms slashed their dividends or stopped them entirely during 2008.) Moreover, while an 8 percent dividend yield may sound attractive, a higher dividend yield is often reflective of a riskier stock—or a perception that the dividend might be cut.

Instead of focusing on dividend yield, investors should care about *total return*—price appreciation plus dividends accrued. But specifically during market downturns, a sector's dividend yield can influence investor demand.

INELASTIC DEMAND

Telecom has tended to be a low-risk, low-reward sector. But what is it about Telecom that makes its shares so resilient during a downturn, less volatile than the market, and allows its firms to pay stable dividends? Generally, the key to stable share prices is stable cash flow and earnings. From year to year, Telecom firms are able to generate relatively consistent—albeit relatively low—earnings growth. This is largely due to relatively inelastic demand, capital intensity, and regulation of the Telecom industry.

Basic utilities like water, electricity, and gas are difficult for consumers to give up. Phone services aren't far behind. Even when they become less affordable (e.g., prices rise or incomes fall), it's difficult to adjust consumption without having a significant negative impact on daily life. For example, even if you lose your job, you're likely going to keep your phone service—you need to be able to answer the phone

when that next job comes calling. In economic terms, this makes demand for basic telecom services *inelastic*.

This has three important implications. First, it means demand for telecom services isn't as economically sensitive to income growth or economic activity as more discretionary sectors (like Consumer Discretionary, Energy, or Materials). In fact, over the past two decades, the percentage of household spending committed to communication services versus other budgetary items has increased. Despite the increase, communication services still accounts for only 2.2 percent of household budgets in the US—a level still relatively affordable.[5] Although an economic downturn would reduce the number of businesses and employees who need phones, demand is usually much less impacted than it would be for durable goods like new cars or washing machines. This is another important factor that improves Telecom's relative resilience during an economic downturn.

Second, it means that Telecom firms, if unchecked by regulation and competition, could significantly raise prices without reducing consumption much.

Third, the essential, irreplaceable nature of telecommunications means the government has a big interest in ensuring the population gets reliable, cost-effective service from Telecom firms. Without telecom services, businesses can't function, people can be economically and socially unhappy, and politicians will likely lose their jobs. And because politicians really don't like losing their jobs, the government often takes an active role in regulating the sector (though this doesn't necessarily have the intended effects of improving reliability and reducing costs for consumers).

A CAPITAL INTENSIVE SECTOR

Capital intensity refers to how much fixed capital investment is required in the production process—and few businesses require more fixed capital investment than Telecom firms. A tremendous amount of upfront investment in equipment and infrastructure is required before a Telecom firm can provide services and start generating revenue.

Moreover, in order to offset declining per-minute calling prices and increase company sales, Telecom firms must spend to adapt to rapidly changing market conditions and new service offerings. Fixed line providers need to increase fiber-optic infrastructure, and wireless companies are continually upgrading to offer higher speed data services. In 2007, Organisation of Economic Co-operation and Development (OECD) telecommunications investment reached $185 billion![6]

Figure 1.3 shows fixed asset investment relative to annual revenue—in other words, how much in fixed asset investment is required to drive a dollar of revenue. Telecom is currently second among the standard sectors—requiring about $2 in fixed asset investment for every $1 in annual revenue.

Capital Market Dependence

Because telecoms are required to make large capital outlays, which can take years to generate any revenue, they are highly dependent on

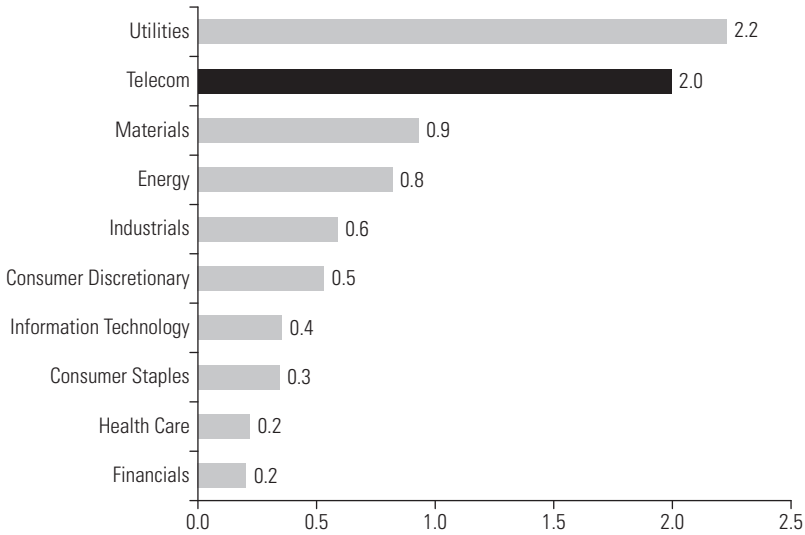

Figure 1.3 Fixed Asset Investment to Annual Revenue

Source: Standard & Poor's Research Insight®,[7] 12/31/09. Fixed Assets calculated as Property, Plant & Equipment plus Accumulated Depreciation.

investors to provide long-term financing. There are basically two ways to do this: issuing stock or issuing bonds.

Since Telecom firms usually trade at low earnings multiples (low P/E ratios), so issuing stock is often unattractive—it may not be worth diluting earnings if you receive a low valuation for each share you sell. Issuing debt is often more enticing—Telecom companies tend to have much more stable, predictable earnings than most companies, there is less risk of default, and they can therefore borrow at lower interest rates. Furthermore, issuing bonds has a benefit: Interest payments are tax-deductible, which can help offset the taxes paid on profits returned to shareholders via dividends. However, as a company issues more debt, the risk the company won't be able to make its interest payments increases. If a firm issues too much debt, its credit rating may be downgraded by ratings agencies, and it could become more challenging for the company to obtain financing. Nevertheless, due to their stable businesses, Telecom companies are usually able to have significantly more leverage than most sectors.

Economies of Scale

Heavy infrastructural requirements and their considerable financing expenses lead to high fixed costs for the industry. In other words, whether AT&T is servicing one client or a thousand, a lot of its costs (e.g., its interest expense) will stay the same. This creates tremendous *economies of scale*, meaning telecoms can significantly reduce their average per-unit costs by increasing customers and distributing their fixed costs across a greater number of subscribers. Said another way, assuming the same level of service, each new subscriber will be more profitable than the last. If telecoms aren't maximizing their *capacity utilization*, they aren't providing their services at the lowest possible cost or maximizing their profit potential.

REGULATION

For most of its modern existence, the Telecom sector has been the subject of heavy government regulation. In fact for much of the twentieth

century, many of the world's largest Telecom companies were owned by governments outright. Even today's publicly traded telecoms tend to have high government ownership, which begs the question: Why does the government play such an active role in the Telecom sector?

Regulatory intervention has been necessary to transform monopolistic telecommunication markets into competitive ones. The high capital intensity of Telecom has acted as a barrier to entry for competition. In order to ensure monopolies do not abuse their dominant position, extensive regulation has been required to ensure the sector functions as reliably and cost-effectively as possible. Also, as previously mentioned, regulation reflects the essential and irreplaceable nature of telecommunications. Without communications, economies—and likely the incumbent governments—would collapse, providing governments with a very strong incentive to regulate the industry.

Today, most Americans can afford a mobile phone, which costs practically nothing compared to the first cell phone (which cost $3,995 when it debuted in 1983—and was the size of a shoebox. Over time, new technologies have made traditional services cheaper and new services available at reasonable costs. In this way, technology has helped deliver the market conditions regulators have sought and has therefore made possible a policy of progressive deregulation in the Telecom sector.

In general, progressive deregulation has increased competition and expedited the commoditization of telecom services. The result has been customers in both fixed and mobile telephony have greater bargaining power, which led to better services and prices and diminished the need for heavy government regulation. Over the past couple decades, the Telecom sector has increasingly begun to resemble other industries, in which companies are able to compete not only domestically, but internationally.

The Goal of Telecom Regulators

The objectives of regulators differ from one country to another. But in general, they all view telecommunications as an essential public service and therefore seek a regulatory environment conducive to a

Investing Without Emotion

The role the government should play in the economy is perhaps one of the most hotly contested issues of all time—and the Telecom sector has often been at the center of the debate. However, investors are usually best served by focusing not on how they think the sector *should* be regulated, but on how it actually is regulated and the likely impact on investment performance.

myriad supply of services. Some of the widely accepted regulatory objectives are to:

- Promote universal access to basic telecommunication services
- Foster competitive markets to promote efficient supply of services, quality, advanced services, and efficient prices
- Prevent abuses of market power
- Create a favorable climate to promote investment to expand networks
- Promote public confidence
- Protect consumer rights[8]

Regulation, Risk, and Reward

Usually, the more vigorously regulated a Telecommunications company, the less opportunity it has to earn outsized profits and generate large returns for shareholders. However, a highly regulated company often faces no competitive pressure or price fluctuations for its products and can usually count on fairly stable earnings, limiting the risk for investors.

There are pros and cons of regulation—for both consumers and investors. By limiting the risk for investors, regulation theoretically lowers the cost of capital for Telecom companies, allowing the savings to be passed on to consumers. But if a telecom is highly regulated and almost guarantees a return on its investments, it has little incentive to operate efficiently and may make investments that are entirely unnecessary. This can significantly raise costs for consumers.

Understanding the manner and degree to which Telecom is regulated is critical to investors. In Chapter 4, we delve into Telecom regulation in more depth.

Public Policy Shifts

It's often changes in regulations that have the biggest impact on the Telecom sector and company share prices. As political sentiment shifts from the right to the left and back, public policies can also shift dramatically.

When the government decides to change the rules, it usually creates winners and losers, making it important for Telecom investors to be acutely aware of the political environment. But it is difficult to determine if, when, and how public policy will change—and equally difficult to figure out exactly how it will affect the sector: Which companies will be winners and which companies will be losers?

Due to the progressive nature of deregulation in Telecom and the uncertainty it creates, the sector's composition and drivers will be examined in detail to increase our chances of identifying which investments may be best positioned for the future.

Chapter Recap

You've now been introduced to some of the fundamental characteristics of the Telecom sector. In later chapters, we build upon many of the concepts presented here, including the following:

- The Telecom sector is highly defensive and tends to perform best on a relative basis during bear markets.
- Telecom has generally been a low-growth, low-return sector due to the maturity of the industry and regulation. As a result, Telecom tends to return a large portion of its income to shareholders via dividends.
- Due to high capital costs and network infrastructure requirements, elevated debt and barriers to entry have almost always existed.
- Because telecoms have often been state-owned or monopolies and provide essential services, government regulation has been heavy.
- Technology has helped drive deregulation, which can have a major impact on the sector.